Frequency and correlation Survey of gram negative bacteria isolated from blood and urine samples of patients referring to Besat Hospital in Sanandaj City during 2015-2016

Danial Khezri1, Nooshin Abdolmaleki2, Hajar Kashefi3, Samaneh Rouhi4, Shima Rahmati4

1-Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran.
2-Cellular and Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran.
3-Social Determinants of Health Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran.
4-Cellular and Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran.

Background: Bacteria are the most important microorganisms in the development of human infections. Today, the existence of an infection control committee in each hospital and the monthly monitoring of bacterial species, as well as the frequency and antibiotic resistance level, are necessary. In this regard, the present study aimed to investigate the frequency of pathogens isolated from patients and determine their antibiotic resistance.

Materials and Methods: This descriptive-analytic study was performed on 1692 patients referred to Besat Hospital in Sanandaj, Kurdistan Province, Iran during 19/1/94 to 9/21/95. The bacterial identification of patient's blood and urine specimens was performed by conventional laboratory methods and antiobogram test by disc diffusion method. For statistical analysis, frequency estimation method and SPSS 16 software and ANOVA were used (p <0.05)

Results: The results of this study showed that 1302 strains of gram negative bacteria belonging to 19 genera were isolated from blood and urine specimens of all patients during this one year. The most frequent strains were E. coli 964 (74.03%), Enterobacter 134 (10.29%), Klebsiella 65 (4.99%), Acinetobacter 41 (3.14%), Stonutromophonase Maltophila 29 (22.2%), Pseudomonas 13 (0.99%), Citrobacter 13 (0.99%), Saraia 11 (0.84%), Enterococcus sp. (8.6%), Pseudomonas aeruginosa (4) 30%), unusual gram negative negatives (4.30%), Moraxella 4 (30.0%), Proteus 3 (0.23%), Enterococcus faecalis 2 (0.15%), Enterobacter aerogenes 2 (0.15%), Salmonella 2 (0.15%), Salmonella typhimurium 1 (0.07%), Shigella 1 (0.07%) and Moragasla 1 (0.07%). There was no significant relationship between the type of specimen (Edra and stool) and the type and strain of isolated bacteria (p <0.05)

Conclusion: Given that blood and kidneys are vital organs of the human body, administration of appropriate antibiotics to treat and prevent the outbreak as well as the systemic distribution of these bacteria in the patient's body is essential

Key words: Gram Negative Bacteria, Antibiotic Resistance, Blood, Urine
PB-002

Microtiter plate assay as standard method to assessement of vancomycin-resistant Enterococcus faecium biofilm formation

Saber Soltani¹, Mohammad Reza Pourmand²

¹, ². Department of Pathobiology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

Abstract

Background: microtiter plate assayas standard method was frequently used for studying of bacterial biofilm production. The present study was aimed to determine the ability of vancomycin-resistant Enterococcus faecium isolates in formation of biofilm.

Methods: A total of 29 isolates of E. faecium were collected from patients hospitalized at Ahvaz educational hospitals. Biochemical and molecular techniques were used to identify vancomycin-resistant E. faecium isolates. The Microtiter plate method was also used to evaluate the ability of biofilm formation.

Results: All 29 isolates were resistant to vancomycin and 82.7% of them were also biofilm producers. The rate of isolates with strong, moderate, weak and none biofilm formation was 13.79%, 51.72%, 17.24% and 17.24%, respectively.

Conclusion: The microtiter plate assay can be used as a rapid, simple, reliable and standard method to screen for differences rates in biofilm production between E. faecium. As shown in the results, there is an association between vancomycin resistance and biofilm formation among isolates.

Key word: Microtiter plate assay, Biofilm, Vancomycin-resistant E. faecium
شناسایی گونه‌های باکتریایی آلوده کننده کیست‌های هیاداتیک در شهرستان ازنا

مهروش بیات
[bayat.mehrnoosh@yahoo.com]

دکتر فرزاد پارسا

دکتر محسن میرزایی

مقدمه:
کیست‌های هیاداتیک مرحله‌ای از انگل‌کرانوکوکوس گرانولوزوس است که در اعضای دام‌دار و حیوانات وحشی یافت می‌شود. کرم‌ها در سطح درمانگاه‌های بیماری به ویژه سگ‌ها و کاماریها منتقلی می‌شود. این آنگل‌کرانوکوکوس و همچنین خود آنگل‌کرانوکوکوس به‌طور هم‌زمان از طریق روش‌های مختلف به جامعه منتقل می‌شود. در بعضی ناحیه‌ها این امیل‌ها به شکل می‌گذرد. هدف از این مطالعه شناسایی گونه‌های باکتریایی آلوده کننده کیست‌های هیاداتیک در شهرستان ازنا می‌باشد.

مواد و روش کار:
با مراجعه به کتابخانه شهرستان ازنا دانام‌ها از نظر وجود کیست‌های هیاداتیک برسی شدند. در دام‌های آلوده، عضوی مبتلا، باروری با عمق بودن آن، وجود آلودگی باکتریال در کیست مشخص گردید. در کیست‌های آلوده پس از کشت مشابه، کیست‌های میکروبی کشت آوری می‌شود و به دسته‌بندی و نام‌گذاری می‌رسد. در نهایت با استفاده از روش‌های مولکول‌بندی نیک‌ری، کیست‌های هیاداتیک شناسایی شدند.

نتایج:
از پنجاه کیست (40 کیست کبیدی و 10 کیست ریوی) مورد مطالعه، 33 مورد از آلودگی باکتریایی مثبت گزارش شدند. با توجه به مولکول‌بندی باکتریال و با استفاده از روش‌های مولکول‌بندی، باکتری‌های ارشیدپیک‌لیر، سیتیروبکتریا، و استافیلوکوکوس گردیدند.

واژگان کلیدی: آلودگی باکتریایی کیست‌های هیاداتیک، کیست‌های هیاداتیک، انگل‌کرانوکوکوس گرانولوزوس
مقدمه: امروزه امنیت نگهدارنده های شیمیایی مورد استفاده در لوازم بهداشتی توسط تعداد زیادی از صنف کنترول مورد سوال قرار گرفته است. مواد نگهدارنده استفاده شده به طور سنینی اغلب باعث تحریک پوست می شوند و منجر به واکنش های آلرژیک می گردند. تولید مواد ضد عفونی کننده گیاهی با اثر بالا و قیمت پایین، از ضروریات مسلم بهداشتی می باشد که لازم است با کمک علم پیوندکاری تجربیات افراد در این مطالعه اثر اساس رقیق شده آویشن روی باکتری عامل آلودگی شامپو بررسی می گردد.

مواد و روش ها: حساسیت اشرفی شاکیبی به اساس رقیق شده آویشن نشین داد که اسینس مورد استفاده نخونب قیدر نه کن رل نیک ری در محیم شیمپو مب شیمپو مب نشین داد. لذا مطیلعی In-Vivo نرای دس یینب نه مطالعه مورد اس فیده جهت اس فیده ت یری پیشنهید مب گرد. کلمات کلیدی: اساس رقیق شده آویشن، نگهدارنده آلودگی میکروبی، شامپو
Antibacterial effect of *Nectaroscordum tripedale* Hydroalcoholic extract in clinical and standard strains of *Pseudomonas aeruginosa*

F. Abbasloo (Student Research Committee, Yasuj university of medical sciences, Yasuj, Iran)
F.abbasloo.mic@gmail.com

Seyed Abdolmajid Khosravani (Cellular and Molecular Research Center, Yasuj University of Medical Sciences, Yasuj, Iran)

Introduction: Burn wound is a suitable site for the development of resistant to infections. *Pseudomonas aeruginosa* is one of the most common bacteria producing these infections. Nowadays, researchers are seeking an alternative to antibiotics, in which medicinal plants are a major contributor to treatment. Therefore, in this study, the antibacterial effect of *Nectaroscordum tripedale* hydroalcoholic extract in *Pseudomonas aeruginosa* samples was investigated.

Materials and Methods: In this study, the MIC (Minimum Inhibitory Concentration) and MBC (Minimum Bactericidal Concentration) of *Nectaroscordum tripedale* Hydroalcoholic Extract were determined in clinical and standard strains *Pseudomonas aeruginosa*. Finally, cell survival was evaluated using MTT assay.

Results: The MIC of the *Nectaroscordum tripedale* hydroalcoholic extract in the standard PAO1 and clinical strains were 12.5 and 25 μg / ml respectively. MBC was also found in standard strain of 25 μg / ml and in clinical strains of 50 μg / ml.

Conclusion: In general, the results of the study showed that *Nectaroscordum tripedale* hydroalcoholic extract has antibacterial effect against *Pseudomonas aeruginosa* bacteria. Therefore, its use can be used to treat infection caused by this bacteria.

Keywords: *Pseudomonas aeruginosa*, *Nectaroscordum tripedale*, Antibacterial
Antimicrobial Activity of Lactobacillus spp Isolate From Human Milk against hospital , enteropathogenic and food-borne pathogens
Alizadeh . H *¹ , Amini fazl . A²
1-* Rooyana Laboratory, Saghez , Kurdistan, Iran
2- Assistant Professor, Microbiology, Department of veterinary, Islamic Azad university, Mahabad branch, Iran

Corresponding author's email : Rooyanavetlab@Yahoo.com

Introduction and Objective:
Human breast milk consists of high amounts of necessary nutrients for infants, including carbohydrates, essential fatty acids, proteins, vitamins and minerals, due to this has been recognized as the gold standard of infant feeding. Moreover, it is also rich in various bioactive compounds which promote the maturation of immune system as well as develop body’s defense against infections. Among these bioactive agents, probiotic bacteria were isolated from human milk. The main aim of this study was Isolation, characterization of Lactobacillus spp isolated from the Human milk and Determination of probiotic potential , Antimicrobial activity against hospital , enteropathogenic and food-borne pathogens including salmonella , E.coli , shigella , Bacillus Cereus , staphylococcus areus and pseudomonas spp(previously isolated in our division) and Aflatoxin B1 detoxification potential .

Materials and Methods:
Human milk and colostrum used for this study Collected from voluntarily healthy mothers were selected with a period of 1 to 4 months after giving birth, between the ages of 24-38 years. samples collected in sterile flasks and transported to the Rooyana Laboratory in refrigerated containers under cold line (15 °C). samples cultured in selective MRS media and incubated under anaerobic condition at 37°C for 48 - 72 hours. Three to four colonies of each culture were selected for further characterization. Identification of Lactobacillus isolates was performed by biochemical [Gram stain, catalase, fermentation of carbohydrates, hydrolysis of arginine, gas (CO2) production from glucose and growth at different temperatures(15°C, 45°C)] and 16S rRNA gene sequencing methods. And assessed For probiotic potential properties including acid and bile resistance, Adherence to HT-29 cells and antibiotic resistance. An agar well diffusion assay was used for detection of antimicrobial activity of Lactobacillus isolates against salmonella, E.coli, shigella, Bacillus Cereus, staphylococcus areus and pseudomonas spp. The toxification of aflatoxin by lactobacill spp isolate was quantified by Elisa method. Statistical analyses were performed with SPSS software (version16.0, SPSS). One-way ANOVA (Analysis Of Variance) with post-hoc Tukey HSD (Honestly Significant Difference) was used for statistical analysis. Results were regarded as statistically significant at p< 0.05

Result: We identified five species of Lactobacillus (fermentum, acidophilus, rhamnosus, brevis, paracasei). All Isolate showed good probiotic potential. The majority of the strains exhibited antagonistic activity towards Bacillus Cereus, salmonella, E.coli, shigella, staphylococcus areus and pseudomonas spp respectively and binding to aflatoxin B 1 effectively.

Conclusion: Lactic acid bacteria were isolated from human milk showed tolerance to bile salt, organic acid production and antimicrobial activity against some indicator microorganisms. Breast milk probiotics to infant formulas could be a new alternative to mimic some of the functional effects of human milk in children who are not breastfed. Lactobacillus strains with good probiotic potential could be isolated from breast milk and breast milk as a source of probiotic bacteria with bacterioteraphy approach. Future research work regarding clinical studies for human health, strain stability, bacteriophage resistance, viability in products, antibiotic resistance should be carried out.

Keywords: Probiotics, Antimicrobial Activity, lactobacillus, human milk.
The investigation of antibiotic resistancy in gram negative organisms and impact of nosocomial infections on society

Elham Sheykhsaaraan\textsuperscript{1,2}, Mahin Ahangar Oskoui\textsuperscript{1}

\textsuperscript{1}Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

\textsuperscript{2}Students’ Research Committee, Tabriz University of Medical Sciences, Tabriz, Iran

Background: Prevalence of nosocomial infections is getting rise, these infections are caused by \textit{enterobacteriaceae}, \textit{asintobacter humani}. \textit{Pseudomonas aeruginosa} has been isolated from burn wounds more than other organisms. Most of these infections are pneumonia, UTI and blood stream infections.

Methods: Studying of a large number of investigations, conducted in this field, indicate an increasing rate in the resistance to drugs in nosocomial infections caused by these organisms. The mechanisms for resistancy and effective drugs are also investigated.

Results: The expansion of the resistance to new drugs is more than quickly from their discovering. 5-10\% of patients are infected by nosocomial infections which caused by one or more organisms. Treatment failure lead to some dangers for patient and even the community for several years. ICU hospitalized patients and neonates are vulnerable to these infections. These groups counteract to several infections which is the factor for resistance to many antimicrobial agents. 70\% of infections are caused by organisms which are resistant to many of antibiotics. Enviromental factors such as food and water which the organisms are scattered in, and resistance genes can be transferred by mobile genetic elements. These elements are important spreading factors.

Conclusion: By recognizing of these resistance mechanisms, it can be minimized resistancies against effective drugs such as aminoglycosides, fosfomycin, tigecycline to do not lose their efficacy. The use of carbapenems also is high in infections treatment, so understanding of resistance mechanism is crucial. Due to high death rate in burn wounds and blood stream infections, the developing of systematic and orderly program by the health organization of states retains millions of lives in all over the world annually.

Key words: Antibiotic resistance, Nosocomial infections, Gram negative organisms
PB-008
Determine antibiotic resistance model and identify methicillin-resistant Staphylococcus aureus (MRSA) in clinical isolates
حسين عفت بناه

Abstract
Nosocomial infection, especially treatment-resistant forms is a serious problem in the health system and can impose much cost on countries’ the health sector. The purpose of this study is to determine antibiotic resistance model and identify mecA gene in clinical isolates of Staphylococcus aureus. In this cross sectional study conducted in September and October 2016, 96 negative and positive coagulase staphylococci isolates were collected from clinical, environmental and personnel samples in wards CCU, dialysis, surgery and internal of Hazrat Ali (AS) Hospital in Asadabad, west of Iran. Antibiotic susceptibility model of the isolates were examined by 5 antibiotic discs and the minimum inhibitory concentration of antibiotic oxacillin was used on Mueller Hinton agar, after extracting DNA PCR test was used for methicillin-resistance gene for Staphylococcus aureus. Among 96 isolates collected, 65 isolates were Staphylococcus coagulase negative and 31 isolates were Staphylococcus aureus of which 8 isolates (25%) were mecA gene productive. The highest resistance rate was related to antibiotic oxacillin (8 isolates) and the lowest resistance rate was related to antibiotic trimethoprim-sulfamethoxazole (zero). In none of the isolates, no strain was reported as MDR. The results indicate that the prevalence of Staphylococcus aureus was significant in nosocomial samples and resistance to methicillin is increasing in the bacteria strains.

Keywords: Staphylococcus aureus, antibiotic resistance, mecA gene
Molecular study of plasmid genes Ampc of *Acinetobacter baumannii* isolated from clinical cases using Multiplex PCR

Sajad Fekrijaski 1, Mohammad Javad Soltani Banavandi 2, Kumarss Amini 3, Marziye Yazdanpanah 4, Gholamali Javadan 5

1- Infectious and Tropical Diseases Research Center, Hormozgan Health Institute, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

Email: sajadfekri@yahoo.com

2-Assistant Professor, Department of Microbiology, Kerman Branch, Islamic Azad University, Kerman, Iran. Email: mj.soltani@yahoo.com

3-Assistant Professor, Department of Microbiology, Saveh Branch, Islamic Azad University, Saveh, Iran. Email: dr_kumarss_amini@yahoo.com

4- Infectious and Tropical Diseases Research Center, Hormozgan Health Institute, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

Email: Marziyey7@gmail.com

5- Minimally invasive surgery research center, IUMS, MD, PhD of Nutrition, assistant professor of IUMS

Email: javdan.gholamali@gmail.com

**Background:** *Acinetobacter baumannii* is an opportunistic pathogen and the cause of nosocomical infecteion. This bacteria because of the ability to acquire antibiotic resistance, remains persistant in the environment for a long time and makes the eradication of this bacteria difficult. The aims of this study were to identify the *ampC* plasmid-mediated genes and antibiotic sensivity of *Acinetobacter baumannii* strains isolated from different infections.

**Methods:** 60 strains of *Acinetobacter baumannii* isolated from wound, urine, blood, respiratory secretions were collected and confirmed by biochemical tests. The presence of *ampC* plasmid-mediated genes including FOX, MOX, DHA, ACC and CIT were evaluated by Multiplex-PCR. Antimicrobial susceptibility testing against 5 antibiotics was performed for all of the isolates.

**Results:** All of the 60 was identified as *Acinetobacter baumannii* based on biochemical tests. Multiplex-PCR results showed 39 samples (65%) had the CIT gene, 36 samples (60%) had the DHA gene, 12 samples (20%) had the MOX gene and 8 samples (13.3%) harboured ACC and FOX genes. Based on antibogram results the most resistance was to cefepime (95%) and the most resistance was to gentamicin (45%). The results of this study showed the high percentage of *ampC* plasmid-mediated genes and also high prevalence of antibiotic resistance in *Acinetobacter baumannii* isolated from different infections.

**keywords:** *Acinetobacter baumannii*, antibiotic resistance, *ampC*, Multiplex-PCR.
طراحی کیت تشخیص مولکولی آپتامر در تشخیص سپسیس بر اساس پروکلسیتونین

مهدی فصیحی رامندی، ی عباس عبداللهی، 2 سهیل نجفی پور

1 مرکز تحقیقات میکروبیولوژی کارکی، دانشگاه علوم پزشکی بهاء الله (جع) تهران، ایران
2 گروه میکروبیولوژی، دانشگاه علوم پزشکی بهاء الله (جع) تهران، ایران

سپسیس در اثر عفونتهای باکتریالی ایجاد می‌گردد و موثر اکتشال حاد در علل ناشی از سپسیس باعث ایجاد نارسایی در کاهش می‌شود که این اثرات می‌تواند سبب فلج و فشار در عروق و ریانه‌ها شود. به‌طور کلی، پروکلسیتونین (PCT) نوعی پروهورمون کلسترول است که طراحی می‌شود و در حالت‌های عفونی و غیر عفونی افزایش می‌یابد. در اکتشال حاد، PCT به‌طور پیاپی افزایش می‌یابد و نشان‌دهنده احتمال واقعی عفونت است. در علل غیر سپسیس، PCT نیز ممکن است افزایش یابد اما شدت افزایش نسبت به آن در سپسیس کمتر است.

PCR (پرنترنک پوریمیاک) یک تکنیک تشخیصی سریع است که می‌تواند در تشخیص سپسیس از سریع‌ترین و موثرترین روش‌ها بزرگداشت گردد. PCR می‌تواند در تشخیص سپسیس از شیوع مختلفی بهره‌مند باشد که شامل از آن‌ها می‌تواند بیماری های مشابه مانند سپسیس باشد. در این روش، نمونه‌های مبتلا به سپسیس با استفاده از آزمایشگاه‌ها می‌توانند مقدار PCT را تعیین کنند.

PCT با کیفیت بالا در تشخیص سپسیس رعایت و مbenhونی در مبتلا به سپسیس است. در این روش، PCT با هم‌بستگی بالا به شدت افزایش خود آنتی‌بیوتیک به دست آمده، تشخیص سپسیس را راحت‌تر می‌کند و به کاهش درمان‌های نبسیده درمان بهبود می‌بخشد.

از این رو در تشخیص سپسیس، PCR یکی از روش‌های مورد استفاده قرار می‌گیرد و با استفاده از این روش، می‌تواند بهترین نتایج را در تشخیص سپسیس ارائه دهد.
در این مطالعه هدف ما طراحی و ساخت کیت تشخیصی بر پایه آیتامر DNA علیه پروکلسی ونین می‌باشد که می‌تواند به طور اختصاصی این پروتئین را تشخیص دهد و در تشخیص سریع باکتری‌ای مفید واقع شود. این زن مربوط به پروکلسیونی سنتز شده و درون وکتور مناسب گزینه به باکتری ترانسفر می‌رود. باکتری حاوی زن ترکیب را در محیط لوریا پروتئین با غلظت محاسبه شده‌ای از IPTG تولید می‌کند. پروئین تولیدی بر روی زل زی اکریلامید برای وسیله آنالیز و پس از تاژی بیان پروتئین‌ها، استفاده از کرمان‌گرافی می‌باشد تا تحلیل تغییرات غلظت گردید. به منظور رسیدن به آیتامرهای مناسب این مراحل انجام شد: 1. طراحی کتابخانه تشکیلی از نوکلئوتیدها که به صورت حضور تصادفی 25 نوکلئوتید در میان دو ناحیه ثابت برای 24 ساعت اختصاصی، پیشنهاد و سفارشی. 2. استفاده از سنتوکرمان‌گرافی در میانی، با یکنون بی‌هستوري مواد با گیرنده پروتئین‌ها به آن تحت شرایط آزمایشی دومی فراهم می‌آید. 3. نحوه پروتئین‌های ابتدا معمول به کار گرفته روش SELEX (شامل مراحل Binding و واشینگ و اتصال DNA موجود در کتابخانه آتومری به مولکول هدف که در این تحقیق پروکلسیونی است) که نتایج در پارامتر PCR، Isolation استفاده از ستون کرمان‌گرافی در میانی، با یکنون بی‌هستوري مواد با گیرنده پروتئین‌ها به آن تحت شرایط آزمایشی دومی فراهم می‌آورد. 4. با استفاده از کلاینک قطعات آتومری در باکتری E. coli برای واشینگ و انتخاب بهترین آتومری. 5. انتخاب آتومری‌های مناسب و مقایسه آنها از لحیظ این آزمایش به هدف و انتخاب بهترین آتومری. 6. مرحله نهایی نیز بررسی کردن غلظت پروکلسیونی در نمونه‌های بالینی به کمک آتومر خواهد بود.

در بررسی نتایج کیت طراحی شده، کیت قابلیت تشخیص مقادیر 1/5 ng/ml از مقادیر پروکلسیونی را نموده‌است. در مقایسه نتایج بالینی با سایر شاخص‌های رایج قابل اندازه‌گیری در آزمایشگاه (ESR، ارزیابی شماره و پلک‌ای و کروم‌ها، CRP، WBC، C3، C4، CRP) تعداد پلاکت و همچنین بررسی میزان جزء C3 از کپلری، نتایج حاصل از سنجب کیت در نمونه‌های بالینی افراد مبتلا به سپسیس و انتهاک‌های آن با نتایج کتابخانه‌ای مشابه داده‌ها با توجه به نتایج حاصل آزمایشگاهی در خصوص کیت طراحی شده و انطباق آن با نتایج بالینی و در مقایسه با سایر تست‌های رایج آزمایشگاهی، می‌توان این کیت را وعده‌ای که تست جدید آزمایشگاهی معرفی نمود.

کلید واژگان: سپسیس، بافت‌های بالینی، تست آزمایشگاهی، پروکلسیونی، آنامر
A case report of brain abscess caused by *Nocardia cyriacigeorgica* in a diabetic patient

Davood Azadi\(^1\), Kazem Ghaffari\(^1\), Abdolrahim Absalan\(^1\)

\(^1\)Department of Laboratory Sciences and Anesthesia, Khomein University of Medical Sciences, Khomein, Iran

**Introduction:** Nocardia capable of inducing a wide range of infections in patients with immunodeficiency, AIDS, cancer, and diabetes. *Nocardia cyriacigeorgica* was first isolated from a patient with chronic bronchitis. Since then, there have been reports on the clinical significance of this organism in patients with bronchitis, brain abscess and lung diseases. We, here in, report a case of brain abscess in an elderly diabetic patient from Iran.

**Patient:** 73 year-old woman admitted to hospital due to severe headache and shortness of breath. The patient lived with diabetes for 20 years and suffered from chronic foot ulcer. She was admitted to hospital with fever, weakness, drowsiness and vomiting. Clinical examination and the CT scan of the frontal lobe of the brain revealed a metastatic carcinoma involving skull bone by tumor that resulted in two surgical operations in the following two years.

**Results:** the brain abscess biopsy revealed an infection with *Nocardia cyriacigeorgica* confirmed by phenotypic and molecular tests including a PCR based amplification of the 596-bp fragment of 16S rRNA gene and sequence analysis of almost full 16S rRNA.

**Discussion:** The rare infections such as brain abscess with Nocardia are simply neglected or misdiagnosed due to fastidious nature of the organism and inadequate microbiological experience of laboratories in the hospitals of developing countries. This case shows hospitals should consider a better laboratory protocol to deal with the clinical cases in which fastidious organisms and in particular Nocardia are involved.

**Keywords:** brain abscess, diabetic foot ulcer, *Nocardia cyriacigeorgica*, 16S rRNA
Presence of toxA gene and antibiotic resistance among Pseudomonas aeruginosa isolates in Bandar Abbas Iran

فروغ فریدی

Background: Pseudomonas aeruginosa is an important nosocomial pathogen. Most isolates of this organism are resistant to a wide range of antibiotics. Exotoxin A is one of the major virulence factors of this bacterium. The aim of the present study was to determine the antibiotic resistance pattern and the presence of the toxA gene among clinical isolates of Pseudomonas aeruginosa.

Material/methods: During the study period from April 2016 to July 2016, a total of 71 non-repetitive isolates of P. aeruginosa were collected from different clinical specimens in two teaching hospitals at Bandar Abbas, south of Iran. The presence of toxA gene was determined by polymerase chain reaction. Antimicrobial susceptibility profiles of the isolates were determined by disk diffusion method according to Clinical Laboratory Standard Institute guideline.

Results: According to the results, the highest level of resistance were seen against tetracycline (32.40%) and the most effective antibiotic was colistin (98.60% of isolates were sensitive). However, 58.6% of isolate were sensitive to all antibiotic agent. In total, 24.3% of the isolates were characterized as Mltidrug resistant. The prevalence of the toxA genes was 95.70% among the isolates.

Conclusions: The high frequencies of virulence genes detected in our clinical isolates with notable antibiotic resistance rates indicate the potential risk of these isolates in nosocomial infections. In this study, just 2.7% of the isolates were resistance to colistin, which shows that this antibiotic could be in first line drug therapy regimen and the last choice of therapy for these infections. We were so interested and hopeful that the rates of resistant were too low in our search.

Keywords: Pseudomonas aeruginosa, Exotoxin A, Antibiotic Resistance
A comprehensive view to tuberculosis infection and related drug resistance
Elham Sheykhsaran$^{1,2}$

$^1$Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

$^2$Students’ Research Committee, Tabriz University of Medical Sciences, Tabriz, Iran

Background: Tuberculosis is the leading infectious disease in the world. In developing countries and certain areas of industrialized regions. An estimated indicates that one third of the world's people are infected with Mycobacterium tuberculosis, and nearly 9 million persons develop disease caused by $M. tuberculosis$ each year. This resurgence was accompanied by a rise in multidrug-resistant TB (MDR TB), which is defined as TB that is resistant to the two most effective first-line therapeutic drugs, isoniazid and rifampin. Also, virtually untreatable strains of $M. tuberculosis$ are emerging in all over the world.

Methods: Studying of articles in this regard reveals the importance of tuberculosis infection. Also increasing of drug resistance in $Mycobacterium tuberculosis$ considered as a serious concern.

Results: Extensively drug-resistant (XDR) TB is referred to MDR TB that also is resistant to the most effective second-line antibiotics used commonly to treat MDR TB: fluoroquinolones and at least one of three injectable second-line drugs used to cure of TB (amikacin, kanamycin, or capreomycin). Resistance to rifampicin includes alterations of RNA polymerase. The gene that encodes the RNA polymerase subunit $\beta$ ($rpoB$) was cloned. Sequence data from this gene was exerted to design primers for direct enhancing and sequencing of a 411 bp $rpoB$ fragment from 122 isolates of $M. tuberculosis$. Mutations in 8 conserved aminoacids were identified in 64 of 66 rifampicin-resistant isolates of various geographical area, but in none of 56 sensitive isolates. Crucial options to treat tuberculosis are severely restricted due to intrinsic resistance of $Mycobacterium tuberculosis$ to the most of clinically prescribed drugs.

Conclusion: Tuberculosis is an important health concern in developing countries, has reemerged in recent years in a number of industrialized countries. The increased vulnerability of immunocompromised patients to tuberculosis, and many applied investigations indicate that T cell-mediated immunity have an important role in resistance.

Key words: Mycobacterium tuberculosis, Drug Resistance, MDR and XDR Resistance
Background: *Klebsiella pneumoniae* is an opportunistic pathogen, which causing different infections. In this study, we evaluate the frequency of AcrAB efflux pumps and their role in resistance towards ciprofloxacin *K. pneumoniae* isolates obtained from various infections in University teaching and treatment hospitals “Sina”, Tabriz, Iran.

Methods and Materials: In this cross-section study, 68 multidrug resistant *Klebsiella pneumonia* were collected from patients of different units of teaching and treatment hospital of Sina, Tabriz, Iran. The isolates were identified by conventional biochemical tests. Antibiotic susceptibility test was performed by disk diffusion method according to CLSI 2015 guidelines. The presence of *acrA* genes were detected by PCR method.

Results: Among the isolates, antibiotic resistance was seen more in cefotaxime (91.2%), ceftazidime (85.3%), kanamycin (80.88%) and ciprofloxacin (77.9%). PCR assay for *acrA* gene demonstrated that *acrA* gene is encoded the membrane fusion protein AcrA in ciprofloxacin resistant isolates and is a part of AcrAB efflux system. The presence of *acrA* gene was 19.1% in ciprofloxacin resistant isolates.

Conclusion: Relationship between AcrAB efflux pump and ciprofloxacin resistance has been confirmed that it is one of the main mechanisms contribute in the ciprofloxacin resistant *K. pneumoniae*. However, there are other mechanisms contribute in ciprofloxacin resistant *K. pneumoniae* such as mutation in target proteins of DNA gyrase of topoisomerase IV enzyme.

Key words: *Klebsiella pneumonia*, Efflux pump, Antimicrobial resistance
PB-015

Proteus mirabilis and its role in formation of urinary stones

Yusef Najati 1,2, Behnaz Ghazanfari 2

1- Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.

2- Immunology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

Email: nejatiyusef@gmail.com

Mobile:00989146486893

Introduction: Presence of infection in urinary stone patients as well as infectious stones is still a significant cause of morbidity and mortality. Previous reports have suggested that urease-producing bacteria play a prominent role in the formation of infection-induced urinary stones. Proteus mirabilis, a significant cause of bacteriuria and acute pyelonephritis in humans, and this bacterium produces urease.

Methods: The aim of this study was to evaluate the association between Proteus mirabilis with urinary stones and novel evidences about struvite pathophysiology.

Result and discussion: This high-molecular-weight, multimeric, cytoplasmic enzyme hydrolyzes urea to ammonia and carbon dioxide. Urinary stones are not totally crystalline in nature but rather consist of an agglomeration of bacteria, organic matrix, and crystal of struvite (MgNH4PO4· 6H2O) and it is a common complication of Proteus mirabilis urinary tract infections. Crystal formation is related to the ability of the bacteria to affect an increase in the urine pH. Another equally important bacterial role lies in their formation of a ‘biofilm’ which later becomes the organic matrix constituent of the stone. Results of in vitro study indicate that crystals are formed more readily if produced within the bacterial biofilm than in the surrounding urine. It is proposed that super saturation, due in part to a bacterial-induced pH increase and in part to the metal binding tendency of the biofilm, leads to crystal formation via a gel growth mechanism within the biofilm itself.

Conclusion: In conclusion, the urease of P. mirabilis is a critical virulence determinant for colonization, urolithiasis, and severe acute pyelonephritis. The polysaccharide capsule of this organism also enhances struvite crystallization and growth in vitro; however the structure and partial anionic nature of capsule enable it to enhance struvite formation.

Keywords: Proteus mirabilis, Urinary stones, Struvite
PB-016

ESβL types TEM producing *Proteus* species in Fecal Carriage of Carrier patients and Urinary tract infection patients

Yusef Najati 1,2, Behnaz Ghazanfari 2

1- Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
2- Immunology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

Email: nejatiyusef@gmail.com
Mobile: 00989146486893

Introduction: *Proteus* genus are found in the environment and gastro-intestinal of humans. These organisms are one of main causes of urinary tract infection, bacteremia, wound infections and other infections. In the present study, fecal carriage in Carrier patients and urinary tract infection patients of ESBL producing *Proteus* spp. has been studied.

Methods and Materials: From November 2014 to February 2015, 204 stool samples obtained from outpatients and inpatients (none of these patients suffered diarrhea). The isolates were cultured in CTX-MC-Conkey agar. Lactose negative and cefotaxime resistant bacteria were identified by conventional biochemical tests, at the same time 40 cefotaxime (2 mg/L) resistant *Proteus* obtained from UTI patients and ESBL-producing isolates were detected using combined disc diffusion test. TEM genes were investigated by PCR.

Results: 4 (1.96%) isolates of 204 stool samples and 29 (72.50%) isolates of UTI were identified as ESBL producing *Proteus*. Of the 4 (1.96%) ESBL producing strains of stool samples, *bla*TEM was the commonest genotype (86.66%) in carrier patients and also UTI patients (65%). All isolates of carrier patients were resistant to ampicillin, and cefotaxime and in UTI patients 97.5% isolates were resistant to ampicillin and 72.5% isolates were resistant to cefotaxime.

Conclusion: Although the number of ESBL-producing *Proteus* spp. isolates from fecal carriers are low; but still they can be considered as reservoir of *bla*TEM genes; thus carrier are also able to transfer these resistant bacteria to hospitals.

Key words: *Proteus* spp., ESBL, TEM
prevalence and antimicrobial susceptibility pattern of microorganisms isolated from positive blood cultures of patients admitted in Urmia private hospitals

Javid Eghbal¹, Arian Eghbal²

¹. Assistant professor., Department of pathobiology, Urmia Brach, Islamic Azad University, Urmia, Iran
². Student of dentistry, Urmia University of Medical Sciences, Urmia, Iran

Background and Aim:

Determine of antibiotic resistant pattern, Offers essential information about the selection of antibiotic therapy for patients with bloodstream infections.

This study was performed to investigate the type of microorganism isolated from positive blood cultures of patients admitted in Urmia private hospitals and determine the isolates sensitivity to antibiotics.

Methods:

In this cross-sectional study During 12 months from Jun 2016 to May 2017, 1370 blood culture samples were screened. The positive blood cultures were examined and the organisms were identified. Antimicrobial susceptibility testing was performed for all isolates by use of disk diffusion technique.

Results:

The number of 86 (6.27%) positive blood culture were isolated in this research which 41.86% was Staphylococcus epidermidis, 22.09% Escherichia coli, 9.30% Klebsiella, 6.97% Staphylococcus aureus and 19.76% was Other bacterial pathogens.

The most effective antimicrobial agents against isolates were vancomycin (92.6%) and imipenem (81.5%) respectively.

All bacteria isolated showed high resistance to Cefalexin (78.6%), Amoxicillin (73.8%), Cefotaxime (69.5%) and Erythromycin (67.3%).

Conclusions:

Bloodstream infections are important causes of morbidity and mortality in patients. Results showed that resistance to antibiotics and various antibiotic combinations is increasing in the patients and the usage of newer antibiotics should also be evaluated.

Keywords: Septicemia, Antibiogram, Positive Blood Cultures, Urmia

Presenter Author: Javid Eghbal Corresponding Author: Javid Eghbal Email: javid_egbal@yahoo.com
بررسی ارتباط میزان شیوع تیتر مثبت آنتی بادی ضد کلامیدیا پنومونیه و بیماری های اترواسکلروزیک

پیمان ایزدی‌نیا، عباس عبدالله‌نیا، سهیار نمک‌پور

1- گروه قلب، دانشگاه علوم پزشکی شیراز، شیراز، فارس، ایران
2- گروه میکروشیمی، دانشگاه علوم پزشکی شیراز، فارس، ایران

کلید واژگی‌نامه: کلامیدیا پنومونیه، اترواسکلروزیک، تیتر، آنتی بادی
Molecular genotyping of *Mycobacterium tuberculosis* in Tehran, Iran

Taher Azimi¹, Mohammad Javad Nasiri¹, Fatemeh Fallah¹, Abbas Ali Imani Fooladi², Ali Hashemi¹ and Hossein Goudarzi¹

¹Department of Microbiology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

²Applied Microbiology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

**Introduction:** Tuberculosis (TB) still remains an important public health problem in Iran. The genotyping of *Mycobacterium tuberculosis* isolates is expected to lead to a better understanding of *M. tuberculosis* transmission in Tehran, the most populated city of Iran.

**Materials and Methods:** In this study a total of 2300 clinical specimens (sputum) were obtained from TB suspected patients from 2014 to 2016 and finally 80 *M. tuberculosis* isolates were collected from this specimens. The standard 15-locus mycobacterial interspersed repetitive units-variable number of tandem repeats (MIRU-VNTR) typing method was applied to genotype of clinical isolates. GeneXpert MTB/RIF was also used to evaluate the drug resistant status of isolates.

**Results:** Overall, of 80 clinical isolates of *M. tuberculosis*, 78 different genotypes were identified by MIRU-VNTR comprising 2 clusters and 76 unique patterns. Loci MIRU10, MIRU26, MTUB21 and QUB26 were found as highly discriminative. No mutation was detected in the hotspot region of rifampicin by using GeneXpert in investigated isolates.

**Conclusions:** Our study suggest that the TB patients in Tehran might be infected by different *M. tuberculosis* strains that may be indicative of a high-density and diverse population with frequent immigration and travel. The 15-locus MIRU-VNTR showed high HGDI and could be used as a first-line genotyping method for epidemiological studies.

**Keywords:** *Mycobacterium tuberculosis*; MIRU-VNTR; Tehran; Iran
بررسی اثرات ضدباکتریایی اساس زیره سیاه و زیره سبز بر باکتری های پاتوژن در محیط آزمایشگاه

روژین رمضانی¹، دکتر شادیه محمدی²، شادی فیضی⁵

¹کمیته تحقیقات دانشجویی، دانشگاه علوم پزشکی کردستان، سنندج، ایران
²مرکز تحقیقات بهداشت محیط، دانشگاه علوم پزشکی کردستان، سنندج، ایران

نویسنده و ارایه دهنده: روژین رمضانی، کمیته تحقیقات دانشجویی، دانشگاه علوم پزشکی کردستان، سنندج، ایران
Email: Rojin.ramezani@gmail.com
شماره تماس: 09030246091

سابقه و هدف: امروزه جی‌گز نب اسینس هی و عصیره هیی گییهب نه جیی نگهدارنده هی و آ ن ب نیوتیک هی شیمیی ب نه من ور پیشگیری از اررا جینکب ان مواد شیمیی ب نسییر مورد توجه قرار گر ه است. هد یز ا ن مطیل عه ارز ینب نمی‌شود که نومب لود منطقه‌ی اس ین کردس ین نود ی در سیل 1395 نی دس گیه Clevenger در دانشگیه علوم پزشکب کردس ین ان یم شده است) علیه سه نیک ری نیمیری زای اس ی یلوکوکوس او رئوس ی اشر شیی ک، یو سیلمون، تی فب مور و نم دو روش ان شیر در آگیر و حداقل غل ت مهیر کنندگب (MIC) مورد ارزیابی قرار گرفت و داده ها توسعی آزمون آنالیز واریانس یک طر فه و با استفاده از ان Tukey و آزمون ANOVA و پنج مورد آنالیز قرار گرفت (P<0.05). افزاره‌ها: در روش ان شیر در آگیر اسینس هی زیره سیاه و زیره سیز نرای هر سه نیک ری مورر نوده و دو میانگین قطر هیله‌ی مهیری اسینس زیره سیز علیه سه نیک ری پیتوژن اس ی یلوکوکوس او رئوس و سیلمون و تی فب مور و نم (MIC=۰.۴۴ و ۰.۴ mg/mL) برای هر دو اساس زیره سیز و زیره سیاه برای اسینس زیره سیز و سیاه کمیابی و سالمونلا نایفی مورری می‌باشد به ترتیب ۱۰ و ۶۰ μg/mL.

نتیجه‌گیری: نتایج حاصل از این مطالعه نشان داد که اساس زیره سیز و زیره سیاه دارای اثرات ضدباکتریایی خوبی یافت. این اساس به عنوان یک انتی بیوتیک نظامی و با نگهدارندگی موثر در کنترل مواد غذایی و با نگهدارندگی مهیجی در محیط‌های غذایی بهره‌برداری می‌شود.

واژه‌های کلیدی: اساس، زیره سیاه، زیره سبز، باکتری، یک پاتوژن.
PB-021

Antimicrobial resistance evaluation of ciprofloxacin and calculation of minimum inhibitory concentration of multidrug resistance pumps (MIC) and the effect of ZnNPs on it, as well as determining the frequency of femA gene in Staphylococcus aureus strains isolated from skin infections in Qom province of Iran country.

محمد حسین سلیمیانی

Periodic studies of antimicrobial resistance patterns can optimize the effectiveness of the treatment as well as limit antibiotic resistance in bacteria. Staphylococcus aureus is one of the most important causes of bacterial skin infection in humans, and its resistance to antimicrobial drugs is important. The aim of this study was to determine the antibiotic resistance of Staphylococcus aureus strains to ciprofloxacin and to calculate the minimum inhibitory concentration of multi-drug resistance pumps and the effect of ZnNPs on it, as well as to determine the frequency of femA gene in these strains. To this end, 200 strains of Staphylococcus aureus were isolated from samples of skin infection in Qom province and their resistance to ciprofloxacin was measured by disk diffusion method according to CLSI protocol. The minimum concentration of antimicrobial resistance inhibitors of Staphylococcus aureus against ciprofloxacin in different concentrations and also the effect of ZnNPs on it was calculated using microdilution (MIC) method. To determine the frequency of femA gene in resistant strains, the first genome was isolated using a DNA extraction kit. The femA chromosomal specific primer was designed using Oligo software and prepared from the South Korean company Bionirand. femA gene was identified by PCR method.

Of 200 isolated strains, 50 strains (25%) resistant to ciprofloxacin were detected by disk diffusion method and microdilution of MIC was performed on them. During the microdilution, 24 strains of 256 μg / ml concentration, 8 strains at 128 μg / ml concentration, 6 strains at 64 μg / ml concentration, 7 strains at 32 μg / ml concentration, and 5 strains containing 16 μg / ml of ciprofloxacin inhibited their growth. According to the CLSI standard, all strains were resistant to this antibiotic. Zinc nanoparticles alone did not have an effect on inhibition of Staphylococcus aureus growth, but in microdilution with ciprofloxacin in the presence of nanoparticles, the minimum inhibitory concentration of strains was halved compared to the MIC without Zn nanoparticles. During the PCR, out of 50 ciprofloxacin-resistant strains, 44 strains (88%) had femA gene and 6 strains (12%) lacked the femA gene.

Decreasing the concentration of ciprofloxin antibiotics and using nano-zinc in the treatment of Staphylococcus aureus skin infections can reduce the consumption and dose of antibiotics and subsequently reduce the bacterial drug resistance. The femA gene alone is not an option to detect Staphylococcus aureus, so it would be better to identify another gene for this purpose.

Researcher: Mohammad Hossein Soleimani

Mail: m.soleimani90@yahoo.com
بررسی مولکولی ژن های clbA و clbS در باکتری های E.coli جداسهده از بافت های نور موری کولورکتال

ساجده سحری ۱، شهلا محمد گنجی ۲، مجتبی سهرابی ۱، عطیه سلیقه ۱

۱- دانشگاه آزاد اسلامی واحد قم، گروه میکروبیولوژی، قم، ایران
۲- پژوهشگاه ملی مهندسی زنی، و زیست فناوری، پژوهش‌کده بیوتکنولوژی بیزکی، تهران، ایران

چکیده:

مقدمه و هدف: یکی از مهمترین عوامل در ایجاد سرطان کولورکتال باکتری‌ها و توسکین های حاصله از آنها است.

برخی سویه های E. coli هستند، قادرند زن‌نکسمینی به نام کلی باکترین PKS (Colibactin) تولید کنند. کلی باکترین در باکتری‌های E. coli پاسخ آتیاگن سری‌سازی نمی‌دهند، باعث آسیب به DNA و نکبی روش E. coli جداسیزی و شناسی شد. سپس از وجود ژن های clbA و clbS باعث سپسی و روش PCR شد.

یافته ها: باکتری‌های E. coli با نور میکروبیایی مولتی، مثل رود، اندول و تی اس آمیپت و E. coli برای نور میکروبیایی مولتی زن‌نکسمین، یا زن‌نکسمینی به نام کلی باکترین PKS (Colibactin) نیاز دارند. این آزمایشات PCR نشان داد، برای Zn و برولازس مورد بررسی، در ۶۶.۶۷% از افراد نرمال، در ۴۰.۹۱% از افراد نرمال، در ۵۹.۰۹% از افراد نرمال و برولازس ۵۰% از افراد نرمال و برولازس ۵۰% از افراد نرمال و برولازس ۵۰% از افراد نرمال و برولازس ۵۰% از افراد نرمال و برولازس ۵۰% از افراد نرمال و برولازس ۵۰% از افراد نرمال و برولازس ۵۰% از افراد نرمال و برولازس ۵۰% از افراد نرمال و برولازس ۵۰% از افراد نرمال و برولازس ۵۰% افراد نرمال و برولازس ۵۰% افزایش و بروز تومور کولورکتال می‌باشد. نیاز به تقویت به نفی آمده و اهمیت زن‌نکسمینی باکترین clbA و clbS از جزورت‌های برخی باکترین مطالعه‌ای کامل نر در این زمینه ضروریه نظر می‌شود.

کلمات کلیدی: سرطان کولورکتال، اشترکاپی، زن‌نکسمینی باکترین clbS و clbA.
PB-023

Enterococcus faecalis as burn wound infection

Mohammad. khodadad motlagh,MSc*; M. Zolfaghari, PhD**; S. Aghaei, MSc***; A. Heidar pour, MSc****

*Master of Sciences in Microbiology, Faculty of Basic sciences, Azad University, Qom, Iran
**Asistant Professor of Microbiology, Faculty of Basic sciences, Azad University, Qom, Iran
***Master of Sciences in Microbiology, Faculty of Basic sciences, Azad University, Qom, Iran
****Master of Sciences in Microbiology, Qom University of Medical Sciences, Qom, Iran.

Background and Objective: Burn wound are the switable environment to growing the kind of infection opportunist microorganisms. Awareness of effective microorganisms in appearing the infection and their Antibiotic Sensitivity has a fundamental role in preventing and timely and correct treatment of infection. In this study, effective bacterial factors in post burning infections and their antibiotic resistance determined in burn section of Nekuei Hospital of Qom.

Methods: In this study, the sampling carried out from 70 hospitalized patients in burn section of Nekuei hospital at 5 month course. After sampling and bacterial isolation, the biochemical tests performed to detect the microorganisms based on being standards. Determining the antibiotic resistance model carried out by using the Disk diffusion or Kirby Bauer method included the antibiotics of Co-Trimoxazole, Vancomycin, Ciprofloxacin, Cephalothin, Ceftazidime, Amoxyillin, Amikacin, Gentamycin, Chloramphenicol, Cefazolin, Cefotaxime, Ceftriaxone, Ampicillin, Oxacillin, Imipenem.

Results: Totally, of 70 samples have taken from hospitalized patient in burn section, 54 sample (%77.14) of wound had positive culture. Enterococcus fecalis with %9.52 that causing the hospital infrction. Resistance of Enterococcus fecalis in this study: Oxacillin %60, Cefazolin %50, Amikacin & Cephalothin & Ceftazidime & Imipenem %40, Ampicillin, Amoxyillin, Gentamycin, Vancomycin, Ciprofloxacin, Cefotaxime, Ceftriaxone & Chloramphenicol %30, Co-Trimoxazole %20.

Conclusion: The result of this study are indicating that with regard to high prevalence of hospital infections in burn section, using the new methods is inevitable affair to preventing and transferring the infections factors and also using the infective antibiotic such as Amikacin and Gentamycin in treatment.

Keyword: Infection; Enterococcus fecalis; Burning Wound; Bacteria; Antibioti Resistence.
PB-024

*Isolation and antibiotic susceptibility of klebsiella pneumonia isolated from qom hospital*

Mohammad khodadad motlagh

Department of Pathobiology, School of Veterinary Medicine, shiraz University, shiraz, Iran

**Background and Objective:** Burn wound are the switable environment to growing the kind of infection opportunist microorganisms. Awareness of effective microorganisms in appearing the infection and their Antibiotic Sensitivity has a fundamental role in preventing and timely and correct treatment of infection. In this study, effective bacterial factors in post burning infections and their antibiotic resistance determined in burn section of Nekuei Hospital of Qom.

**Methods:** In this study, the sampling carried out from 70 hospitalized patients in burn section of Nekuei hospital at 5 mouth course. After sampling and bacterial isolation, the biochemical tests performed to detect the microorganisms based on being standards. Determining the antibiotic resistance model carried out by using the Disk diffusion or Kirby Bauer method included the antibiotics of Co-Trimoxazole, Vancomycin, Ciprofloxacin, Cephalothin, Ceftazidime, Amoxycillin, Amikacin, Gentamycin, Chloramphenicol, Cefazolin, Cefotaxime, Ceftriaxone, Ampicillin, Oxacillin, Imipenem.

**Results:** Totally, of 70 samples have taken from hospitalized patient in burn section, 54 sample (%77.14) of wound had positive culture. klebsiella with %9.52 that causing the hospital infrction. Resistance of klebsiella in this study: Oxacillin %60, Cefazolin %50, Amikacin & Cephalothin & Ceftazidime & Imipenem %40, Ampicillin, Amoxycillin, Gentamycin, Vancomycin, Ciprofloxacin, Cefotaxime, Ceftriaxone & Chloramphenicol %30, Co-Trimoxazole %20.

**Conclusion:** The result of this study are indicating that with regard to high prevalence of hospital infections in burn section, using the new methods is inevitable affair to preventing and transferring the infections factors and also using the infective antibiotic in treatment.

**Keyword:** Infection; klebsiella pneumonia; Antibioti Resistence.
PB-025

Anti-adhesion therapy of bacterial diseases

Arezoo Asadi¹, Maliheh Talebi¹, Shabnam Razavi¹*

¹ Department of Microbiology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran

* Corresponding author: Shabnam Razavi, Ph.D. of medical biotechnology, Department of Microbiology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran. Email: razavi.sh@iums.ac.ir, Tel: (+9821) 86703473.

Today, increasing antibiotic resistance is a serious and global problem. The cause of this problem is the unnecessary and inappropriate use of antibiotics. Since the most important agent for infection is attachment of bacteria to host cells hence New techniques and attractive approach that interfere with the ability of the bacteria to adhere to tissues of the host, or detach them from the tissues at the early stages of infection are good therapeutic strategies. The propagation of resistant strains is much less likely to occur than consequently taking bactericidal agents, such as antibiotics. There are several strategies have been considered to destroying bacterial adhesion, including: coating the target substrate, affecting surface anchoring, affecting adhesion biosynthesis affecting glycosylation of the targeted substrate, using anti-adhesion antibodies or either adhesion analogues. This novel therapeutics in an attempt to prevent and treat bacterial infectious diseases. Anti-adhesive agents, serve as a new means to fight infectious diseases. Here we review various approaches to anti-adhesion therapy, including the use of receptor and adhesion analogs, dietary constituents, sublethal concentrations of antibiotics and adhesion-based vaccines.

Keywords: adhesions • anti-adhesion therapy • antibiotic resistance • bacterial adherence
PB-026

Evaluation of asymptomatic bacteriuria and pyuria in diabetic children referred to Children's Medical Center in Iran 2017-2016

سینا عبدالرحیم پور هرموی

Objectives: The rate of diabetes is increasing among children lately. Studies show that the rate of asymptomatic bacteriuria and pyuria are higher among diabetic children than non-diabetics. The aim of this study was to evaluate asymptomatic bacteriuria and pyuria among diabetic children.

Methods: Between 2015 and 2016, one hundred and twelve (112) diabetic children aged 15 years and below that were referred to Children’s Medical Center hospital in Tehran, Iran were included in this study. Participants filled a questionnaire form which seeks to take their biographic data, current FBS and HbA1C levels. Their blood and urine samples were taken and tested for FBS, HbA1C, urine culture (U/C), and urine analysis (U/A).

Results: The mean FBS and HbA1C were 278.02 ± 139.04 mg/dL and 10.24 %, respectively. The present study showed that 12 (10.7%) participants have positive urine culture (≥ 10⁵ cfu/ml), 10 (83.3%) out of this population were females, with 2 (16.7%) being males. Additionally, pyuria and asymptomatic bacteriuria were seen in 15 (13.4%) and 41 (36.4%) participants, respectively.

Conclusion: Based on the results of this study, bacteriuria especially asymptomatic bacteriuria and pyuria are more prevalent among diabetic children. The study showed that 10.7% of participants had positive urine culture, indicating the presence of urinary tract infection. However, corresponding participants did not show any significant signs and symptoms, suggesting asymptomatic bacteriuria. In addition, occurrences were more frequent among females than males. Regular screening for pyuria and asymptomatic bacteriuria in diabetic children could help diagnose and prevent urinary tract infections.

Key word: Asymptomatic bacteriuria, Pyuria, Diabetic children
PB-027

A meta-analysis review about cockroach contamination to medically bacteriae

Hassan Nasirian*

Department of Medical Entomology and Vector Control, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

*Corresponding author: Dr. Hassan Nasirian, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran, Tel: +98 21 42933182, E-mail: hanasirian@yahoo.com

Abstract

Introduction: Cockroaches have been compromised with the human environment posing some risks to humans. A systematic review and meta-analysis study about the bacterial contamination of cockroaches in the human dwelling environments were investigated.

Materials and Methods: Relevant topics about bacterial contamination of cockroaches were collected from scientific websites between. After a preliminary review of the collected topics were selected to become part of the detailed synthesis meta-analysis review.

Results: At least about 78 bacterial species and 42 genera from 11 orders and 24 families have been isolated from the cockroaches. The bacterial isolated from cockroaches have proven their potential pathogenic causing infections particularly nosocomial infection in immune-compromised, immune-competent patients and patients with prosthetic devices. Increasing incidence of infection over the past decades, especially in immune-compromised patients such as those with AIDS, organ transplantation, malignancy, chemotherapy, and dialysis or hospitalized individuals has observed. Some are causes of opportunistic bacterial infections in patients with chronic pulmonary disorders and inadequate immune function, the most common is catheter-related bloodstream infection. Some were reported as important opportunistic and multidrugs-resistant bacterial pathogens for humans during the last decades in hospitals. Some were considered as an unusual opportunistic pathogen, mainly cause post-operative and urinary tract infections in immune-compromised and intensive care unit patients. Some are emerging foodborne pathogens in food industry, spoilage of food products and a major contaminant of raw or processed foods of plant or animal origin.

Conclusions: Globally B. germanica is the most isolated bacterial diversity and the widest bacterial contaminating species threatening human health then followed by P. americana.

Keywords: Blattella germanica; Cockroaches; Cockroach bacterial contamination; Nosocomial infection; Periplaneta americana
PB-028

Antibiotic susceptibility of *Salmonella Typhimurium* isolated from calf diarrhea samples of dairy farms in Hamedan province

Maryam Najafi Asl¹, Pezhman Mahmoodi¹, Aliasghar Bahari², Ali Goudarztalejerdi¹

1. Department of Pathobiology, Faculty of Veterinary Science, Bu-Ali Sina University, Hamedan, Iran
2. Department of Clinical Sciences, Faculty of Veterinary Science, Bu-Ali Sina University, Hamedan, Iran

Background: *Salmonella Typhimurium* is one of the important causes of calf diarrhea in dairy farms. Antibiotic resistance in *S. Typhimurium* has emerged as a serious concern. The present study was performed to determine the status of antimicrobial susceptibility patterns of *S. Typhimurium* isolated from dairy farms of Hamedan province of Iran in the years 2016-2017.

Methods: A total of 22 *S. Typhimurium* strains which had been isolated from fecal samples were assessed for their antibiotic sensitivity. The Antibiotic susceptibility test was performed based on the National Committee for Clinical Laboratory (NCCLS) guideline using Kirby-Bauer disc diffusion method.

Results: The results indicated that *S. Typhimurium* isolates were mostly resistant to Colistin and Tetracycline (100%) followed by Nitrofurantoin (96%), Cefazolin (78%), Streptomycin (20%) and Ceftazidime (12%). Whereas, it was revealed that all isolates were sensitive to Amikacin, Ciprofloxacin, Kanamycin, and Fosfomycin.

Conclusion: As highly resistant strains of *Salmonella Typhimurium* were observed, which may result in increasing spread of antibiotic resistance among bacteria, it is strongly recommended to avoid unnecessary antibiotic therapies and choose appropriate therapeutic antibiotics after performing antibiotic susceptibility test.

Keywords: Diarrhea, Antibiotic, Resistance, *Salmonella Typhimurium*
Introduction and Aim: Escherichia coli (E.coli) is an important pathogen in the Urinary Tract Infection (UTI). Increasing of antibiotic usage for E.coli infections, created antibiotic resistance. Medical herbs with anti-microbial activity have always been important role in traditional medicine. The purpose of this study was to determine the antibacterial activity of fruit juice extract of Citrus limonum against E.coli isolated from UTI in vitro.

Methods: This research is a descriptive analytic study. First, samples of Citrus limonum fruit juice were prepared. Then its antibacterial activity against 228 isolates of E.coli from 280 samples of UTI was evaluated by well diffusion and then agar serial dilution method. Also, the MIC (Minimum Inhibitory Concentration) of extract was determined. Also the antibacterial activity of Gentamycin was tested by the disk diffusion method.

Results: Statistical methods were used to analyze the data. The results demonstrated that the Citrus limonum fruit juice extract had been effective against Escherichia coli. The MIC of the extract was about 50.0 mg/ml. while the MIC of the Gentamycin was about 8.0 μg/ml. There was significant difference between the effects of the Citrus limonum fruit juice extract and Gentamycin on Escherichia coli. (P<0.05)

Conclusion: This study demonstrates that fruit juice extract of Citrus limonum have excellent antibacterial activity against E.coli isolated from UTI and its effect is even better than selective antibiotic. Further investigations will be necessary.

Key words: UTI, Escherichia coli, Citrus limonum, Antibacterial Activity
Antibacterial activity of Pomegranate (Punica granatum L.) extracts against Enterohemorrhagic Escherichia coli O157:H7

Mohammad Mehdi Attarpour Yazdi

Department of Microbiology, Faculty of Medicine, Shahed University, Tehran, Iran

Background: Medical herbs with anti microbial activity have always been important in traditional medicine and might be useful in antibacterial activity against the many food and waterborne pathogenic bacteriacausing serious gastrointestinal infections. Thus, search of effective Medical herbs for this antibacterial activity are necessary. The aim of this study was to determine the antibacterial activity of aqueous and ethanolic extracts from Punica granatum (Pomegranate) against Enterohemorrhagic Escherichia coli (EHEC) O157:H7 in vitro.

Methods: At first a sample of aqueous and ethanolic extracts from the combination of the Punica granatum constituents was prepared in ten different concentrations and then its antibacterial activity against 3 standard strains of EHEC O157:H7 was tested for the determination of MIC (minimum inhibitory concentration) and MBC (minimum bactericidal concentration) using well diffusion and agar serial dilution assays. Also the antibacterial activity of trimethoprim antibiotic was tested by the disk diffusion method.

Results: The results demonstrated that the Punica granatum aqueous and ethanolic extracts been effective against all of the 3 standard strain bacteria. The aqueous extract of pomegranate was highly effective against EHEC O157:H7 with MIC and MBC values of 0.19 and 0.39 mg/ml, respectively. The ethanolic extract of pomegranate had MICs of 0.49 to 1.95 mg/ml and MBCs of 1.95 to 3.91 mg/ml against EHEC O157:H7.

Conclusion: This study demonstrates that aqueous and ethanolic extracts from the combination of the Punica granatum constituents have excellent antibacterial activity against the EHEC O157:H7. Further investigations will be necessary.

Keywords: Enterohemorrhagic Escherichia coli O157:H7, Antibacterial activity, Punica granatum, Pomegranate
Detection of TEM Gene in Pseudomonas aeruginosa Isolated from Urinary Tract Infection in Iran.

Mohammad Mehdi Attarpour Yazdi

Department of Microbiology, Faculty of Medicine, Shahed University, Tehran, Iran

Background & Aim: Due to the high mortality of Urinary Tract Infection (UTI) caused by gram negative bacteria such as Pseudomonas aeruginosa and increase of prevalence of resistance, the aim of this study is the detection of antibiotics susceptibility pattern (study of phenotypic) of the P. aeruginosa in the UTI and incidence of TEM gene.

Methods: 95 clinical isolates of P. aeruginosa collected from different hospitals in 2016. Phenotypic detection of ESBLs was used for screening of isolates by agar diffusion (Kirby-Bauer) method (according to CLSI advised). Screen positive isolates were then subjected to PCR for detection of TEM gene.

Results: Primary phenotypic and confirmation tests revealed that 84.21 percent (80 isolated) of P. aeruginosa produced ESBLs. TEM gene was found in 26.25% (21 out of 80) by PCR method. Signification relationship between phenotypic and genotypic resistance was found by using the SPSS program and chi-square test. (P<0.05)

Discussion & Conclusions: Due to the high level of resistance there due to the production of ESBLs in P. aeruginosa and signification relationship with the TEM gene, it is important to control the way in taking as a national study to determine the pattern of phenotypic and genotypic resistance in Iran seems to be necessary.
Effect of Zinc Supplementation on Infection of Pseudomonas aeruginosa in Rat's Laboratory Model

Ali Salehnia Sammak¹, Alireza Mohebbi², Bahar Alavinezhad³,

¹. Department of Microbiology School of science. University of Islamic azad rasht branch
². Department of Microbiology Faculty of Medicine University of medical science and health services.
³. Department of Microbiology Faculty of Science University of Islamic azad lahijan branch

Background: Zinc is one of the 15 essential minerals that the body needs. The metal is in the body of more than 200 enzymes in the body. Roy, in addition to engaging in the production of enzymes, acts as a catalyst for body reactions. So that its partial deficiency can lead to defects in physical, behavioral and cognitive development in children. It also helps to strengthen the immune system and defense against infectious agents when exposed to infections. Chronic and pulmonary infection of the rats by Pseudomonas aeruginosa can be initiated by inoculation of the intestinal tract. It has been shown that zinc ions inhibit the activity of Pseudomonas protease in reverse. The aim of this study was to evaluate the efficacy of this substance in the rate of infectivity of Pseudomonas aeruginosa in mice.

Methods: In this experimental study, 20 rat rats weighing 170 ± 10mg were randomly selected and divided into two groups in equal numbers. They were fed with zinc supplemented and non-supplemented (as control) (200 μg / Each liter of edible water was fed. After 2 weeks, the standard strain of Pseudomonas aeruginosa (ATCC 27583) was prepared from the Ministry of Health's Health Reference Laboratory to the peritoneal region of all mice. After 84 hours, peritoneal liquid specimens, spleen tissue, Kidney and liver, and after cultivation, the number of colonies grown counts and their table were prepared. The results were analyzed by SPSS software Version 20 and one-way ANOVA were used for statistical analysis.

Results: The results of this study showed that zinc supplementation against the bacterial pathogenicity of Pseudomonas aeruginosa has an inhibitory and decreasing effect on some organs. This difference was significant among Zinc supplementation recipients without receiving it. (P≤0.05).

Conclusion: Considering that 90% of the human and mice-causing agent genes are the same, the use of zinc supplementation to reduce and control the infections caused by Pseudomonas aeruginosa in the mouse model and the similarity of the human immune system can also be effective.

Keywords: Zinc, Pseudomonas aeruginosa, Infection, Mice
PB-033

Evaluation of genetic relationship of salmonella enterica serotype typhimurium isolated from calf diarrhea samples by ERIC-PCR method

Maryam Najafi Asl¹, Pezhman Mahmoodi¹, Aliasghar Bahari², Ali Goudarztalejerdi¹

¹. Department of Pathobiology, Faculty of Veterinary Science, Bu-Ali Sina University, Hamedan, Iran
². Department of Clinical Sciences, Faculty of Veterinary Science, Bu-Ali Sina University, Hamedan, Iran

*Corresponding Author: Maryam najafi asl
Email: Maryamnajafiasl.mss@gmail.com
Mobile: 09360658132

Background: Salmonellosis is one of the most common infectious diseases between humans and animals. Determination of genetic relationship among Salmonella typhimurium isolates is important for epidemiological surveillance. The present study was conducted to determine the clonal relationship of S. typhimurium strains isolated from calf stool using ERIC-PCR method.

Methods: In this descriptive cross-sectional study, 22 isolates of Salmonella spp. were confirmed to S. typhimurium using common biochemical tests and a species-specific PCR. The genetic diversity and the clonal relationship between the isolates were determined by ERIC-PCR method. Finally, the patterns obtained from ERIC-PCR assays were analyzed using NTSYSpc software (version 2.1, USA), and dendrogram was drawn.

Results: Generally, 15 different profiles (A-J) were attained and the highest number (37%, 8 strains) were placed in profile D. Based on these profiles and the constructed dendrogram, all of 22 S. typhimurium strains were divided into two major clusters (A and B) and two subclusters (A₁, A₂), at 80% similarity.

Conclusion: The results showed that there is a high genetic diversity among S. typhimurium isolated from calf stool in Hamadan city. Also, typeability of ERIC-PCR method in genotyping of S. typhimurium strains in our study was perfect.

Keywords: Typing, ERIC-PCR, Salmonella typhimurium, Hamedan
PB-034

Evaluation of antimicrobial effects of *Mentha piperita* essential oil on common oral pathogens, in vitro study.

Javid Eghbal¹, Arian Eghbal², Ghazaleh Manafvand³

3. Assistant professor., Department of pathobiology, Urmia Brach, Islamic Azad University, Urmia, Iran
4. Student of dentistry, Urmia University of Medical Sciences, Urmia, Iran
5. Student of dentistry, Urmia University of Medical Sciences, Urmia, Iran

**Background and Aim:**
Peppermint (*menthe piperita*) is a usable medicinal herb that has therapeutic effects and used as a flavoring agent in medicines, toothpaste and gum. This research aimed to investigate the antimicrobial effect of Peppermint essential oil produced from Barij Essence Kashan, on some common oral pathogens in laboratory conditions.

**Methods:**
In this study, 100 oral swab samples were taken of patients referred to private laboratories in Urmia.

The minimum inhibitory concentration (MIC) of different concentrations of essential oil against alpha-hemolytic streptococcal isolates and Candida albicans were evaluated by agar disk diffusion and microdilution broth methods.

**Results:**
Minimum Inhibitory Concentration (MIC) by microdilution broth method on alpha-hemolytic streptococcal isolates and candida albicans was 2.5 and 20 mg/ml, respectively. The greatest effect of the essential oil was observed to be on alpha-hemolytic streptococcal (14.33±1.7 mm). However, this effect on candida albicans was found to be 3.33±1.15 mm.

**Conclusions:**
The results showed that Peppermint essential oil had a significant inhibitory effect on the growth of bacteria producing oral infections, but did not have any effect on Candida albicans at low concentrations. Therefore, further research is necessary for the clinical application of essential oil.

**Keywords:** Peppermint essential oil, alpha-hemolytic streptococcal, candida albicans, common oral pathogens

**Presenter Author:** Javid Eghbal

**Corresponding Author:** Javid Eghbal Email: javid_egbal@yahoo.com
مروری بر عفونت‌های بیمارستانی و میزان این عفونت‌های بیمارستانی-هادربیمارستانی-های کشور

به‌نظر سالحی‌ریحانی

چکیده

عفونت‌های بیمارستانی به عفونت‌هایی گفته می‌شود که در اثر بستری‌های مبتلا به این عفونت در بیمارستان بوجود می‌آیند. این عفونت‌ها اغلب به دستگاه‌های نوری و اشعه UV و سپس میزان بهره‌برداری از آن بررسی‌ها گروه می‌شود. این تحقیق ابتدا نقش اولیه در بیمارستان و راه‌های جلوگیری از آن بررسی‌ها و سپس میزان بررسی عفونت‌های بیمارستانی و عوامل این‌که‌نده، این عفونت‌ها در بیمارستان‌های مختلف گروه با توجه به تحقیقات انجام شده‌ای تا سال ۱۳۹۴ مورد بررسی قرار گرفته است.

کلمات کلیدی: باکتری‌های گرم منفی، عفونت وادار، عفونت‌های بیمارستانی

مقدمه

عفونت‌های بیمارستانی به عفونت‌هایی گفته می‌شود که در اثر بستری‌های مبتلا به این عفونت در بیمارستان به وجود می‌آیند. این عفونت‌ها باعث چشمگیری به‌ویژه نارسایی روانی و اضطراب و مقداری از میزان نیش در بیمارستان‌ها را نشان می‌دهند. در این عفونت‌ها میزان مرگ و میر در نیمیرانی نکی داشته و در مرگ و میر نیش در مرگ و میر درمانی نیکی داشته، اما میزان نیش در مرگ و میر درمانی نیکی داشته است. درمان این عفونت‌ها به‌ویژه در مراحل سرطان و کنترل عوارض و میر و مخاط توانایی بالا در توجه است. [۱] می‌تواند باعث یکی از مهم‌ترین عوامل نیش در مرگ و میر درمانی نیکی داشته، اما متاسفانه افزایش در میزان نیش در مرگ و میر درمانی نیکی داشته است. [۳] میکروب‌ها به‌ویژه باعث یکی از مهم‌ترین عوامل نیش در مرگ و میر درمانی نیکی داشته. [۴] درمان این عفونت‌ها به ویژه در مراحل سرطان و کنترل عوارض و میر و مخاط توانایی بالا در توجه است. [۵] می‌تواند باعث نیش در مرگ و میر درمانی نیکی داشته، اما میزان نیش در مرگ و میر درمانی نیکی داشته است. [۶] میکروبهایی به‌ویژه باعث یکی از مهم‌ترین عوامل نیش در مرگ و میر درمانی نیکی داشته، اما میزان نیش در مرگ و میر درمانی نیکی داشته است. [۷] میکروبهایی باعث یکی از مهم‌ترین عوامل نیش در مرگ و میر درمانی نیکی داشته، اما میزان نیش در مرگ و میر درمانی نیکی داشته است.
Prevalence of *wcaG* and *rmpA* in isolates with K20 and K54 serotypes

Elghar Soltani 1,2, Arezoo Noie Oskoii1,3, Masoud Akbari Aghdam1,3, Pourya Gholizadeh1,2

Alka hasani1,2,3

1- Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
2- Immunology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.
3- Infectious and Tropical Disease Research Center, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
Email: elghar_soltani@yahoo.com

**Background:** *Klebsiella pneumoniae* is a facultative anaerobic, gram negative bacteria which causing different infections. It possesses 77 capsular serotypes and carries virulence associated genes such as *wcaG* (involved in capsule formation) and *rmpA* (involved hypermucoviscosity phenotype). In this study, we want to assessed the association between K20 and K54 as capsular serotypes with *wcaG* and *rmpA* genes.

**Methods and Materials:** 61 *K. pneumoniae* were collected from patients which were admitted in different units of Sina Hospital, Tabriz, Iran. Isolates were identified by conventional biochemical tests and were confirmed by genotypic methods. DNA was extracted by MilliQ water. The presence of *k20*, *k54*, *wcaG* and *rmpA* were assessed by polymerase chain reaction (PCR) method.

**Results:** the frequency of *wcaG* and *rmpA* were 17 (27.9%) and 13 (21.3%) among 61 *K. pneumoniae* isolates, respectively. *k20* and *k54* were counted in 18 (29.5%) and 13 (21.3%) of isolates, respectively. The results demonstrated that *wcaG* had high frequency in *k54* positive isolates (9/17, 53%) (p-value ≤ 0.05) and *rmpA* showed higher prevalence in *k20* positive isolates (8/13, 61.5%) (p-value ≤ 0.05).

**Conclusion:** Both *wcaG* and *rmpA* are associated with invasive diseases. *K. pneumoniae* with K20 capsular serotype are mostly carried *rmpA* in the genome and were related with hypermucoviscosity. *wcaG*, which involved in capsule formation, were present highly in K54 serotype.

**Key words:** *Klebsiella pneumoniae*, capsular serotypes, virulence factors
PB-037

**Bacteriocins: Lactobacillus products or antimicrobial metabolites?**

Shahranoo Asgarian

Tarbiat Modares University, Faculty of Medical Sciences, Department of Bacteriology

**INTRODUCTION:**

The spread of multiple antibiotic resistances a significant major challenge of healthcare. Lactobacilli, as the largest group of lactic acid bacteria, produce amounts of antimicrobial metabolites such as fatty acids, ammonia, hydrogen peroxide, organic acids, diacetyl, and bacteriocins. These bacteriocins are biologically active peptides against both gram-positive and negative pathogenic bacteria, protozoa, yeast, fungi, and viruses. Thus there is an urgent need to develop natural alternatives to antibiotics.

**METHODS:**

This search was performed to identify studies focused on the ability to produce antimicrobial substances such as bacteriocins in Lactobacillus spp by searching the biomedical electronic databases Ovid MEDLINE, the Cochrane Library, Ovid EMBASE, Google Scholar, PubMed and International Journal of Probiotics. One reviewer identified studies and abstracted database on outcomes.

**RESULTS:**

This review obtained which dysbiosis as a result of antibiotics usage or the presence of pathogenic organisms. Changes in the diversity have been associated with a range of diseases including functional and infectious diseases. This problem can be prevented or reduced by lactobacilli bacteriocins. They killed pathogens by pore formation or inhibition of cell wall synthesis. Among the pathogenic bacteria, clinical isolates have been studied, such as their role in prevention and treatment Clostridium difficile infections.

**CONCLUSIONS:**

Therefore research studies need to be conducted to include in vitro and in vivo analyses, human trials or animal model studies. This results and recent success are supportive of the rational design of multistrain lactobacilli and their bacteriocins dose for clinical applications and drug formulation.

Keyword: bacteriocins, antibiotics, Lactobacilli
PB-038

Ciprofloxacin resistance and its relationship to Extended-Spectrum $\beta$-Lactamase Production in *Escherichia coli* uropathogen.

Arezoo Noie Oskoii$^{1,2}$, Elghar Soltani$^{1,3}$, Alka Hasani$^{1,2,3}$

1-Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.

2-Infectious and Tropical Disease Research Center, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

3-Immunology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

Email: arezoo.noie@yahoo.com

**Background:** *Escherichia Coli* is the one of the most common pathogens in urinary tract infection(UTI). Fluroquinolones are the broad- spectrum antimicrobial agents used for the therapy of a wide variety of community- acquired and nosocomial infections. Before the 1990, resistance to fluoroquinolones in esherichia coli was extremely rare .However, the frequent use of ciprofloxacin in the therapy of urinary tract infections has been associated with the emergence of resistant strains. Anti microbial resistance particulary increased resistance to Extended-Spectrum $\beta$-Lactamase has become of great concern.In this study, the relationship between ciprofloxacin resistance and EsBls was investigated in esherichia coli strains isolated of urine samples.

**Methods and material:** In this study, a total of 120 *E.coli* strains isolated were collected from urin samples of patints with UTI who admitted to the clinical laboratory of sina hospital in Tabriz.Standard bacteriological procedures was used to confirm the isolates as *E.coli.*
Antimicrobial susceptibility test was performed by disk diffusion method according to CLSI 2015 guidelines and ciprofloxacin resistans were collected, EsBl producing isolates were detected using combined disk diffusion test.

**Results:** Of the 120 *E.coli* strains tested, 100 (76.9%) were ciprofloxacin resistant, 83 (83%) of the ciprofloxacin resistant *E.coli* strains produced ESBL. In contrast, none of the 20 ciprofloxacin susceptible *E.coli* strains were ESBL producers. Statistical analyses showed that the incidence of ESBL production was significantly higher among ciprofloxacin resistant *E.coli* strains than among ciprofloxacin- susceptible *E.coli* strains (p-value ≤ 0.05).

**Conclusion:** Ciprofloxacin- resistant *escherichia coli uropathogen* is closely associated with broad- spectrum cephalosporin resistance. This association is of great concern because ESBL-producing *E.coli* isolates are usually resistant to penicillins and cephalosporins. Thus, ciprofloxacin resistance severely limits already restricted treatment options.

**Key words:** *Escherichia coli uropathogen*, ciprofloxacin resistant, ESBL
PB-039

**Relationship between serotype K20 and the presence of Oxa-48 and NDM-1 in Klebsiella pneumoniae**

Elghar Soltani1,2, Arezoo Noie Oskoii1,3, Masoud Akbari Aghdam1,3, Pourya Gholizadeh1,2, Alka Hasani1

1- Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
2- Immunology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.
3- Infectious and Tropical Disease Research Center, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.

Email: elghar_soltani@yahoo.com

**Background:** *Klebsiella pneumoniae* is an opportunistic bacterium, which causing community-acquired and nosocomial infections. It possesses 77 capsular serotypes and carry various carbapenemase genes. In this present study, the frequency of K20 capsular serotype was analyzed and was studied K20 relationship with presence of carbapenemase genes.

**Methods and Materials:** From July 2016, to May 2017, 61 *K. pneumoniae* collected from different clinical specimens from Microbiology laboratory of teaching and treatment hospital of Sina, Tabriz, Iran. Different conventional biochemical tests were used for identification of isolates. Antibiotic susceptibility test was performed by disk diffusion method according to CLSI 2015 guidelines. Frequency of k20 capsular serotype and carbapenemases genes including *oxa-48* and *ndm-1* were assessed by PCR methods.

**Results:** Among 61 isolates, the most of the isolates were resistant to Cefotaxime (48, 78.7%) and the most susceptibility was Colistin (2, 3.3%). The frequency of k20 serotype was (13, 21.3%) and carbapenemases genes were (48, 78.7%) for *oxa-48* and (24, 39.3%) for *ndm-1*. All k20 positive isolates had *oxa-48* in their genome. In contrary, there was not any relationship between presence of *ndm-1* and k20 capsular serotype.

**Conclusion:** Relationship between k20 serotype and presence of *oxa-48* has been demonstrated that isolates with k20 genomic cluster are more likely related with presence of *oxa-48* and carbapenem resistance.

**Key words:** *Klebsiella pneumonia*, capsular serotype, carbapenem resistance
Detection of IS903, IS26 and ISEcp1 elements in CTX-M-producing Klebsiella pneumoniae and Escherichia coli isolates from leukemic patients in Iran

Mahdaneh Roshani 1, Hossein Goudarzi 1, Ali Hashemi 1, Abdollah Ardebili 2,3, Soroor Erfanimanesh 4, Aghil Bahramian 1

1 Department of Microbiology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
2 Infectious Diseases Research Center, Golestan University of Medical Sciences, Gorgan, Iran
3 Department of Microbiology, Faculty of Medicine, Golestan University of Medical Sciences, Gorgan, Iran
4 Department of Microbiology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran.

Abstract

Background:
The ability of Extended Spectrum Beta-Lactamases (ESBLs) production is one of the main mechanisms for the emergence of antibiotic resistance in E. coli and K. pneumoniae.

Objectives:
The aim of this study was to evaluate the occurrence of IS903, IS26 and ISEcp1 insertion elements among the CTX-M-producing K. pneumonia and E. coli isolates from leukemic patients in Tehran.

Methods:
Eighty E. coli and K. pneumoniae isolates were recovered from patients admitted in hospitals in Tehran. Antibiotic susceptibility tests were performed by Kirby-Bauer disc diffusion and broth microdilution methods. Detection of ESBL producers was evaluated by phenotypic confirmatory test. The presence of IS903, IS26 and ISEcp1 insertion elements in CTX-M-positive E. coli and K. pneumoniae isolates were investigated by PCR-sequencing methods.

Results:
The rate resistance of 80 E. coli and K. pneumoniae isolates against the 9 antibiotics was as follows: 100% to ampicillin, 15% to amikacin, 51% to ciprofloxacin, 30% to gentamicin, 58% to ceftriaxone, 10% to imipenem, 63% to cefotaxime, 51% to levofloxacain and 55% to ceftazidime. Using phenotypic confirmatory test, 51 (63.75%) isolates were ESBL producers. The prevalence of CTX-M-1, CTX-M-2, CTX-M-9, CTX-M-8 and CTX-M-25 genes was 87.5%, 13.75%, 23.75%, 10 and 0%, respectively. IS903, IS26 and ISEcp1 elements were detected in 93.75%, 71.25% and 100% of isolates, respectively.

Conclusion:
This study indicates that the occurrence of antibiotic resistance, IS and CTX-M-producing E. coli and K. pneumoniae isolates could be a major concern and highlights the need of infection control measures.

Keywords: leukemic patients, Escherichia coli, Klebsiella pneumoniae, Extended-spectrum beta-lactamases, Insertion Sequence
الگوی مقاومت آنتی بیوتیکی عوامل باکتریایی عفونت ادراری در بیماران مراجعه کننده به بیمارستان امام خمینی(ره)
شهرستان کهنوج در سال 1396 (اردیبهشت تا مهر)

حمیده دانشی

فاطمه اکبری مهنی
[missakbarimehni@gmail.com]

ابوذر دانشی
[daneshi.h.94@gmail.com]

فاطمه رنجبر
[daneshi.h.94@gmail.com]

زهرا ریسی زیدآباد
[daneshi.h.94@gmail.com]

مهلا جعفری

سابقه هدف: عفونت ادراری یکی از شایعترین بیماریهای عفونی به شمار می‌رود. این پژوهش به هدف تعیین الگوی مقاومتی باکتریایی عفونت ادراری در مراجعه کننده به بیمارستان امام خمینی(ره) شهرستان کهنوج در سال 1396، به بررسی تأثیر آنتی بیوتیک‌های رایج در بیماران این بیماری پرداخت.

مواد و روش‌ها: این مطالعه به صورت توصیفی در سال 1396 انجام گرفته و نمونه‌هایی از بیماران با اعتراف به عفونت ادراری در کلنی‌های مورد نظر بررسی شدند.

نتایج: نرمالسازی ناحیه‌های حساسیت میکروارگی‌ها در بیماران این بیماری، از نظر وضعیت و حسیسیت میکروارگی‌ها در دسترس قرار گرفت. نتایج بست‌آمده مورد تجزیه و تحلیل واقع شد.

یافته‌ها: باکتری اشتریا کلی ECOLi) و استاف اپیدرمیس از عوامل اصلی عفونت ادراری در بیماران مراجعه کننده به بیمارستان امام خمینی(ره) شهرستان کهنوج بودند که به ترتیب 48 درصد و 26 درصد از 268 نفر مراجعه کننده، در این بیماری هایی از ECOLi تأثیر داشتند. استاف اپیدرمیس به ترتیب 92 و 94 درصد از نرمالسازی ناحیه‌های حساسیت باکتری اشتریا کلی ECOLi تأثیر داشت. باکتری اشتریا کلی به نادیده گرفتن ناحیه‌های حساسیت باکتری اشتریا کلی تأثیر می‌گذارد.

نتیجه‌گیری: این پژوهش به اثبات گردید که باکتری اشتریا کلی و استاف اپیدرمیس به عوامل اصلی عفونت ادراری شناسایی شد. نتایج این مطالعه حاکی از افزایش حساسیت رژیم‌های آنتی بیوتیکی در بین عوامل عفونت ادراری می‌باشد. براساس نتایج پژوهش، انتخاب و تدوین رژیم‌های آنتی بیوتیکی جهت درمان تجویزی دقت بیشتری به عمل آید و جلوگیری از تجویز داروهای بررسی نشده در بیماران این بیماری قابل پیش‌بینی است.

واژگانکلیدی: عفونت ادراری، مقاومت‌آنتی بیوتیکی، بیمارستان امام خمینی (ره)
مقایسه بیان مولکول miRNA187 و المب (BCL6) در سلول های بافتی و خونی افراد آلوده به باکتری هلیکوباکتر پیلوری
نویسنده‌گان: دکتر ررسول وسیف مشعوف–پگی لطفا
آدرس: همدان- خ شهید فهمیده- دانشگاه علوم پزشکی- دانشکده پزشکی–گروه میکروپیلهوزی
yousefimash@yahoo.com 09108002517

مقدمه و هدف: در بیماران آلوده به باکتری هلیکوباکتر پیلوری، میزان بیان مولکول miRNA187 به طور اختصاصی افزایش می‌یابد. همچنین نشان داده شده است که مولکول miRNA187 را مورد هدف قرار می‌دهد. هدف از این مطالعه بررسی و ارزیابی بیان مولکول miRNA187 و ژن BCL6 در آفراد آلوده به باکتری هلیکوباکتر پیلوری می‌باشد.

روش کار: 120 نفر وارد مطالعه شدند که از 60 نفر دارای آلودگی هلیکوباکتر پیلوری و 60 نفر غیر آلوده به هلیکوباکتر پیلوری بودند. نمونه‌های یکی از کلیه و یکی از خون به‌طور خاص miRNA187 و BCL6 از روش Real-Time PCR از روش Taq DNA محقق گردیده و یک پرامر Reverse و یک پرامر Forward مختصر هر زن و همچنین انزیم سنتز شده از cDNA و استفاده از رنگ FLUROSYBERgreen و زیر رنگ شده داده و با GRO primer سپس داده می‌شود. سپس با استفاده از روش آزمون T- test نشان داده و با استفاده از روش SPSS نسخه هفتم و با استفاده از خودکار آزمون 90 نمودار (زمینه تحلیل) (آزمون) مورد تجزیه و تحلیل قرار می‌گیرند.

یافته‌ها: هایده‌های دار به دست آمده حاکی از کاهش معنی‌دار بیان مولکول miRNA187 در نمونه‌های بافتی افراد بیمار در مقایسه با افراد سالم است. این نتایج نشان میدهد که مولکول miRNA187 در نمونه بافتی افراد سرطانی نسبت به سایر بیماران مشترک با میزان افزایش BCL6 در نمونه‌های بافتی سایر افراد سرطانی بیشتر از دیگر بیماران بوده و این نتایج دامنه‌ی داده بیان می‌شود. همچنین در نمونه‌های بافتی افراد سالم، مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم نسبت به سایر بیماران افزایش نشان داده و نتایج نشان داده که مولکول miRNA187 در نمونه‌های بافتی سایر افراد سالم NCL6 زن miR187

کلید واژه‌ها: سلول های بافتی، سلول های خونی، هلیکوباکتر پیلوری، miRNA187، BCL6
Identification of *Streptococcus agalactiae* isolated from vaginal discharge in Pregnant Women using 16S rRNA primers compared with conventional method.

Rasoul Yousefi Mashouf, Seyd Masoud Mousavi, Mohammad Reza Arabestani.

Department of Microbiology, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan, IR Iran

**Introduction and aim:** Group B streptococcus (GBS) is a part of many women’s vaginal and also gastrointestinal tract normal flora, but it can cause life threatening. The aim of this study was to evaluate PCR assay targeting 16S rRNA primers compared with conventional culture method for direct detection of GBS in vaginal specimens of pregnant women at 35–37 weeks of gestation in Hamadan.

**Methods:** 203 vaginal specimens of pregnant women at 35–37 weeks of pregnancy from June 2013 through February 2014 were evaluated for detection of GBS using culture method and PCR assay

**Results:** Prevalence of GBS in 203 collected samples was 7.39% using culture method and 19.70% using PCR assay. 25 specimens resulted positive by PCR and negative by culture; 2 specimens resulted positive by culture and negative by PCR. Generally, a total of 42 specimens (20.69%) were considered true positive. PCR results in comparison to culture (as gold standard) revealed sensitivity of 88.24%, specificity of 87.44%, positive and negative predictive value of 35.71%, 98.95%, respectively, and accuracy of 87.50%.

**Conclusions:** The study data demonstrated that performing only culture method leads to missed false negative carrier individuals. Thus, it is recommended that both the PCR assay and conventional culture method perform routinely in order to detect GBS.

**Key words:** *Streptococcus agalactiae*; Pregnancy; Polymerase Chain Reaction; Conventional tests

*Address of correspondence:* Mohammad Reza Arabestani, Department of Microbiology, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan, IR Iran. Email: Mohammad.arabestani@gmail.com
Association between diabetes mellitus and Helicobacter pylori infection

Shiva Rezaee¹, Amin Talebi Bezmin Abadi¹

¹Department of Bacteriology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.

Background: In patients with diabetes mellitus, chronic infections are frequent and severe. Some study reported, there is an association between infection with *H. pylori* and occurrence of diabetes. The aim of this study was to determine the association between Helicobacter pylori infection and diabetes mellitus and the prevalence of *H. pylori* infection in this patients.

Methods: The total of 58 patients with reports of gastrointestinal disorders, who referred to selected Tehran hospital, were recruited in our survey. Endoscopy was performed, and biopsy specimens were collected from each patient for DNA extraction and PCR for *glmM* gene, to investigate according to the presence or absence of *Helicobacter pylori* infection. Diabetic patients were identified based on laboratory reports and doctor's diagnosis.

Results: 23 patients (8 men and 15 females) were identified as positive for *H. pylori* (39.65%). Of the twenty three patients with positive *H. pylori* infection, only 5 patient (2 men and 3 females) had diabetes mellitus (21.73%) and 18 patient did not have diabetes (78.26%). The age of patients with diabetes mellitus ranged from 30 to 70 years old, with a mean age of 53.5 years.

Conclusions: According to this study, *H. pylori* infection shows a negative association with the development of diabetes mellitus.

Keywords: helicobacter pylori infection, diabetes mellitus, PCR for *glmM* gene
PB-045

Study of Simultaneous Frequency of Staphylococcus Aureus Pathogenicity Island (SaPIs) by α-toxin Gene and Panton Valentine Leukocidin in Isolates From Urinary Tract

Maryam Gholami¹, Abbas ali Rezaeian²

¹. Department of Microbiology, Shiraz Branch, Islamic Azad University, Shiraz, Iran.
². Department of Microbiology, Jahrom Branch, Islamic Azad University, Jahrom, Iran.
Arezaeian@jia.ac.ir *

Background: S.aerueus is a second common cause of nosocomial infection. This bacteria can transfer resistance and pathogenic genes horizontally via transposon and phage.including: meticilline antibiotic resistance gene, alpha toxin and Panton valentine leukocidin gene (pvl). The aim of this study is determination of antibiotic resistance frequency as well as pvl and hla gene frequency, which is located in Pathogenicity Island and evaluation of their significant relation.

Methods: In a cross-sectional descriptive study in two months, 107 gram positive bacterial samples from the patients with UTI and suspected of Staphylococcus were collected from medical centers and diagnostic laboratories in Shiraz. Identification of the Staphylococcus species arranged using phentotypical,16SrRNA and Coa gene via PCR technique. Then, frequency of pvl and hla gene of the staphylococcal isolates was evaluated using PCR and the specific primers. Antibiotic susceptibility of the isolates to 13 antibiotics was checked by disc diffusion method and CLSI tables, finally MIC tested for methicillin resistant strains.

Results: Among 107 isolates, 50sample of S.aureus were identified. The results obtained from antibiogram tests illustrated that the most resistant antibiotics were Penicillin (100%), Meticillin (100%), Vancomycin (96%) and the least antibiotic resistant belonged to gentamycin (5%) and Imipenem (4%). The results obtained from MIC showed that effective dose of methicillin has increased to≥8 μl which is 4 fold more than the standard. The study showed that all of the Staphylococcal isolates were MDR. The PCR results indicated that 94% of the isolates containing the hla gene and 20% had pvl gene. Based on chi square analysis there is significant relationship ( P value 0.05) between the penicillin, meticillin and cephtriaxone antibiotics and pvl gene.

Discussion: S.aureus is the most cause of infection especially nosocomial infections and increasing the MDR species containing pvl and hla gene are theathing the human health. Due to the risk of pvl toxin in infections of this bacteria, the intermittent evaluation of the epidemiology of the strains that produces this toxin as well as the evaluation of antibiotic resistance is essential and avoidable.

Keywords: Staphylococcus aureus, MDR, Pvl, hla, coa
PB-046

Determination of PCR-ELISA reliability and specificity compared to PCR for detection of Salmonellaspp.

Mahboube Riyahi¹, Alireza Rafati², Maryam Beygi¹, Nastaran Aslani¹
1- Student Research committee, Sirjan faculty of Medical sciences, Sirjan, Iran
2- Sirjan faculty of Medical sciences, Sirjan, Iran
Presenter Author: Mahboube Riyahi
E-mail: Mahboube76riyahi@gmail.com

Introduction: Salmonella is a gram-negative bacterium causing disease in humans and animals. Salmonella first binds to the epithelial cells of the intestine; it can also enter between intercellular connections, then enter the bloodstream and infect the lymph system of various parts of the body. Salmonella is still recognized as a major health problem in humans, and since Salmonella is the most important determinant of detection, diagnosis requires a quick and accurate method. The results show that PCR and its methods are very sensitive and specific in detecting Salmonella in peripheral and tissue samples. But in the PCR-ELISA method, the single-stranded probe is dual-simultaneous; it is dedicated to the full follow-up of the PCR product and its fixation in the ELISA plate. Therefore, the exact PCR product is specifically identified in this system.

Material and Methods: Genomes of 17 strains isolated from clinical samples were extracted and the rfb gene, which is responsible for biosynthesis of antigen O from bacterial lipopolysaccharide, was selected as the target sequence. The designated primers resulted in the proliferation of 882 base pairs for Salmonella typhimurium species. The sequence of this gene, PCR was used to determine the target. Compared to conventional PCR and PCR-ELISA detection limit of the genome using a conventional PCR also simultaneously with the test was performed and the results of the two methods were compared.

Results: PCR and PCR-ELISA results demonstrate the ability of this method in this study is the identification of clinical isolates of Salmonella is successful. Measured by calculating sensitivity and specificity compared with other molecular methods are acceptable, and a specificity of PCR is more, we can use this method for the diagnosis of salmonellosis in samples from patients. Hence, we recommend ELISA-PCR to diagnose Salmonella-associated diseases.

Key words: PCR, Elisa-PCR, Salmonella
Carbapenem resistant Entrobacteriacea isolated treatment

Elghar Soltani1,2, Pourya Gholizadeh1,2

1- Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
2- Immunology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.

Background: Some of the species of Enterobacteriaceae are Gramnegative hospital-acquired pathogens that are mostly difficult to treat. Carbapenem resistant Enterobacteriaceae (CRE) are resistant to a carbapenem drugs. However, carbapenem non-susceptibility among Enterobacteriaceae can be acquired through multiple mechanism such as carbapenemase enzyme that is currently being the most concerning resistance mechanism and multidrug efflux systems. The aim of this study is suggested some available antibiotics to be administered in the treatment of infections by these CRE organisms. Result and discussion: Resistance to broad-spectrum antimicrobials, such as the extended-spectrum cephalosporins specially third generation, is a well-recognized problem among Enterobacteriaceae. Carbapenems have served as an important antimicrobial class for the treatment of these organisms. The emergence of novel Beta-lactamases with direct carbapenem-hydrolyzing activity has created carbapenem resistant Enterobacteriaceae (CRE). CRE have complicated the treatment options. Carbapenem drugs like Imipenem and Meropenem were used for ESBL-producing gram negative organism. Also, β-lactamase inhibitor such as clavulanic, sulbactam and tazobactam with other B-lactams antibiotic such as amoxicillin and piperacillin, can be used against ESBL-producing organisms. Aminoglycosides, trimethoprim-sulfamethoxazole and fluoroquinolones should be administered with caution in serious infections. carbapenemase-producing isolates are likely to exhibit simultaneous resistance to fluoroquinolones and aminoglycosides. So antibiotics like Fosfomycin, Tigecycline and colistin are recommended for the treatment of CRE.

Conclusion: The treatment options of infection caused by MDR and carbapenemase producing pathogens are limited and the treatment of infection is complicated. some drugs such as tigecycline, colistin, and fosfomycin have been suggested for carbapenemaseproducing Enterobacteriaceae.

Key words: Entrobacteriaceae, Carbapenem resistance, Treatment
Risk factor for in-hospital mortality in patients with Klebsiella pneumoniae infections

Elghar Soltani1,2, Masoud Akbari Aghdam1,3, Poulya Gholizadeh1,2, Alka Hasani1,2

1- Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
2- Immunology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran.
3- Infectious and Tropical Disease Research Center, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

Background: Klebsiella pneumoniae, known as a major threat to public health, is the most common factor of nosocomial and community acquired infections. It is associated with most suppurative infections such as urinary tract infections (UTI), wound infections, sepsicaemia and intra-abdominal infections. The aim of this study was to assess clinical features, underlying diseases, the demographic data and antimicrobial susceptibility to find the in-hospital mortality of K. pneumoniae infection.

Methods and Materials: From February 2016, through May 2017, 61 patients with any positive culture for K. pneumoniae at Sina Hospital, in Tabriz, Iran, were enrolled prospectively. The underlying diseases, clinical feature and the demographic data of these patients were collected and analyzed. Antibiotic susceptibility test were accomplished by disc diffusion method according to Clinical Laboratory Standards Institute (CLSI) guidelines.

Results: Among different antibiotic disks, Cefotaxime had the most resistance (48, 78.7%) and Colistin had the most susceptibility (2, 3.3%). From 61 patients 43 (70.5%) were hospitalized in 13 different wards which Burn ICU 7 (11.5%) had the highest episode among all wards. 50% of infection occurred in elderly patients (≥ 60 years). Patients were suffered from various types of diseases such as renal 20 (32.7%) and lung 11 (18%) disease mostly. The most common site for isolation of K. pneumoniae was urinary tract 31 (50.8%), followed by wound 15 (24.6%) and blood 8 (13.1).

Conclusion: In our study, the crude in-hospital mortality was 11/61 (18%). By multivariate logistic regression analysis, some variables like old age (≥ 60 years), MDR, Amikacin resistance, infectious diseases and lung disease associated with significantly higher mortality (P value <0.05)

Key words: Klebsiella pneumonia, risk factor, mortality
Survey of Vitamin D3 Level in Patients Referred to Health Centers in the South of Tehran City

Hamid Lavakhamseh¹, Jalileh Ebn Abbas²*, Mehdi Emami³, Maryam Sadeghi³, Fariba Amni¹, Samaneh Rouhi²-⁴, Delnia Khani², Samireh Amini²

1-Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran.
2-Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran.
3-Responsible for Quality Control Laboratories, Ali AbadClinic, Tehran, Iran.
4-CellularMolecular Research Center, Kurdistan University of Medical, Sanandaj, Iran.

Corresponding Author: Jalileh Ebn Abbas, Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran. Email: jalileh508@gmail.com

Introduction: Vitamins D3, is a fat-soluble vitamin, which plays a significant role in bone health, reproductive and central nervous system function. Considering the importance of this issue, a study was conducted to investigate the deficiency of this vitamin in southern Tehran.

Materials and methods: This descriptive cross-sectional study was conducted from April 2015 to April of 2016 on 1000 patients in all age groups including 716 women and 284 men in south of Tehran, Iran. The vitamin D3 assay was performed by the 411ELecsys apparatus and by an electrochemical method, which measured up to 10-15 molar concentrations of the substances. In general, the level of vitamin D3 is divided into four categories of extreme poverty (<10nmol/Lit), deficiency (10-30nmol/Lit), sufficient amount (30-100 nmol/Lit) and toxicity (>100nmol/Lit). The collected data were entered into the SPSS16 software and analyzed using the frequency distribution table and ANOVA (p<0.05).

Results: 70% of surveyed peoples had insufficient level of vitamin D3, also approximately 30% suffer extreme poverty. Highest age range that had vitamin D3 deficiency was between the ages of 25 - 50 years. 48% of people between the ages of 25 - 50 years, had deficiencies of vitamin D3. A total of 65% of the women in this region suffered, lack of vitamin 3D. Also, 5.8% of the subjects in this study had a toxic level of this vitamin indicating uncontrolled and uncontrolled use of this vitamin in these individuals. And In general, approximately 25% of the subjects in south of Tehran had a normal level of this vitamin. In old individuals, deficiency of vitamin D3 was more than younger's (p<0.05).

Conclusion: Vitamin D3 deficiency in the south of Tehran, like other part of country was in a state of crisis. Therefore, proper notification by hospitals, laboratories and other medical centers is necessary to control and also guiding of patients in case of consumption of vitamin D3.

Keywords: Vitamin D3, Patients, Health Centers
**PB-050**

**The Prevalence of Gram-negative bacteria producing degrading enzymes of β-lactam antibiotics isolated from the hospital environment**

Samaneh Rouhi¹,², Sanaz Ahmadi¹*, Rashid Ramazanzadeh², Tina Salvati¹, Masoud Haidari Far¹, Manoochehr Ahmadi Hedayati³

1-Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran.

2-Cellular-Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran.

3-Liver and Digestive Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran.

**Corresponding Author:** Sanaz Ahmadi, Cellular and Molecular Research Center, Department of Microbiology, Kurdistan University of Medical Sciences, Sanandaj, Iran, E-mail: sanazahmadi2670@gmail.com

**Introduction:** The levels of the hospital are from biological sources of antibiotic resistant bacteria that had prominent role in hospital infection. The aim of this study was to determine the prevalence of Gram-negative bacteria producing beta-lactamases and metalobetalactamases (MBL) in Sanandaj Besat hospital, Kurdistan province, Iran, 2014.

**Materials and Methods:** In current descriptive cross-sectional study, samples were collected by sterile swabs from the different hospital environment. Detection of MBL resistance was performed by the combined IMP (10μg)/EDTA (0.5mol) and IMP (10μg). Acidometric method used to confirm beta-lactamase producing bacteria. SPSS16 software and Chi-square test were used to interpret the data (p <0.05).

**Results:** Out of 201 bacterial isolates that were isolated from this study, only 6 (2.98%) isolates of Klebsiella and 1(49.0%) E. coli were detected as Gram-negative isolates. In the acidometric method, only one sample (0.06%) was the β-lactamase producing Klebsiella. None of the strains produced MBL in the Acidometric method. In the Acidometric disc method, none of the strains produced MBL. In places that were cleaned regularly, isolates bacteria were lower (p <0.05).

**Conclusion:** The prevalence of Gram-negative bacteria in this study was very low. However, bacteria can be transmitted from different levels to humans and, if they had antibiotic resistance genes, they transfer these genes from person to person. Therefore, the identification and removal of bacteria in the hospital is necessary.

**Key words:** Gram-negative bacteria, degrading enzymes, β-lactam antibiotics
PB-051

The study of MnSOD Val16Ala genotypes and its association with Helicobacter pylori in peptic ulcer patients in Kermanshah city

Introduction: One of the main causes of peptic ulcer and inflammation is *Helicobacter* pylori, that the bacterium has a global spread. The aim of this study was to evaluate the relationship between genotype MnSOD Ala16Val and the risk of peptic ulcer.

Material and method: This case-control study included 75 patients with peptic ulcer and 60 healthy as controls. DNA extraction from peptic paraffin blocks and control blood samples was performed using the kit. PCR was used to detect GlmM and MnSOD genes. On the other hand, to test the MnSOD Ala16Val polymorphism the PCR-RFLP method was used.

Results: From the 75 patients blocked biopsy samples, (74/66%) 56 patient samples were glmM positive. Their genotypes were evaluated, and showed that the frequency of A/V genotype in both of patients and controls groups were higher. In the allelic examining it was demonstrated that the frequency of allele A was significantly higher in patients compared to control (p = .000). As Ala / Ala genotype could increase the rate of peptic ulcer by 3.32 times.

Conclusion: This research was illustrated that there was a positive correlation between the MnSOD Ala16Val polymorphism and gastric ulcer disease. So that genotype Ala/Ala can be considered as a risk factor for the peptic ulcer disease.

**Key words:** peptic ulcers, Helicobacter pylori, Manganese superoxide dismutase, RFLP-PCR
پرسی فنوتیپی و مولکولی مقاومت به متی سیلین در ایزوله‌های استافیلوکوکوس اوریئوس جدا شده از نمونه‌های بالینی آزمایشگاه‌های خصوصی تبریز

نویسنده‌گان: مجتبی نجفی فرید، مهدی قیامی راد

1 دپارتمان میکروبیولوژی، دانشکده علوم پایه، دانشگاه آزاد اسلامی واحد اهر، ایران.

نوع سنده مسئول: مهدی قیامی راد m_ghiyamirad@yahoo.com
ارائه دهنده: مجتبی نجفی فرید mnajafifarid@yahoo.com

زمینه و هدف: استافیلوکوکوس اوریئوس یکی از عوامل مهم عفونت‌های بیمارستانی و اکتسابی از جامعه در ایران و جهان می‌باشد. امروزه، مقاومت به انترپرتیکس با خاصیت داروهای اصلی درمان، به دلیل مصرف بیش از حد در حال افزایش است که این مسئله به یکی از نگرانی‌های عمومی تبدیل شده است. هدف اصلی تحقیق حاضر، بررسی مقاومت به متسیلین به روش فنوتیپی و زنوتیپی در ایزوله‌های جدا شده از نمونه‌های بالینی بیماران مراجعه کننده از آزمایشگاه‌های خصوصی تبریز می‌باشد.

مواد و روش‌ها: در این مطالعه، 100 آزمایشگاه با استفاده از روش‌های استاندارد بیوشیمیایی از ایزوله‌های استافیلوکوکوس/ایسوس/ورتوس شناسایی شد. سپس الگوی حسیسی برای هر ترکیب به روش فنوتیپی در روش سیلین تأیید گردید. همچنین با استفاده از تکنیک PCR سفکستیون، با رایعت اصول CLSI تعیین گردید. همچنین جهت بررسی مقاومت با روش mecA-CLSI شناخته شد.

نتایج: از مجموع 100 نمونه، 57 ایزوله استافیلوکوکوس/ایسوس/ورتوس مثبت قرار گرفتند. نتایج تست مقاومت به انترپرتیکس به ترتیب نسبت مثبت سیلین (94%), متسیلین (92%), آمپیسیلین (69%), سفارس (82%), سایکلوکاسین (28%), آمپیسیلین (7%), سولفوراکسان (55%) و متسیلین (10%) بود. مقاومت به متسیلین در 75 درصد جدایی‌های بالینی که نظر فنوتیپی مقاومت به متسیلین را نشان دادند، مقایسه گردید. 

نتیجه‌گیری: به توجه به مقاومت مشاهده شده نسبت به این مشاهده، استفاده از مقاومت به متسیلین مقایسه گردید. همچنین مقایسه 75% به متسیلین بیانگر لزوم انجام آنلاین پیگرام‌های متقابل درمانی می‌باشد.

کلید واژه: استافیلوکوکوس/ایسوس/ورتوس، مقاومت، انترپرتیکس
بررسی الگوی حساسیت آنتیبیوتیک ارگانیسم های جدا شده از نمونه های بالینی بیمارستان بهشتی کاشان 6 ماهه اول 96

نویسندگان: زهره سیدا میرحسینبی، یحیی کوشی، کیرشنیس ارشد مراقبت های علمی و پزشکی
مقدمه: مقایسه آنتیبیوتیک‌های جدید و نقش آنها در درمان بیماری‌های مزمن. بررسی حساسیت ارگانیسم‌ها به آنتیبیوتیک‌ها

مواد و روش‌ها:
اندازه‌گیری حساسیت با استفاده از فنون تردید و سنجش با HIPS و بعداً در نرم‌افزار SPSS تجزیه و تحلیل مورد آزمون و تجزیه و تحلیل

نتایج:
کلیندامین ولینزول 100%، وانکومیسین 92%، کوتیمیکراسول 90%، ریفامیکسین 85/8%، سیپروفلکسین 62/5%، کلوگازولین 50%، شایع‌ترین آنتی‌بیوتیک‌های بودن که مصرف شده‌بودند. این نتایج نشان می‌دهد که مصرف آنتی‌بیوتیک‌های جدید در درمان بیماری‌های مزمن بسیار مؤثر است.

کلید واژه: حساسیت، آنتی‌بیوتیک‌های بالینی، نمونه بیماری‌های بالینی
Antibiotic susceptibility and resistance pattern of Staphylococcus epidermidis from clinical specimens of Tohid Hospital in Sanandaj, Iran

Somayeh Ghavami¹, Bashir Mohammadpor¹

¹Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran.

Corresponding Author: Somayeh Ghavami. Email: somayeh.ghavami95@gmail.com.

Background: Staphylococcus epidermidis is the most important member of the family of coagulase negative Staphylococcus. S. epidermidis is the third cause of nosocomial infections and one of the most common causes of sepsis. The aim of this study was to Antibiotic susceptibility and resistance pattern of Staphylococcus epidermidis isolated from clinical specimens of Tohid Hospital in Sanandaj, Iran.

Methods: This cross-sectional study was conducted from March to December 2016. A total of 90 S. epidermidis were isolated from 1024 specimens. Isolate samples were obtained from all clinical specimens of Tohid Hospital in Sanandaj, Iran. The isolates were identified as S. epidermidis based on Gram stain, catalase test, coagulase test, mannitol salt agar fermentation and sensitivity to novobiocin. Microbial sensitivity testing was done using disk diffusion test according to the CLSI guidelines.

Results: Isolates of S. epidermidis from cases showed highest antibiotic resistance to Trimethoprim-sulphamethoxazole 68%, erythromycin 55% and ciprofloxacin 38%. Also most sensitivity to gentamicin 57%, nitrofurantoin 39% and clindamycin 34%.

Conclusion: The result showed that antibiotic gentamicin is the best choice for treating infections caused by S. epidermidis. Also, the high resistance of these bacteria can be a serious warning to increase antibiotic resistance.

Key Words: Staphylococcus epidermidis, Antibiotic resistance, Gentamicin, Trimethoprim-sulphamethoxazole.
Evaluation of *Mycoplasma genitalium* and *Ureaplasma urealyticum* on infertile infected women with bacterial vaginosis by PCR

Amin Moazami¹, Zohreh Ahmadiyan Fard²

¹. MSc of Microbiology, Islamic Azad University of Sirjan, Sirjan, Iran
². MSc of Microbiology, Islamic Azad University of Sirjan, Sirjan, Iran

(Corresponding Author) E-mail: Amin_moazemi@yahoo.com

**Background:** *Ureaplasma urealyticum* and *Mycoplasma genitalium* are sexually transmitted bacteria. These bacteria cause pelvic inflammatory disease, urethritis non-gonococcal and others. The aim of this study was to Evaluation of *Mycoplasma genitalium* and *Ureaplasma urealyticum* on infertile infected women with bacterial vaginosis by PCR

**Methods:** The present study is a cross-sectional study on 60 endo cervical samples of women with vaginal infection (vaginal discharge, cervicitis and vaginitis) with an average age of 18 to 45 years old who referred to Kerman Infertility Centers. The inclusion criteria for the study included the presence of one or more symptoms associated with genital infection including itch in the genital tract, increased secretion, change in the color and smell of discharge, non-use of antibiotics and vaginal cream within 3 days before referral. Samples were prepared from vaginal and endocervical sites and immediately transferred to the lab the in phosphate saline buffer transport medium. DNA extraction kit of Sina Clone Company was used to extract DNA. In this study, 16S rRNA gene was used as a target gene for the detection of Mycoplasma.

**Results:** After performing a PCR test on 60 samples, mycoplasma positive specimens were confirmed by observing the 163 bp band in the agarose gel. Then positive mycoplasma specimens were again subjected to PCR reaction to determine *Mycoplasma genitalium* and *Ureaplasma urealyticum* isolates. Among 60 samples, 38% of the samples had mycoplasma contamination and *Ureaplasma urealyticum* and *Mycoplasma genitalium* bacteria were found in 13.32% and 11.6% of patients, respectively.

**Conclusion:** Considering the potential effects of mycoplasmas on the complications of infection in maternal pregnancies, infant mortality and also, the isolation of *Ureaplasma urealyticum* and *Mycoplasma genitalium* from patients with genital infections, the need for diagnosis and timely treatment is needed more than before.

**Key words:** *Ureaplasma urealyticum*, *Mycoplasma genitalium*, bacterial vaginosis, PCR
PB-057

Antimicrobial activity Ozonized water, chlorhexidine, amoxicillin, metronidazole and amoxicillin-metronidazole combination on the bacterium Porphyromonas gingivalis

Background: Recently ozone as a disinfectant effective in the treatment of periodontal disease has been suggested, this study investigated the in vitro antimicrobial activity Ozonized water, chlorhexidine, amoxicillin, metronidazole and amoxicillin-metronidazole combination on the bacterium Porphyromonas gingivalis (Pg) is paid.

Methods of study: In Vitro and In this study, double-blind, different concentration from ozone water, chlorhexidine, amoxicillin, metronidazole injection, suspension of metronidazole and amoxicillin-metronidazole combination with 7 times in the presence of bacteria in a test tube Pg 14 located (840 = n) and its antimicrobial effect by the method of MIC for bacterial growth material) using turbidity and MBC and count the number of colonies were determined. Statistical analysis was performed with two way ANOVA and LSD test materials.

Results of research and innovation: the MIC ozone water, chlorhexidine, amoxicillin, metronidazole injection, suspension of metronidazole and amoxicillin-metronidazole combination of respectively 7.0, 3, 190, 310, 12 500 and 10 micro grams per ml. and MBC respectively 1, 7, 390, 310, 2500 and 10 micro grams per ml, respectively, MIC and MBC were obtained and ozone water, chlorhexidine and amoxicillin-metronidazole combination with significant differences (P ≤ 0.05 ) MIC and MBC less and metronidazole suspension with significant differences (P ≤ 0.05) more than the material was tested.

Conclusion: ozone water strong antimicrobial effect than chlorhexidine, amoxicillin, metronidazole and amoxicillin-metronidazole combination on the bacterium Porphyromonas gingivalis and can be used in the treatment of periodontal disease. Although laboratory and clinical studies is needed.

Keywords: Porphyromonas gingivalis, ozone water, chlorhexidine, amoxicillin, metronidazole
PB-058

Presence of the efflux pump genes (adel) in clinical isolates of A. baumannii resistant to antibiotics with molecular methods

محمد نیاکان

Introduction

The presence of efflux pump genes (adel) in clinical isolates of A. baumannii resistant to antibiotics in hospitals of Tehran. 60 clinical samples of A. baumannii were collected from hospitals in Tehran. After final confirmation of biochemical test samples as blaOXA-51-like gene was PCR molecular technique.

Material and Methods: Antibiotic test on Mueller Hinton agar medium disk diffusion method for antibiotics amikacin, gentamicin, imipenem, meropenem, ceftazidime, ciprofloxacin, trimethoprim / sulfamethoxazole, tetracycline, ceftriaxone was done.

Results: Antibiotic resistance of the isolates showed that the resistance from 45% to 3/98% according to different antibiotics. The highest resistance of A. baumannii antibiotic tetracycline, ciprofloxacin, ceftazidime and amikacin and the most sensitive and more to sulfamethoxazole revealed texts.

Conclusion: The results in this study suggest that although genes in strains with resistance to antibiotics adegbJ significant relationship, but the role of other factors and mechanisms involved in resistance should never be ignored.

Keywords: A. baumannii, antibiotics resistance gene, efflux pump, adel.
PB-059

Study on Antimicrobial Effects of methanolic and aquatic extracts of *Rubia tinctorum* leaves on *Acintobacter baumannii*

محمد نیاکان

**Introduction:** Over the past decade, multidrug-resistant *Acintobacter baumannii* as a cause of nosocomial infections has been a widespread threat. Herbal medicines that extract from the plant’s essence or oil of the nature, are among the compounds that do not cause severe side effects and that’s why nowadays research about these medicines has been expanded. As a result, this study was aimed to evaluate the antimicrobial effect of methanol and aqueous extracts of Rubia tincorum on the *Acintobacter baumannii* isolated bacteria.

**Material and Methods:** *Acintobacter baumannii* isolates were taken from 60 patients of different wards from the sputum, urine, wound exudates and blood samples by sterile swab and in the laboratory the bacteria were confirmed of being *Acintobacter*. The aqueous and methanol extracts of Rubia tincorum from the dilution of 1:2 to 1:32 were prepared and inhibition zone diameter around a disk impregnated with each dilution measured and evaluated.

**Results:** The mean age of patients was 63.17 years. 43.3 % of patients were female and 56.7 % were male. The most antibacterial effect is for alcoholic extract of pomegranate in 1:2 dilution with the inhibition zone diameter average 22.93 and the least antibacterial effect is for aquatic extract of all the three plants in 1:32 dilution and 1:32 dilution of alcoholic extract of Rubia with no inhibition zone. The 86.7 % of cultures were resistant to the alcoholic extract and 40 % to the aqueous extracts of madder.

**Conclusion:** The results of this study showed that the alcoholic and aqueous extracts of pomegranate and walnuts show a good antibacterial effects against *Acintobacter baumannii* even in low concentrations. These results could herald the emergence of new antibiotics against resistant strains of *Acintobacter baumannii*.

**Key words:** *Acinetobacter baumannii*, Rubia tincorum, methanolic and aqueous extracts, antimicrobial effect.
Molecular Detection of *Listeria monocytogenes* in Semen of Infertile Men who Referred to Sarem Hospital

*Maryam Tohidpour*¹, *Mohammad Hassan Shahhosseiny*²⁻³, *Sedigheh Mehrabian*¹, *Abo Taleb Saremi*⁴

¹. Department of Microbiology, Tehran North Branch, Islamic Azad University, Tehran/Iran
². Department of Microbiology, Shahr-e-Qods Branch, Islamic Azad University, Tehran/Iran
³. Iranian Gene Fanavar Institute (IGF), Tehran/Iran
⁴. MD, Gynecologist, Subspecialty of Infertility, IVF and Laparoscopic surgery, Sarem Fertility and Infertility Research Center (SAFIR), Sarem Cell Research Center, Sarem Hospital (SCRC), Tehran/Iran

**Background:** Today, one of the major causes of infertility in men is genital tract infection. In most cases these infections disturb parameters and sperm function, inflammation of the epididymis and prostate, and, if transmitted to the spouse, causes recurrent abortion and the birth of a premature infant. Therefore, identification of the infection agent and the administration of appropriate antibiotics can result in improved sperm parameters and, consequently, fertility. The aim of this study was to determine the molecular detection of *Listeria monocytogenes* by PCR method in semen of infertile men.

**Methods:** The PCR test was optimized by standard strain to detect *Listeria monocytogenes* and then was studied in terms of specificity and limit of detection (LOD). Semen samples were collected from 100 infertile men who referred to Infertility Clinic of Sarem Hospital during 2017 (Jan-Jun). Each sample was divided into two parts: The first part was for semen analysis and the second part was tested by PCR method. DNA was extracted by using phenol-chloroform method. The PCR test was done for detection of *Listeria monocytogenes*.

**Results:** From a total of 100 semen samples, 3 cases (3%) were positive for *Listeria monocytogenes*. The cases with positive results, had a leukocyte level higher than normal (0-1 Mil/ml) and their sperm had low motility as determined by their spermogram test.

**Conclusion:** According to the results of this study, the frequency of infection with *Listeria monocytogenes* was low. But their timely antibiotic treatment is inevitable and plays an important role in the treatment of infertility, and So, using PCR method is introduced as a useful, fast, sensitive and specific technique to identify *Listeria monocytogenes*.

**Keywords:** Molecular Detection (PCR), *Listeria monocytogenes*, Semen, Infertile Men
PB-061

The prevalence of bacterial infectious agents in clinical samples taken from patients in Mofid children’s Hospital

Taher Azimi¹*, Fatemeh Fallah², Sahar Sabour³, Aref Shariati, Hosein Safari¹

¹Department of Pathobiology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
²Pediatric Infections Research Center, Research Institute children health, Shahid Beheshti University of Medical Sciences, Tehran, Iran
³School of Medicine. Ardebil University of medical science. Ardebil.IR Iran

*Corresponding author:Taher Azimi
E-mail:Taher Azimi5@gmail.com

Background: Bacteria are onet the main causes of infection in human beings and such infection can be caused by a variety of bacteria. Children are usually considered as the most original people to acquire bacterial infections. The aim of this study was to determine the diversity of bacterial agents isolated from clinical samples taken from children.

Method and Material: 100 blood samples were collected from different parts of the hospital for a period of 6 months. All specimens were evaluated to determine the presence of infection-causing agents using a BACTEC 9120 Blood Culture. Isolation and identification of different bacterial strains of positive cultures were performed using conventional biochemical tests.

Results: Overall, out of 100 clinical samples taken from patients, 65 blood samples were positive for infectious agents by BACTEC 9120 blood culture. The frequency of infectious agents was as follows: pseudomonas aeruginosa (24.6%), staphylococcus epidermidis (13.8%), candida albicans (13.8%), borkholderia.spp (10.7%), Enterococcus faecium (9.23%), Klebsiella pneumoniae (9.23%), Acinetobacter baumannii (7.69%), Escherichia coli (3.07%), Streptococcus viridans (3.07), staphylococcus aureus (3.07%), and salmonella paratyphi (1.53%).

Conclusions: The results showed that different bacteria can be associated with various diseases in children, therefore, appropriate programs should be considered in order to control these agents and treat the patients.

Keywords: Bacterial infections, Hospital infections, Nosocomial infection
Inactivation of Geobacillus stearothermophilus spores by use of low-pressure air plasma

Negin Fallahi¹,², Seyed Masoud Hosseini¹, Babak Shokri², Mohammadreza Khani²

¹Department of Microbiology, Faculty of Life Sciences & Biotechnology, Shahid Beheshti University, Tehran, IRAN
²Laser and Plasma Institute, Shahid Beheshty University, Tehran, IRAN

Background: Low-pressure Air Plasma (LPAP) has been widely considered to be an effective method for surface decontamination. Numerous studies report that LPAP also has antibacterial ability. Geobacillus stearothermophilus is non-pathogenic resistant indicator bacteria that forms spore in stress conditions. The aim of this study is to investigate the potential of LPAP for the inactivation of Geobacillus stearothermophilus.

METHODS: Biological Indicators (BIs) from gke company are consist of a spore disc inoculated with population of $10^6$ Geobacillus stearothermophilus spores. They used to monitor the efficiency of LPAP sterilization processes.

In LPAP a vacuum pump was used to reduce pressure inside the plasma chamber. Tank containing air as plasma-generating gas was connected to the chamber, and gas flow was regulated. Compressed air was pumped into the chamber that was maintained at the vacuum pressure range of 0.1-1 Torr, the power density of 20-90 watt, flow range of 0-10, and exposure time was at the range of 5-40 min.

After treatment, disc of bacteria was inoculated in Tryptic Soy Broth (TSB). After 3-5 days incubation, sample was prepared to dilution series and spread on Tryptic Soy Broth (TSA). Then incubation for 3-5 days, then counted plates with colony count devices.

RESULTS: We observed no reduction in the log of bacteria after LPAP treatment and $10^6$ population survived in all samples.

CONCLUSION: LPAP is known as an effective way to surface decontamination for different kind of bacteria. Geobacillus stearothermophilus is one of the most resistant bacteria that forms spore in stress conditions and try to survived. So spores are cause of resistance of this bacteria. LPAP method has different range for each parameters. In this study we find out that LPAP in the range of we used to inactivate or reduce Geobacillus stearothermophilus spores is inefficient.

KEYWORDS: Low-pressure air plasma (LPAP), Geobacillus stearothermophilus, Biological indicator (BI)
Phenotypic study of methicillin resistance in *Staphylococcus aureus* strains isolated from Urinary tract infections in Marand, Iran

Nazila Imeni¹*, Mehdi Ghiami Rad²

¹. Young Researchers and Elite Clube, Marand Branch, Islamic Azad University, Marand, Iran
². Department of Microbiology, Faculty of Science, Ahar Branch, Islamic Azad University, Ahar, Iran

*Corresponding author; E-mail: imeni.nazila94@gmail.com

**Background:** *Staphylococcus aureus* is one of the most important factors in the development of hospital and acquired infections in the community. Particularly, methicillin resistant *Staphylococcus aureus* strains (MRSA) which create some problems in the therapy of the infections caused by them. Therefore, timely diagnosis and treatment of MRSA is effective in preventing and reducing the risk of mortality associated with it. The aim of this study was to investigate the antibiotic resistance of strains isolated from urinary tract infections in patients admitted to Ayatollah Kouhkamari hospital in Marand city.

**Methods:** In this cross-sectional study, *Staphylococcus aureus* isolates were identified after collecting 130 isolates of *Staphylococcus* from urine specimens during 2016, using biochemical methods. Then, MRSA strains were detected using methicillin (5μg) and cefoxitin (30μg) antibiotics by disc diffusion method in accordance with CLSI (Clinical and Laboratory Standard Institute) standards.

**Results:** From a total of 130 isolates of *Staphylococcus*, 57 isolates, were diagnosed with *Staphylococcus aureus*. The rates of resistance to antibiotics were as follows: methicillin 94.74% and cefoxitin 21.57%.

**Conclusion:** In this study, the comparison of the results of antibiotic of methicillin and cefoxitin antibiotics showed 73.17% difference. Therefore, the correct identification of methicillin-resistant *Staphylococcus aureus* and its susceptibility to more accurate and sensitive methods is necessary.

**Keywords:** Methicillin resistance, Cefoxitin resistance, *Staphylococcus aureus*, Urinary Tract Infection
Molecular study of the resistance to methicillin in Staphylococcus aureus strains isolated from Urinary tract infections in Marand, Iran

Nazila Imeni1*, Mehdi Ghiami Rad2

1. Young Researchers and Elite Clube, Marand Branch, Islamic Azad University, Marand, Iran
2. Department of Microbiology, Faculty of Science, Ahar Branch, Islamic Azad University, Ahar, Iran
* Corresponding author; E-mail: imeni.nazila94@gmail.com

Background: Nowadays, Staphylococcus aureus has become one of the major public health concerns due to its resistance to antimicrobial agents and drugs. Particularly, the resistance of this bacterium in the recent decades has been rising rapidly in the hospital environment for antibiotics such as methicillin. The aim of this study was to investigate the molecular resistance of methicillin in isolates isolated from urinary tract infections in patients admitted to Ayatollah Kouhakami hospital in Marand city.

Methods: In this cross-sectional, a total of 130 staphylococcus isolated from urine specimens during 2016, were identified using standard biochemical methods of Staphylococcus aureus isolates. Boiling method was used to extraction of DNA samples. Also, the frequency of femB (factor essential for methicillin resistance) gene was evaluated using specific primer (Generay, Korea) and multiplex-PCR method.

Results: Of total of 130 isolates of Staphylococcus 57 isolates were Staphylococcus aureus. The molecular analysis indicated that 5/26% femB gene was present in the isolates.

Conclusion: The results of this study indicated the prevalence of methicillin resistant Staphylococcus aureus in this hospital. This could be considered as a warning to treat infections caused by this bacterium. Therefore, consideration of other genes involved in the development of resistance to methicillin and the choice of suitable drug for treatment are suggested.

Keywords: Methicillin Resistance, Staphylococcus aureus, Urinary Tract Infection
Antibiotic susceptibility and resistance pattern in Klebsiella pneumoniae strains isolated from clinical specimens in Buali Hospital in Ardabil during the first six month of 1396

Meysam Manouchehri far 1, Samira Hashyar 1, Keyvan Shafienia 2

1. Department of Microbiology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran
2. Department of Microbiology, School of Medicine, Rasht University of Medical Sciences, Rasht, Iran

**background:** Considerable proportion of clinical specimens are contaminated by the Klebsiella species. The drug resistance of Klebsiella is increasing daily so timely drug resistance tests are necessary before antibiotics are prescribed. The aim of this study was to determine the susceptibility and antibiotic resistance pattern of Klebsiella pneumoniae strains isolated from clinical specimens of Buali hospital in Ardabil using the disk diffusion method.

**Methods:** This cross-sectional descriptive study was conducted to evaluate the antibiotic resistance pattern of Klebsiella pneumoniae during the first six month in 1396. After detection in Klebsiella pneumonia by microbiological methods, an antibiotic susceptibility test was accomplished by disk diffusion method.

**Results:** The most common isolates of Klebsiella pneumoniae were from urine specimens for six month and the least of them were bronchial samples, in the highest sensitivity to nitrofurantoin (93.9%) amikacin (60%) highest resistance to Ampicillin (63.6%) cefixime (54.5%) were reported.

**Conclusion:** The results showed that nitrofurantoin with the least resistance to the strains of Klebsiella pneumoniae was the most effective antibiotic.

**Keyword:** Antibiotic resistance, Urinary tract infections, Klebsiella pneumoniae, Nosocomial infections
Evaluating the drug resistance of Acinetobacter baumannii and pseudomonas aeruginosa strains isolated from children admitted to Mofid children's Hospital

Saied maham1, Taher Azimi2*, Mohammad Reza Pourmand2, Fatemeh Fallah1, Javad Yasbolaghi3, Hossein Safari2, Zari Gholinejad1, Sahar Sabour1

1Pediatric Infections Research Center, Research Institute children health, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2Department of Pathobiology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

*Corresponding author:Taher Azimi
PhD student at department of Pathobiology, School of Public Health, Tehran University of Medical Sciences, Tehran

E-mail:Taher Azimi5@gmail.com

Background: Acinetobacter baumannii and pseudomonas aeruginosa are one of the most important causes of infection in health centers and hospitals. These bacteria can be resistant to most of the antibiotics and can cause a lot of problems for hospitalized patients.

Methods and Material: In this study, 200 blood samples were collected from children admitted to different parts of the hospital during a year. All specimens were placed inside the BACTEC 9120 Blood Culture in order to determine the positive cultures. In addition, biochemical tests were used to determine bacterial strains. Antibiotic resistance of isolates were determined using disc diffusion method, and the results were interpreted according to CLSI.

Results: In total, BACTEC 9120 Blood Culture and biochemical tests revealed that 80 samples were positive for bacterial infection agents. Among these isolates, the prevalence of Pseudomonas aeruginosa and Acinetobacter baumannii was 25 and 10 respectively. The drug resistance pattern of isolated bacteria was as follows. Acinetobacter baumannii: Ciprofloxacin
(10%), Gentamycin(20%), Tetracyclin(70%), Amikacin(20%), Ceftazidime(20%), Cefotaxime(50%), Chloramphenicol(50%), Aztreonam(50%), Pentizidone(30%), Trimethoprim/Sulfamethoxazole(40%), Cefpiramide(50%), Colositin(0%) and pseudomonas aeruginosa: Amikacin(28%), Ciprofloxacin(8%), Gemifloxacin(52%), Levofloxacin(8%), Meropenem(40%), Ceftazidime(60%), Pentizidone(12%), Tetracyclin(56%), Imipenem(52%), Piperacillin(32%), Aztreonam(84%), Tobramycin(92%), and colositin (44%).

Conclusions: Our data suggest that resistance to antibiotics as well as Tobramycin, Aztreonam, colistin, and Tetracyclin is increasing among gram-negative bacteria. Specific infection control practices and antimicrobial surveillance will be important and serious to address this emerging threat.

Keywords: Acinetobacter baumannii, Pseudomonas aeruginosa, Bacterial infection.
PB-067

Investigation of antibacterial effect of native *Evening primrose* hydro-alcoholic extracts on antibiotic-resistant *Streptococcus pneumoniae*

**Meysam Manouchehri Far**, **Keyvan Shafiani**, **Samira Hushyar**, **Mohamad Ahmadpor**, **Marjan Fatahi**

1. Department of Microbiology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran
2. Department of Microbiology, School of Medicine, Rasht University of Medical Sciences, Rasht, Iran
3. Department of Microbiology, I. A. U. of Sarab Branch, Tabriz, Iran
4. Department of Microbiology, I. A. U. of Sarab Branch, Tabriz, Iran

**Background:** Pneumonia, respiratory tract infections, is associated with high mortality and complications in humans. Although antibiotics are used to treat this infectious disease, but lead to many problems such as unwanted side effects and resistance to antibiotics. This study investigated antibacterial activity of the hydro alcoholic extracts of the native medicinal plants, *Evening primrose*, as a natural alternative to antibiotics, on antibiotic-resistant *Streptococcus pneumoniae*, the main bacteria that cause pneumonia.

**Methods:** Antibacterial activity of the hydro alcoholic extracts of medicinal part of these plants was evaluated by the disk diffusion susceptibility test method and broth dilution test method on bacteria.

**Results:** The rate of MIC for *Evening primrose* bacteria were 260 μg/μl (*S. pneumoniae*) and the rate of MBC were 250 μg/μl (*S. pneumonia* as well as the maximum amount of inhibition zone diameter were in concentration 800 μg/μl, *S. pneumoniae* (20.5, 15.6, 5.8 mm).

**Conclusions:** This work showed that substances in the hydro-alcoholic extracts of medicinal plants prevented the growth of bacteria. So these plants with having effective ingredients can be used as an affordable and available source for medicinal purposes.

Keywords: *Streptococcus pneumonia*, *Evening primrose*, Ardabil, antibiotic-resistant
Investigation of antibacterial effect of viola odorata Against Staphylococcus aureus strains resistant to antibiotics of choice

Meysam Manouchehri far¹, Keyvan Shafienia², Samira Hushyar¹, mohamad ahmadpor³, Marjan Fatahi⁴

¹.Department of Microbiology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran
².Department of Microbiology, School of Medicine, Rasht University of Medical Sciences, Rasht, Iran
³.Department of Microbiology, I. A. U. of Sarab Branch, Tabriz, Iran
⁴.Department of Microbiology, I. A. U. of Sarab Branch, Tabriz, Iran

Background: Plants been biological basis of drug substances in thousand years. One of the most common problems in medical, bacterial resistance to antibiotics is to find new antimicrobial agents with minimal side effects is necessary. Develop drugs that prevent or cure bacterial infections, one of the major advances in improving the quality of life in recent years. Due to the presence of biologically active constituents in viola odorataand that the use of this plant in traditional medicine were needed, it seems that these plants have a remarkable antibacterial effect against Staphylococcus aureus.

Materials and methods: The study was conducted extract and oregano. Sampling areas, nose and throat patients and 70 strains of Staphylococcus aureus were isolated and purified. The minimum inhibition concentration and minimal bactericidal concentration at six different concentrations of the bacteria were determined by broth dilution method. Sensitivity to the Kirby-Bauer disk diffusion antibiotic susceptibility test was evaluated using standard methods.

Results and Discussion: The results showed that the MIC of viola odorata is used at a concentration of 12mg ml. P. whereas the MBC was observed in the amount of 18 mg per ml. Evaluation of antibacterial activity of several antibiotics showed similar susceptibility to antibiotics was studied. But Cefixime lowest penicillin antibiotics showed that all the strains were resistant to vancomycin at concentrations higher viola odorataantibacterial activity, of these compounds is thus used as a medicinal treatment.

Keyword: Staphylococcus aureus «viola odorata» antibacterial
Study of drug resistance pattern in Escherichia coli strains isolated from referrals to Buali Hospital Ardabil in the first six month of 1396

Meysam Manouchehri far, Samira Hushyar, Keyvan Shafienia

1. Department of Microbiology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran
2. Department of Microbiology, School of Medicine, Rasht University of Medical Sciences, Rasht, Iran

Background: Escherichia coli bacteria is one of the most important causes of disease, especially in children, the elderly and people with immune system weakness. This bacterium is responsible for several diseases, such as sepsis, urinary tract infection and meningitis. Antibiotic resistance due to the wide spreading use of antibiotics is one of the major causes of failure in antibiotic treatment. The aim of this study was to investigate the antibiotic resistance pattern in Escherichia coli strain relative to some common antibiotics.

Methods: This descriptive cross-sectional study was performed at Buali Hospital of Ardabil in the first month of 1396. Among the 900 urine samples that were evaluated by bacteriological tests, 410 samples were contaminated with Escherichia coli. The antibiotic resistance of Escherichia coli isolates Disk diffusion method was investigated.

Result: Based on the Detection of the antibiotics used, the most resistant to E.coli were respectively Co-trimoxazole (70.8%) Cefotaxime (69.2%) Nalidixic acid (68%) the most susceptible antigens The Nitrofurantoin antibiotics (92.4%) Gentamicin (66.4%) and Amikacin (64.4%).

Conclusion: According to a study, antibiotics that can successfully be used in the treatment of E. coli-associated illness are nitrofurantoin and gentamicin.

Keyword: E.coli, Urinary tract infections, Resistance pattern
Frequency of Helicobacter pylori blood-group antigen-binding adhesion 2 and sialic acid binding adhesion genes among dyspeptic patients in Tabriz, Iran

Leila Yousefi¹, Reza Ghotaslou², Mohammad Asgharzadeh³, Mohammad Reza Nahaei⁴, Mohammad Hosein Somi⁵

1. MSc Student, Infectious Diseases and Tropical Medicine Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
2. Associate Professor, Infectious Diseases and Tropical Medicine Research Center and Department of Microbiology, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
3. Professor, Department of Laboratory Sciences, Paramedical Faculty and Biotechnology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
4. Professor, Department of Microbiology, School of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
5. Professor, Liver and Gastrointestinal Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

Background: The purpose of this research was to analyze blood-group antigen-binding adhesion (babA2) and sialic acid binding adhesion (sabA) genotypes status in Helicobacter pylori (H. pylori) isolates and their relationship with clinical outcomes.

Methods: Gastric biopsy specimens were homogenized and placed in Brucella agar medium supplemented with 5% sheep blood and 3 antibiotics and were cultured at 37 °C under microaerophilic conditions and incubated for 4-7 days. H. pylori was identified by typical morphology, gram-staining and urease tests, and babA2 and sabA genes were detected by polymerase chain reaction (PCR).

Results: From a total of 100 H. pylori isolates; babA2 and sabA genes were detected in 23.0 and 26.4%, respectively. There was a significant relationship between these genes and clinical outcomes (P < 0.050).

Conclusion: We found that the babA2 status was not related to clinical outcomes in Tabriz, Iran. However, sabA was a promoting determinant for disease, and multivariate analysis disclosed sabA to be an independent marker of non-ulcer diseases in our subjects.

Keywords: blood-group antigen-binding adhesion2 gene, sialic acid binding adhesion gene, Helicobacter pylori
Bacterial vaginosis in pregnant and non-pregnant Iranian women

Sahar Sabour¹ and Farzad Khademi¹*

¹Department of Microbiology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran.

Background: Bacterial vaginosis (BV) is a vaginal disease which occurs either systematic or asymptomatic because of an imbalance between H₂O₂-producing Lactobacillus and Gardnerella vaginalis in the vagina. This systematic review and meta-analysis is the first to determine the prevalence of BV infection in pregnant and non-pregnant women in Iran.

Methods: We used national (SID, Irandoc, Iranmedex and Magiran) and international (PubMed, Scopus, Google Scholar and ISI web of knowledge) electronic databases to systematically search and collect available studies using related keywords (up to December 1, 2017). Inclusion and exclusion criteria were defined to select eligible studies. Results: The overall prevalence of BV infection among Iranian women was 18.9% (95% CI: 14–25). Gardnerella vaginosis was the most prevalent isolated bacteria. The prevalence of BV infection in non-pregnant women was 28% (95% CI: 15.1–45.9) which was higher compared with pregnant women who had a prevalence of 16.5% (95% CI: 12.5–21.6). Conclusion: The present review revealed a high prevalence of BV infection in non-pregnant women. Given that BV infection is associated with a series of reproductive complications such as infertility, taking preventive measures such as awareness of patients as well as monitoring and controlling of infection are essential.

Keywords: Bacterial vaginosis, pregnant women, non-pregnant women, Iran

Address correspondence to:
Farzad Khademi, PhD
Department of Microbiology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran
E-mail: k_farzad@yahoo.com and f.khademi@arums.ac.ir
Comparison between Disk diffusion and Broth microdilution methods, a systematic review

Shadi Dodangeh¹, Mojtaba Moradi²

¹. Bachelor of Laboratory Science Student, Faculty of Paramedicine, Zanjan University of Medical Sciences, Zanjan, Iran.

². Bachelor of Laboratory Science, Faculty of Paramedicine, Zanjan University of Medical Sciences, Zanjan, Iran.

Background: Many methods have been developed to determine the susceptibility of microorganisms to antimicrobial agents, among them two methods of Disk diffusion (DD) and Broth microdilution (BMD) are most common. So, The aim of this study is to review the efficiency and usage of these methods to help clinicians and laboratories to choose the best one.

Methods: This article is intended to present a summary of published articles in PubMed, Science Direct, Scopus and Google Scholar search engine from 2003 to December 2017 using 4 key words.

Results: Any of these methods have their advantages and disadvantages. For example, disk diffusion is a qualitative and almost non-automated method that has a high rate of errors and may be less accurate if not performed by standard protocols. It’s not recommended and adjusted to some microorganisms. But, it’s cost effective, easy and more flexible. In addition, some more information like colony appearance in response to disks can be obtained from it. Broth microdilution is the basis of most automated devices and it is a reference method in many standards like CLSI, EUCAST, and ISO. But, it has some limitations like its application to various organisms and some misleading results.

Conclusion: To obtain an accurate and more reliable result, using a standard protocols and a good collaboration between clinicians and lab scientists is essential and further studies should be done on these methods (esp. DD) to reduce their limitations. If DD is used the limitations should be kept in mind. It is recommended to use BMD beside or instead of DD for more accurate results. Also, automated devices are recommended for Laboratories with a very high workload.

Keywords: Disk diffusion, Broth microdilution, Kirby bauer test, Antimicrobial susceptibility test
PB-073

Determination the frequency of class 1 integron genes and its association with antimicrobial resistance in clinical isolates of *Escherichia coli*

Saber Yousefi¹,², Elham Akbari¹, Lida Lotfollahi¹,², Bita Zareikar³, Sadeg Asghari³

¹. Department of Microbiology and Virology, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
². Cellular and Molecular Research Center, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
³. Clinical laboratory of Imam Hospital, Urmia University of Medical Sciences, Urmia, Iran

**Background:** *Escherichia coli* is the most prevalent gram-negative bacteria and causes a variety of infections such as urinary tract infections, surgical wound infections and meningitis in newborns. The aim of this study was to determine the frequency of class I integron gene and its relationship with antimicrobial resistance in clinical isolates of *Escherichia coli* in Urmia, Iran.

**Methods:** Since June to October 2015 all clinical isolates of *Escherichia coli* were collected from hospitalized and out-patients of Imam Hospital in Urmia, Iran. Agar disk diffusion method proposed by Kirby-Bauer was used for antimicrobial susceptibility testing of isolates. DNA extraction was carried out by commercial DNA extraction kit and detection of class 1 integron gene was performed by PCR.

**Results:** A total of 152 *E. coli* isolates were studied in this study. Antimicrobial susceptibility testing showed that 112 (73.7%) of isolates were multiple drug resistant. The high rate of antimicrobial resistance rate was seen against nalidixic acid (82.9%), trimethoprim/sulfamethoxazole (79.6%) and aztreonam (57.2%). Class I integron genes was found in 94 (61.8%) of *E. coli* isolates.

**Conclusion:** The high prevalence of *E. coli* isolates with multiple drug resistant and class 1 integron gene positive were seen in present study. The significant relationship of class I integron gene and antimicrobial resistance were found against most of tested antibiotics. Emerging the high rate of resistant to widely used antibiotics could be an alarming threat for appropriate and strict use of antibiotics.

**Keywords:** *Escherichia coli*, Drug resistance, Class 1 Integron gene
Enterococcus faecalis in Oral cavity Infections

Khadijeh Najafi¹, Hossein Samadi Kafil², Leila Yousefi¹, Shiva Taheri¹

1. Department of Medical Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
2. Drug Applied Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

Background: Enterococcus faecalis is a member of the normal microbiota. Many evidences suggest that, this species may be a key player in endodontic treatment failure. This Review discusses the occurrence of the virulence factors and the pathogenesis of E. faecalis in oral infections.

Methods: Data was obtained through a PubMed, Scopus and google scholar in 08-8-2017. The following key words were used: Enterococcus, faecalis AND (virulence factors OR Pathogenesis) AND oral infections. In order to advance to selection, abstracts were reviewed, and when needed, full articles were examined.

Results: Four virulence factors of E. faecalis including Aggregation Substance, Gelatinase, Adhesin to Collagen of E. Faecalis and Lipoteichoic acid have a significant role in oral infections associated with E. faecalis. Absence of these factors leads to decline of strains in attachment to and colonization as well as biofilm production of the surface epithelium of the oral cavity.

Conclusion: The review of the included articles has revealed that there is a need for further studies evaluating the known virulence factors associated with E. faecalis in oral cavity infections.

Keywords: Biofilms, Enterococcus faecalis, Oral infections, Review, Pathogenesis
بررسی اثر بخشی برخی عفونی کننده ها و آنتی سپتیک رایج بر استافیلوکوکوس اورونوس و کلیسیلا پنومونیه های جدا
شده از بیمارستان های آموزشی همدان

دکتر رسول وسفي مشعوف - دک ر مصطفب نك محمدي
دانشگاه علوم پزشکی همدان - دانشكده پزشکی - گروه میکروبیولوژی

yousefimash@yahoo.com

مقدمه: کربن دیاکسید از استافیلوکوکوس اورونوس به وسیله غلاف سایت می تواند ان خیب منیسب و عدم افراد سایتی‌ی شود. هدف از این اثر فقط از مطالعه بررسی موارد مقیاس با استفاده از مواد ضد عفونی کننده و گندزدای مقابل نیست آنکه با استفاده از نیک ری از بیمارستان های آموزشی همدان نسبت به برخی از ضد عفونی کننده های کلیسیلا پنومونیه های جدا شده از بیمارستان های آموزشی همدان

روش های این مطالعه از نوع مطالعات توصیفی-مقطعی اینده به نگر بود که با نمونه گیری از اتفاق، اقدام به بیمارستان های آموزشی شهر همدان انجام گرفت. در مجموع، نمونه میکروبی از محله نا که شده از جفت شده به روش، ان عنبیه و تست EMB و اغاز خونی کشت داده شده و میکرواتگنومیزی از جفت شده با استفاده از روش بیوشیمی‌ای و تست های افتراقی شناسایی شدند. مواد ضد عفونی کننده ای که در این مطالعه استفاده شدند شامل: دکاونکس، گلورنالدینید 2%، سانوسل، دکاونکس خونین 2% و کلر هژدژین 2% بودند. داده‌ها از طریق پردک می‌شد و قیمت اندازه‌گیری شد. نتایج نشان داد که دکاونکس، گلورنالدینید 2%، سانوسل 2% در شرایط آزمایشگاهی و با استفاده از روش دیافرانس دیپیژن دارای اثر بخشی نسبتاً خوب بر روی کلیسیلا پنومونیه و استافیلوکوکوس اورونوس بودند. با توجه به این مطالعه پیشنهاد می‌شود که روش‌های استریلیزاسیون و ضد عفونی در مورد استفاده در بیمارستان‌ها به صورت صحیح انجام شود و مواد ضد عفونی کننده و گندزدایی استفاده تحت نظرات یک مotch خصوص بهبود تیم استفاده‌شود.

کلید واژه‌ها: استافیلوکوکوس اورونوس - کلیسیلا پنومونیه - ضد عفونی کننده
Characterization of virulence factors encoding genes, antimicrobial resistance profile in relation to phylogenetic groups among uropathogenic *Escherichia coli* isolates

Saber Yousefi¹², Nazanin Habibi¹, Lida Lotfollahi¹², Bita Zareikar³, Sadeg Asghari³

¹. Department of Microbiology and Virology, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
². Cellular and Molecular Research Center, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
³. Clinical laboratory of Imam Hospital, Urmia University of Medical Sciences, Urmia, Iran

**Background:** Uropathogenic *Escherichia coli* (UPEC) is the primary pathogen associated with urinary tract infection. Previous studies proposed that phylogenetic groups of *E. coli* isolates and virulence factors may influence the pathogenicity and antimicrobial resistance properties of *E. coli* isolates. The main objectives of the present study were to characterize the relationship between the phylogenetic background to antimicrobial resistance profile and presence of virulence factors in uropathogenic *E. coli* isolates.

**Methods:** Since July to February 2015 all *E. coli* isolates from urinary tract infections were collected from Imam Khomeini University Hospital in Urmia, Iran. The antimicrobial susceptibility testing was performed by disc diffusion method. Determination of phylogenetic groups (A, B1, B2 and D) and selected virulence genes were done by using multiplex-PCR. The association of phylogenetic groups with antimicrobial resistance profile and the presence of virulence factors were evaluated by SPSS17 software.

**Results:** One hundred and thirty-nine *E. coli* isolates were included in this study. The highest rate of antimicrobial resistance was seen against nalidixic acid (78.4%) and trimethoprim/sulfamethoxazole (74.1%). The B2 phylogenetic group was the most prevalent and B1 phylogroup had the lowest rate. The frequency of *sfa*, *pap*, *afa* and *bmaE* virulence factors were; 31.4%, 19.7%, 8% and 2.2%, respectively.

**Conclusion:** In present study phylogenetic group of B2 was associated both with resistant and sensitive isolates. An exception was observed in resistance to trimethoprim/sulfamethoxazole (a shift towards non-B2 phylogroup). Therefore, it could be concluded that differences in various phylogenetic groups distribution, mainly related to differences in geographic regions of studies, ethnical and demographic traits than the background of antimicrobial resistance profiles.

**Keywords:** Uropathogenic *Escherichia coli*, Virulence factors, Phylogenetic groups, Antimicrobial resistance
Optimization of early and fast detection method of Brucella abortus by agglutination test

Brucella abortus is a Gram-negative proteobacterium in the family Brucellaceae, and is one of the causative agents of brucellosis. The rod-shaped pathogen is classified under the domain Bacteria. The prokaryotic B. abortus, is spore-forming, nonmotile and aerobic. Brucella abortus enters phagocytes that invade human and animal defenses which in turn, cause chronic disease in the host. The liver and spleen are the affected areas of the body. Hence timely and exact diagnosis of the bacterium and individuals suspected of contamination is necessary. Thus in this project, the aim is diagnosing Brucella by agglutination without high costs and long time. For this study, some samples suspected of Brucellosis were provided from different hospitals. To this end, monospecific antiserum against strain antigen with (LPS) and were provided from Bacteria vaccine and antigen making parts. In this test mono-specific antiserum was taken as positive control. Strain Cowan Staphylococcus aureus was cultured in the Brain-heart infusion agar and in the 37°C for 24 hours, and then cells were washed with PBS pH 7.2 and after two times washing with PBS pH 7.2 (by centrifuge) cells were gathered. The gathered cells again were made suspension and by the amount of 7% formaldehyde 40% was added to it and was kept for 3 hours in refrigerator 4°C and again was washed with PBS 3 time and was thinned like 15% bacterial compression and was heated in 80°C for 1 hours while mixing. In order to coat cells, in sum, 1ml Staphylococcus 10% was blended with monovalent Brucella antibody and was kept for 3 hours at room temperature. Then using PBS 15% molar containing 1% Sodium azide the 2% suspension (v/v) of the related cell was provided. This suspension is recognized as final agglutination complex. From the cultivation of the samples contaminated to Brucella one droplet was put on a glass and tailed slide and the same quantity of suspension complex Staphylococcus -antibody was added and blended very well after 5 minutes Agglutination was obtained that was rated according to agglutination amount from 1+ to 4+ and was registered.

Keywords: Brucella abortus, agglutination, brucellosis, Staphylococcus aureus
PB-078

Investigation of genotype, phenotype and protein profiles of S. aureus isolated from Imam Khomeini hospital of Ilam

احمد ناصر

Introduction

*Staphylococcus aureus* is major pathogen that cause a disease such Pneumonia, carbuncle, endocarditis and Toxic shock syndrome. In the current study we focused on the detection of two type of *staphylococcus*, MSSA (methicillin sensitive *staphylococcus aureus*) and MRSA(methicillin resistance *staphylococcus aureus*).

Material and Methods

100 isolates were collected during Dec.2016 to Apr.2017 in Imam Khomeini hospitals of Ilam. Antibiotic susceptibility tested by Kirby-Bauer method. In this study we use *mec* primer to detection presence of mec gene to differentiate the two strain from each other. In the next step we compared the pattern of two species with sds-page method. First filtrated whole cell protein then use 12% sds-page to shown differentiated protein pattern.

Results

Among 100 sample isolated, 71number were mssa and 29 isolated is an mrsa. Most of mrsa isolated from Bedclothes and wall of patient room.

Discussion

*Sds-page* method can help to identify the proportion of resistant in S. aureus and can act as a rapid method of Epidemiology. Filtrated Hole cell protein pattern of bacteria can used to identify the *s.aureus* outbreak in less time than other ways such PFGE.

Conclusion

Approximately third of clinical sample of staphylococcus are a MRSA and this result shown the accelerate of MRSA in a hospitals. This event due the use of consumedly of antibacterial drug such a oxacillin. Clearly staphylococcus with MEC(+) have a more resistance than MEC(-) and have a distinguish pattern in filtrated hole cell protein in sds-page with 12% gel electrophoresis with Unweighted Pair-Group Method using Arithmetic Average (UPGMA).
Frequency and antibiotic resistance profiles of *Streptococcus.agalactiae* isolated from pregnant women in Urmia, Iran.

Lida Lotfollahi¹, Azar Hemmati¹, Ehsan Shojadel¹

Department of Microbiology, School of Medicine, Urmian University of Medical Sciences

This study was proposed to investigate frequency, antimicrobial susceptibility patterns and inducible clindamycin resistance of *Streptococcus.agalactiae* isolated from 300 rectovaginal swabs taken from pregnant women who attended the gynecology clinic in Urmia, Iran between July 2015 and January 2016. After achievement of informed consents, the swabs were collected and placed into sterile tubes containing Todd-Hewitt broth with colistin and nalidixic acid. In the microbiology laboratory, swabs were inoculated onto sheep blood agar and incubated at 35°C for 24 hours. After confirmation of isolates by using CAMP test and biochemical reactions, antibiogram was done using Kirby-Bauer method according to CLSI guidelines 2017. The D-test method was used for evaluation of inducible clindamycin resistance.

Results: out of 300 samples collected, 31(10.3%) were identified as GBS. The susceptibility testing revealed that the highest resistance was found for Clindamycin (80.6%), Streptogramin (77.4%) and Tetracyclin (74.1%) whereas the lowest resistance was seen for Penicillin (3.2%). Resistance against Erythromycin, Chloramphenicol, Azithromycin and Ciprofloxacin was 32.2%, 35.4%, 67.7% and 9.3% respectively. As noted earlier, Erythromycin and Clindamycin resistance was 32.2% and 80.6% respectively, in which 6.4% had harboured inducible macrolid, lincosamid and streptogramin B (iMLSΒ) or positive for D-test.

Conclusion: one resistant and 5 intermediate isolates for Penicillin and high rates of resistance to Clindamycin and Erythromycin as alternative drugs in penicillin allergic patients need more attentions to study on newer alternative drugs.
The effect of different concentrations of Chamomile extract on cariogenic bacterium (Sreptococcus mutans ATCC 35668)

Background and aims: Oral hygiene is the most important contributing factors in health. Several factors can cause the disappearance of oral health such as microorganisms that involved in the pathogenesis of pointed teeth. Personal and environmental factors such as diet can be distributed on oral and dental caries micro-flora. The aim of this study was to investigate the antimicrobial activity of chamomile on the Streptococcus mutans, which is the important bacterium in dental caries are the discussions.

Materials and Methods: S.mutans ATCC 35668 was purchased from microbial collection of Scientific and Industrial Research Organization centre of Iran. Matricaria chamomile flower identified and confirmed by a botanist, dried, chopped and the extract was obtained by using methanol in three continuous stages in 24 hours, then was decolorized by activated carbon and dried in glass plates. After weighing, the antibacterial effects of 2.5, 5, 7.5, 25 and 50% concentrations of extract in water were investigated by well diffusion method in solid culture media. The minimum inhibitory and minimum bactericidal concentrations of extract were also defined for the strain in the concentrations between 2 to 0.0039 mg /ml in broth media. Gentamicin was used as a positive control.

Results: MICs and MBCs of matricaria chamomile methanol extract for S.mutans ATCC 35668 was 0.0312 mg/ml, respectively. In the well diffusion method, the diameter of inhibition zone for S. mutans was 34.67±5.03, 23.33±1.52 and 12.33±10.69 for 50%, 25% and 7.5% concentrations, respectively.

Conclusion: The results of this study revealed that Chamomile has the greatest effect on Streptococcus mutans. By conducting further research, it will be a good alternative to chemicals used in mouthwashes and toothpastes.

Keywords: Chamomile matricaria, Streptococcus mutans, extract
PB-082

Antibacterial effects of *Quercus Brantii* fruits and *Stachys lavandulifolia* methanol extracts on imipenemase-type metallo-beta lactamase-producing *Pseudomonas aeruginosa*

Fateme. Shahi*, Mahtab Abdi, Saeed. Khoshnood

1Department of Microbiology, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

**Background and objectives:** Metallobeta-lactamase production is one of the most important mechanisms of antibiotic resistance. The aim of the present study was to evaluate the antibacterial activity of *Stachys lavandulifolia* and *Quercus brantii* on the IMP-type metallo-beta-lactamase-producing *Pseudomonas aeruginosa*. **Methods:** This study was performed on burn patients between January 2015 and November 2015. Susceptibility to the antibiotics and methanol extracts were evaluated by broth microdilution and disc diffusion methods. MBL-producing *P. aeruginosa* was detected by Combination Disk Diffusion Test (CDDT). The bla (VIM) and bla (IMP) genes detection were performed by PCR and sequencing methods.

**Results:** Forty eight (57.9%) of 83 *P. aeruginosa* strains were resistant to imipenem and were blaIMP-1 genes positive, whereas none were bla (VIM) genes positive. In the hospitalized patients with MBL-producing *Pseudomonas* infection, the mortality rate was 4.48 (8.3%). It was found that *S. lavandulifolia* extract showed a high antibacterial effect on regular and IMP-producing *P. aeruginosa* strains at the concentration of 0.625 mg/mL, but *Q. Brandy* extract showed no antibacterial effect in the tested concentration. **Conclusion:** In burn patients MBL-producing *P. aeruginosa* has been found in high incidence. Detection of this *pseudomonas* and determination of drug resistance pattern is very important. The methanol extract of *S. lavandulifolia* showed suitable effects on MBL-producing *P. aeruginosa in vitro*; therefore, it could be suggested for further studies against carbapenem resistant *P. aeruginosa* isolates.

**Keywords:** metallo-beta-lactamases, *Pseudomonas aeruginosa*, *Quercus brantii*, *Stachys lavandulifolia*
Setting up a Multiplex PCR reactions for the simultaneous detection of Mycobacterium tuberculosis and Nocardia asteroids

1-Safar Ali alizadeh, 2-Jafar mirabi, 3-Masoumeh Najari,4-Zahra aslerousta
1,3,4-Department of microbiology, Qazvin University of Medical Sciences, Qazvin, Iran
2-Zanjani Islamic Azad University

Background
Doctors are confronted with the problem of differential diagnosis of chronic pulmonary infections. Among the factors that cause these infections are Nocardia asteroids and Mycobacterium tuberculosis that cause Nocardiosis and tuberculosis in humans. Because the clinical and Para clinical symptoms of these diseases are similar and both are acid fast. Therefore, the simultaneous differentiation of these two microorganisms in pulmonary specimens, such as sputum and BAL, is very helpful in correct treatment of patients.

Today, launching a variety of molecular tests has given laboratories the ability to detect two or more infectious agents in a short time in a single reaction. The evolution of these innovations resulted in timely treatment, and subsequently improved clinical course, disease complications, and mortality rate.

Methods
Specific primers of Mycobacterium tuberculosis and Nocardia asteroids were designed in a way that all the technical specifications, such as Tm, Ta, and GΔ, are similar. The primers at the NCBI site are also aligned to confirm that they are not capable of connecting to non-specific targets. Then the PCR reaction was optimized for each of the agents separately, and the chemical and physical conditions of the reaction for the mixed state were optimized together. Meanwhile, a PCR reaction was conducted for mycobacterium with Nocardia primer and a reaction to Nocardia with mycobacterium primer in order to rule out any cross-reaction of primers

Results:
After examining the results of Multiplex PCR in 150 samples of sputum and BAL, the frequency of Mycobacterium tuberculosis and Nocardia was 8% (12 cases) and 5.3% (8 cases) respectively. Two samples (1.3%) were positive for both bacteria at the same time.

Conclusion:
According to the results of this study, the launch of Multiplex PCR for two major factors in chronic pulmonary infections including Nocardia and Mycobacterium tuberculosis in a single reaction, shortens the time of diagnosis and reduces its cost.

Keywords: Nocardia - Mycobacterium tuberculosis- Multiplex PCR
PB-084
Investigation of CRISPR-Cas system in different genus of Proteus computationally

eztallah Ghaemi¹, Mahnaz shafaei fallah², Alireza mohebi¹,³

¹.Department of Microbiology, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran
².Student Research Committee, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran

Background: CRISPR (clustered regularly interspaced short palindromic repeats) systems provides adaptive immunity against exogenic elements in some bacteria and most archaea. Members of Proteus genus have important roles in urinary tract diseases. However, CRISPR-Cas system has not been studied within Proteus genus.

Method: In this study, NCBI database was investigated for assembly sequences of whole genome sequencing (WGS) data of Proteus genus. CRISPR array was demonstrated by using CRISPR database (CRISPRDb). All types of CRISPR repeats and their interspaced spacers were found and used for further phylogenetic analysis. Further meta-data reflecting the sequence isolation source were also searched and analyzed.

Results: 83 complete genome related to Proteus were found. The data were belonged to four Proteus species, including P. mirabilis, P. vulgaris, P. hauseri and P. penneri. 15 confirmed and 38 questionable types I-ECRISPR arrays were observed in these strains. 234 and 133 unique spacers were observed in strains contained confirmed and questionable CRISPR, respectively. Isolation source of strains contained CRISPR were very divers.

Conclusion: that in diversity in source isolation help us for founding CRISPR system with more probability in Clinical isolation.

Keywords: CRISPR-Cas; Proteus; P. mirabilis; P. vulgaris; P. hauseri; P. penneri
Investigation of synergism effects of antibiotics against Methicillin resistant Staphylococcus aureus (MRSA) by AZDAST

Ezatallah ghaemi¹, hamideh mohammadi berenjestanaki²

1. Department of Microbiology, School of Medicine, Golestan University of Medical Sciences, Gorgon Iran
2. Student Research Committee, School of Medicine, Golestan University of Medical Sciences, Gorgon Iran

Background: Methicillin resistant Staphylococcus aureus (MRSA) is a major public health problem. Current treatment regimen for MRSA is vancomycin but the process of cure with vancomycin is encountered with some problems. Investigation of synergism effect of vancomycin with other drugs to reduce dose of the drug and the risk of bacterial resistance is the main goal of the present study.

Methods: Drug resistance pattern of 22 isolates MRSA was determined based on mecA gene amplification by polymerase chain reaction (PCR). Sensitivity test of MRSAs to 15 different antibiotics were done by Kirby-Bauer test. The synergism effect of Vancomycin with the other antibiotics was assessed through ZDAST method.

Result: It was recognized in antibiogram that all MRSA isolates were sensitive to linezolid (100%) and vancomycin (95/4%) and most Resistance was observed to beta-lactamase group, including penicillin. Based on AZDAST test, most synergism of drugs with vancomycin was observed in 14 isolates with rifampicin (63/6%), 9 isolates (40/9%) with imipenem, and 6 isolates (27/2%) with cefoxitin. No synergism was observed between vancomycin and oxacillin.

Conclusion: To determine appropriate concentrations of pharmaceutical compound of vancomycin with rifampicin, imipenem, and cefoxitin at variable, checkerboard methodology is suggested for future studies.

Keyword: MRSA, AZDAST (Ameri-ziaei double antibiotic synergism test), Kirby-Bauer
Antimicrobial effects of Rhamnolipid-type biosurfactant, produced by *Pseudomonas aeruginosa* MA01, against clinical isolates of *Pseudomonas aeruginosa*

Ahya Abdi-Ali¹*, Minoo Monzavi¹, Kambiz Akbari Noghabi²

¹ Department of Microbiology, Faculty of Biological Sciences, Alzahra University, Tehran, Iran. ²Department of Molecular Genetics, National Institute of Genetic Engineering and Biotechnology (NIGEB), P.O. Box 14155-6343, Tehran, Iran.

* Corresponding author.
E-mail: abdialya@alzahra.ac.ir

**Background:**

*Pseudomonas aeruginosa* is a leading cause of nosocomial infections and standard antibiotic regimes against *P. aeruginosa* are increasingly becoming ineffective due to the rise in drug resistance. A vast number of approaches to develop novel antimicrobial agents are currently pursued. In recent years, rhamnolipids derived from *P. aeruginosa* have emerged as an important group of biosurfactants that are being considered as an alternative conventional antimicrobial agents. In addition, they are environment-friendly and effective at low concentrations. A detailed analysis of the *P. aeruginosa* MA01, having high capacity for rhamnolipid-type biosurfactant production, was previously described. Here, we report the antimicrobial effects of rhamnolipid against a number of clinical isolates of the planktonic *P. aeruginosa*.

**Method:**

30 clinical isolates of *P. aeruginosa* were collected from respiratory secretions and burn wounds. The minimum inhibitory concentration (MIC) of purified rhamnolipid biosurfactant against planktonic cells was evaluated using micro-dilution methods. The production and purification of rhamnolipid biosurfactant was carried out as described earlier (Hajfarajollah et al. 2015).

**Result:**

The results of this study suggest that rhamnolipid biosurfactant produced by *P. aeruginosa* MA01 has antimicrobial activity against different clinical isolates of planktonic *P. aeruginosa*. MIC values of rhamnolipid were between 0.14×10⁸-0.59×10⁸ µg/ml (for various clinical isolates of *P. aeruginosa*).

**Conclusion:**

Due to the proficient antimicrobial effects of rhamnolipid type biosurfactant against clinical isolates of *P. aeruginosa*, it seems that it can be a promising alternative to antibiotics for targeting bacterial pathogens. Further studies are underway to reveal the exact role of biosurfactant for inhibiting the growth of pathogenic bacteria at the cellular and molecular levels.

**Keywords:** *Pseudomonas aeruginosa*, Rhamnolipid, Antimicrobial
Molecular detection of plasmid-mediated Quinolone resistance genes among clinical isolates of *Klebsiella pneumoniae*

Shiva Mirkalantari\(^1\), Mohammad Nourozi\(^3\), Atieh Darbandi\(^1\)

\(^1\)-Department of Microbiology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
\(^2\)-Institute of Immunology and Infectious Disease, Iran University of Medical Sciences, Tehran, Iran
\(^3\)-Department of Microbiology, Faculty of Basic Sciences, Damghan Branch, Islamic Azad University, Damghan, Iran

**Background:** Plasmid mediated quinolone resistance (PMQR) genes are increasingly detected worldwide. The goal of this study was to investigate the prevalence of genes encoding plasmid-mediated quinolone resistance among clinical isolates of *Klebsiella pneumoniae*.

**Methods:** The prevalence of PMQR genes was investigated among 100 Klebsiella isolates collected between 2015 and 2016. Antimicrobial susceptibility was determined by disk diffusion assay and detection of *qnrA*, *qnrB*, *qnrS* genes were done by PCR method.

**Results:** Among 100 Klebsiella isolates, 61% were multidrug resistant (MDR). Prevalence of *qnrA*, *qnrB* and *qnrS* genes were 5%, 15% and 20% respectively. Genes encoding *qnrB* and *qnrS* were the most determined variants.

**Conclusion:** Inappropriate usage MDR and PMQR genes among clinical isolates of *K.pneumoniae*.

**Keywords:** *E.coli*, MDR, plasmid mediated quinolone resistance
PB-088

Investigation prevalence of Urinary tract infection in outpatients at jawad-al-aemeh hospital, jajarm, north khorasan, iran in 1395

Abdollah ardebili1, Ehsan najari2, freshet ezadi3

1. Department of Microbiology, School of Medicine, Golestan University of Medical Sciences, Gorgan Iran
2. Student Research Committee, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran
3. Student Research Committee, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran

Background: Urinary tract infection (UTI) is one of the most common infections in children under the age of 5 years old, outpatients and adolescents. The incidence varies according to age and sex. In this regard, understanding the causes of this infection and proper treatment can prevent the complications.

Methods: In this study urinary specimens of positive culture of outpatients at jawad-al-aemeh hospital, jajarm, north khorasan, iran in 1395 were investigated. All biochemical and phenotypic tests were performed based on age and gender in 544 positive specimens obtained from patients.

Results: In this cross-sectional descriptive study, 395 cases of 544 positive specimens were female and 149 cases were male. Out of 544 positive samples, 68/01% Ecoli, 11/76% Staphylococcus epidermidis, 10/66% Klebsiella, 4/04% Staphylococcus Sapropeccus, 2/57% Proteus species, 1/28% Streptococcus species, 0/91% Pseudomonas species, 0/73% Staphylococcus aureus were isolated. Also out of positive specimens 47/05% in children under the age of 5 years old, 9/55% in 6-15 years old, 16/72% in 16-30 years old, 17/09% in 31-50 years old and 9/55% in over 50 years old were detected.

Conclusion: According to the findings, the prevalence of UTI in females is more than males, which one of the most common bacteria involved in this infection is E.coli. Among the main causes of this infection is the lack of genital sanitation, especially in children.

Keyword: UTI, Urinary tract infection, Ecoli, Klebsiella, Staphylococcus epidermidis
Prevalence of Antibiotic resistance And multi-drug resistance (MDRs) klebsiella in patients with Urinary tract infection

Hanieh Bagheri, Ezzat Allah Ghaemi

Golestan University of Medical Science. Gorgan. Microbiology Dep.

E-mail: Bagheri.hanieh@ymail.com
Tel: 09113756618

Introduction

Urinary tract infections caused by Gram-negative bacteria are increasing around the world and their treatment is a therapeutic challenge. Klebsiella is the second most common causes of urinary tract infections after E.coli. Area-specific-studies on antibiotic-resistance patterns of pathogens responsible for UTIs may help the physicians to choose the correct empirical treatment. The aim Of this study is Prevalence of Antibiotic resistance And multi-drug resistance (MDRs) klebsiella in patients with Urinary tract infection.

Materials And Methods

45 Klebsiella isolated from Urinary tract, confirmed with biochemical test. Antibiogram with Kirby-Bauer method based on CLSI standards were done with different antibiotics. Then, results were studied and analysed in the program was SPSS18.

Results

40% of patients were hospitalized. 80% were female. 9 classes of antibiotics (18 antibiotics) were considered, the most of antibiotics resistance in this study were seen in clindamycin (97.8%) and then Cephalosporins (Cefotaxime, Ceftriaxone, Ceftazidime, Cefepime) (55.6%) and the most sensitivity belonged to Carbapenems (100%) And Aminoglycosids (88.9%). 51.1% had resistant to multi drugs (MDR) simultaneous. 24.4% to 3-4 Classes, 11.1% to 5-6 and 15.6% was resistance to most of 7 classes of Antibiotics. 66.7% of hospitalized patients had MDR.

Conclusion

In this study, all samples were sensitive to Carbapenems. Also, we seen high frequent of multi drug resistant (MDRs) in Klebsiella uropathogen.

Key Words

Multi-drug resistance, Klebsiella, Urinary tract infection
The Prevalence of Urinary Tract Infection in Patients Referring to Jawad Alaemah Hospital in Jajarm, North Khorasan in 1395

najari avalehsan
abdollahardebili

Background: Urinary system infections include all age groups and begin from neonatal period. This infection is one of the most commonly diagnosed infections in outpatient and hospitalized patients. So understanding the causes of this infection and its proper treatment will prevent complications from the disease. The aim of this study was to determine the prevalence of urinary tract infections in patients by age, sex and type of bacteria isolated.

Method: In this study, all of the urine specimens of outpatients in 1395 at Jawad Al-Aimeh-e Jajarm Hospital, North Khorasan that were positive in bacterial culture, were evaluated. A total of 111 positive samples were obtained from patients and all the biochemical, phenotypic tests performed on them, and the age range and gender have also been evaluated.

Results: In this descriptive cross-sectional study, a total of 111 positive cases, 58 cases were female and 53 cases were male. In the total 111 positive samples, 67/56% were Escherichia coli, 17/11% Staphylococcus epidermidis, 10.8% Klebsiella, 0/9% Staphylococcus aureus, 1/8% Proteus species, 0/9% Streptococcus species, 0/9% Pseudomonas species and 1/8% Staphylococcus saprophyticus that were isolated. Also, 46/80% of the positive samples were found in children under the age of 5/40% at the age of 6-15, 9/90% in the age group 16-30, 2/70% in the age group 31-50 and 36/93% in the age of over 50 years old.

Discussion: Escherichia coli is the most important cause of urinary tract infections in outpatients. Due to the high rates of infection in children under the age of 5 years old, it can be said that the bacteria is the most important factor in infection in this age group. Due to the presence of more females in this study, care and prevention are the necessary functions for girls under 5 years old in association with the Escherichia coli infection.
Characterization of Extended spectrum Beta - Lactamases (TEM, SHV, OXA) among E.coli and Klebsiella pneumoniae isolated from urine specimens of kidney transplantation patients

Background and aims: Since the presence of Extended spectrum Beta - Lactamases (ESBLs) producing organisms can cause the treatment failure with a range of routinely using antibiotics (especially third generation cephalosporins) in the different wards such as ICUs and the kidney transplant wards and there are not the precise information regarding the susceptibility patterns of isolates, this study aimed to screening ESBLs including: TEM, SHV and OXA among E. coli and Klebsiella pneumoniae isolated from urine samples of kidney transplant patients.

Methods: Bacterial isolates were obtained from urine samples were identified according to standard microbiological tests followed by antibiotic susceptibility testing. Isolates were further subjected to screening for ESBLs production using double disc diffusion test (DDDT). The PCR assay consisted of eight primer sets was performed for detecting different genes, including: TEM, SHV and OXA (2 and 10) in all strains.

Results: Fifty seven E. coli (59.4%) and 39 as K. pneumoniae (40.6%) were collected from KTPs. The antibiotic susceptibility test revealed high resistance to ampicillin (95.8%) and cotrimoxazole (78.1), and the least levels of resistance was observed to imipenem (10.4 %). The frequencies of ESBL positive strains were 40.62% for E. coli and 17.7 % for K. pneumoniae using DDDT. Using the PCR, 51%, 32.3%, 13.5%, and 4.2% of isolates harbored TEM, SHV and OXA10 and OXA2, respectively.

Conclusions: The present study reveals the relatively high frequency of ESBLs producing genes among isolated E.coli and Klebsiella pneumoniae, which necessitates the timely identification of these resistant infectious agents. Also, the importance of controlling the predisposing factors, especially the need for precision in the rational use of antibiotics, is indicated.

Keywords: E.coli, Klebsiella pneumonia, Extended spectrum Beta - Lactamases
PB-092

Evaluation of antibacterial activity of mathanol, ethyl acetate and hexane extracts of Symphutum Kurdicum

...Asadi¹, Atousa Aliahmadi², Shiva Khalil Moghaddam*³

¹ Asadi ... Department of Biology, Shahre Ray branch, Islamic Azad University

² Medicinal Plants and Drug Research Institute, Shahid Beheshti University

³* Assistant Professor, Young Researchers and Elite Club, Yadegar-e-Imam Khomeini (RAH) Branch, Islamic Azad University, Tehran, Iran

Email: shiva.moghaddam@yahoo.com

Multi drug resistant pathogenic bacteria are now considered as an important problem in any health care facilities worldwide and plants are being considered as hopeful sources for novel antibacterial agents. Antibacterial activities of arial parts of Symphutum Kurdicum were evaluated. This plant have been collected in spring and their identities were confirmed in the herbarium of the Institute. Methanol, n-hexan and ethyl acetate was used for extraction of plant polar and nonpolar materials. Then minimum inhibitory concentration (MIC) of the plant materials were determined against Escherichia coli ATCC 25922 by broth micro-dilution method. Mueller hinton broth was used for preparation of serial diluted samples which were checked against 0.5-1 × 10⁶ CFU (Colony forming unit) of E.coli. Incubation was done for 20 hrs at 37°C. MICs were recorded as the lowest concentrations which could inhibit visible growth of bacterium. Chloramphenicol was used as standard antibiotic.

Ethyl acetate and n-hexan extracts of Symphutum Kurdicum could show the best results (MICs ranging from 1 to 2 mg/ml for E.coli) and E.coli was inhibited in higher concentration of methanolic extract. (7.24 mg/ml).

According to the result of this study, antimicrobial activities of hexanic and ethyl acetate extracts is better than methanolic extract.

Key words Antibacterial activity, MIC, Symphutum Kurdicum
PB-093

Study of vim-1 and imp-1 and spm-1 on MBL-Producing Pseudomonas aeruginosa in Imam Reza Hospital of Tehran

محمدحسين زارعی

BACKGROUND AND OBJECTIVE: Pseudomonas aeruginosa is one of the most important opportunistic bacteria responsible for hospital infections. Despite advances in hospital health care systems and introduction of a wide range of antimicrobial agents, these species is still a common cause of infection in patients hospitalized in different parts of hospital. Due to increasing resistance of this bacterium to antibacterial drugs and especially to β-lactam compounds, the importance of its resistance increases. The aim of this study is to determine genes reproducing VIM-1, IMP-1 and SPM-1 metallo-beta-lactamase (MBL) enzymes in Pseudomonas aeruginosa species isolated from clinical specimens of Imam Reza Hospital in Tehran.

MATERIALS AND METHODS: In this study, 50 Pseudomonas aeruginosa isolates have been collected from different clinical specimens from the Hospital during spring and summer 2017. After confirmation of isolates by biochemical tests, their antibiotic susceptibility was assayed by disc diffusion method and according to CLSI (Clinical and Laboratory Standards Institute) standards in respect to imipenem and imipenem with EDTA antibiotics. Study of MBL generative strains and the presence of the enzymes generating genes was determined by PCR.

RESULTS: In this study, 24 samples (48%) out of 50 Pseudomonas aeruginosa isolates were realized as MBL producing enzymes. After PCR, 12 strains (24%) were carrier of bla_vim-1 gene and 9 strains were carrier of bla_imp-1gene; however, no strain was identified as carrier of bla_spm-1gene.

CONCLUSION: Concerning the increasing number MBL enzymes producing genes and transmission of these genes by transmittable genetic factors, the prevalence control of bacteria producing these enzymes should be addressed by relevant authorities.

Keywords: Pseudomonas aeruginosa, metallo-beta-lactamase, antibiotic resistance
شناسایی مولکولی سروتیپ‌ها و زئن‌های ویروس‌لاس کپسولی موجود در مجموعه زئن‌کپسولی CPS

مقدمه

پرونیس و بیماری کب از پیتیون‌های مهم کلینیکی و ایجاد کننده تعدادی از عفونت‌های بیمارستانی به ویژه نیمیری، سینه، و زئن‌های ادراری است. مطالعه خصوصیات فتوتیپی و زئوتیپی مرتبط با ویروس‌لاس بود. ویروس‌لاس دخیل در ایجاد بیماری در کپسولی ویروس‌لاس چندان در این بیماری مشخص نیست. هدف این پژوهش استفاده از روش Multiplex PCR از شناختی شرکت کپسولی ویروس‌لاس زئن‌کپسولی کپسولی CPS (بعضو CPS) با ویروس‌لاس زئن‌تهای کپسولی مربوط شد.

مواد و روش‌ها:

تعداد 50 از نیمیران نیمیری، سینه، و زئن‌های بیمارستانی تهران جمع‌آوری شد. از روش PCR چندگینه ای استفاده شد.

نتایج:

اکثریت از زئن‌های کپسولی CPS جزء سروتیپ‌های کپسولی CPS K54 و K57 بودند. نسبت به زئن‌های ویروس‌لاس K54 و K5 را دلتا به زئن‌های ویروس‌لاس CPS K54 و K57 بودند. 

نتیجه‌گیری:

تکنیک PCR می‌تواند به عنوان یک روش سریع در شناسایی و تیپ‌بندی از ایزوله‌های بیمارستانی استفاده شود.

کلمات کلیدی: کپسولی CPS، PCR، تکنیک CPS، بیمارستانی
PB-095

Genotyping of *Acinetobacter baumannii* strains isolated from animal origins using
ERIC-PCR method

مرضیه توکل

*Acinetobacter baumannii* is one of the most emerging and new-borne bacteria in food samples with animal origin. The current research was done in order to study the molecular typing, distribution of virulence factors and antibiotic resistance properties of the *A. baumannii* strains isolated from raw meat animal samples. A total of 22 *A. baumannii* strains were isolated from animal meat samples and genotyping by ERIC-PCR method. *A. baumannii* strains with 80% and more than similarities were considered as one cluster. Sixteen different ERIC-Types were found amongst the 22 *A. baumannii* strains. *A. baumannii* strains no 19 and 22 (originated from chicken meat), 12 and 15 (chicken meat), 6 (bovine meat) and 14 (chicken meat), 1 and 3 (chicken meat), 4 (bovine meat) and 5 (turkey meat) and finally 2 (chicken meat) and 10 (ovine meat) had similar ERIC types. *A. baumannii* strains with similar genetic cluster showed the same prevalence of antibiotic resistance, antibiotic resistance genes and virulence factors. Genetic cluster of the *A. baumannii* strains is the main factor affected the similarities in the genotypic and phenotypic properties of the *A. baumannii* strains.

**Keywords:** *Acinetobacter baumannii*, ERIC-PCR, Virulence factors, Antibiotic resistance properties, Raw meat.
Evaluation of aminoglycosid resistant associated efflux pumps among Acinetobacter baumannii MDR isolates

Jiravan Fathimi Rad

Introduction: Acinetobacter baumannii is the important cause of nosocomial infections. This opportunistic pathogen is often resistant to a wide range of antibiotics, which makes infections difficult to eradicate. Multiple drug Resistance can be related to cephalosporinase, low membrane permeability and efflux systems. Aminoglycosides are major drugs in the treatment of Acinetobacter infection. Efflux systems which belongs to the RND family in Acinetobacter baumannii leads to increase MIC of antibiotics. The aim of this study is evaluation of efflux pump activity for aminoglycoside resistance among Acinetobacter baumannii MDR isolates.

Method: 55 strains of Acinetobacter baumannii were separated from the clinical specimens of patients hospitalized in Milad hospital and identified by biochemical tests. Antibiotic resistance profile of strains to 11 antibiotics was determined by disc diffusion method according to CLSI standard. The MDR strains were defined and MIC of amikacin and gentamicin was determined before and after treatment by Carbonyl cyanide 3-chlorophenyl hydrazone. The strains that had 4 or more times reduction in MIC determined actively efflux pumps.

Results: Resistant to Ceftazidim, Cefotaxim, Meropenem, Ciprofloxacin, Imipenem, Piperacillin, Trimethoprim- sulfamethoxazole, Amikacin, Tetracyclin, Piperacillin-tazobactam, Gentamycin were 98/2%, 98/2%, 96.4%, 94/5%, 94/5%, 93%, 87%, 78%, 74/5%, 71%, 62%, respectively.

The frequency of MDR was 98%. Among amikacin and gentamycin resistant isolates only 4 and 17 strains reported as actively efflux pumps. One strain for both antibiotics had efflux pump activity.

Conclusion: The efflux pump are more active for gentamycin among isolates. The efflux phenotype show the possibility of CCCP usage for efflux system fixing in some drugs.

Key words: MDR, Acinetobacter baumannii, efflux pump, CCCP
The prevalence of bla-OXA23 and bla-OXA58 among carbapenem resistant Acinetobacter baumannii isolates associated to carbapenemas activity

Introduction: Carbapenems are the standard therapy for severe Acinetobacter infections and A. baumannii isolates with antibiotic resistance are increasingly reported. OXA enzymes are a class of beta-lactamase enzymes that hydrolyze oxacillins. Four groups of these enzymes have been identified in Acinetobacter baumannii that includes OXA23, OXA24, OXA58 and OXA51. The aim of this study was to investigate the frequency of bla OXA23 and blaOXA58 genes related to carbapenemas resistance in Acinetobacter baumannii clinical isolates.

Material: 55 strains of Acinetobacter baumannii were separated from the clinical specimens of patients hospitalized in Milad hospital and identified by biochemical tests. Antibiotic resistance profile of isolates was determined by disc diffusion method according to CLSI standard. The Hodgetest was used for determination of carbapenemas activity of carbapenem resistant isolates. The frequency of bla OXA23 and blaOXA58 genes was determined by Multiplex-PCR.

Results: The highest antibiotic resistance in Acinetobacter baumannii was related to ceftazidime (%98/2), cefotaxim (%98/2) and meropenem (%96/4), respectively and the lowest resistance was for gentamicin (%62). From the 53 Acinetobacter baumannii resistant to meropenem or imipenem 29 (71/54%) isolates were carbapenemas producers. 90.9% of isolates had blaOXA23 gene and the blaOXA58 gene was found in any isolates.

Conclusion: The high prevalence of bla-OXA23 among isolates showed that in Iran this gene is one of an important beta-lactamase gene for Acinetobacter baumannii isolates that may be transmitted among other isolates and increase carbapenemas resistant.

Key words: bla-OXA23, bla-OXA58, Acinetobacter baumannii, Carbapenemase activity
Evaluation of Effect *Cinnamomum zeylanicum* Blume Essential Oils Efflux Pumps Inhibitors in Carbapenem and Aminoglycosid resistant isolates of *Pseudomonas aeruginosa*

**Introduction:** *Pseudomonas aeruginosa* is a major contributor to mortality in immunocompromised patients. Intestinal resistance to antimicrobial agents is associated with worsening of the condition of treatment of anemia. The most prominent mechanism of antibiotic resistance in this pathogen is the system of pump extraction. So far, numerous studies have been conducted to obtain inhibitors of the antiepileptic pumps of gram-negative bacteria, but the number of plant compounds that can inhibit such pumps in gram-negative bacteria is very small. In this regard, the effect of *cinnamon essential* oil as an inhibitor of Aflox pump in carbapenemic and aminoglycosidic isolates of *Pseudomonas aeruginosa* was investigated.

**Materials and Methods:** In this study, 50 strains of *Pseudomonas aeruginosa* were collected from clinical specimens. The isolates were evaluated by biochemical tests and the antibiotic resistance of the strains to antibiotic classes was determined according to the CLSI 2016 standard and antibiotic-resistant strains were isolated. *Cinnamon essential* oil was extracted from the Clevenger apparatus and the essential oils were analyzed by GC / Mass method. MIC Antibiotics of gentamicin, amikacin and meropenem were determined once in the presence of an antioxidant pump inhibitor, m-chlorophenyl-hydrazon carbonyl cyanide (CCCP), and again in the absence of anti-drug resistant *Pseudomonas aeruginosa*, by microlaunthicle dilution method.

**Results:** Based on the results of this study, *cinnamon essential* oil has both antimicrobial and anti-mycobacterial effects with antibiotics. Also, the findings showed that *cinnamon essential* oil could inhibit the activity of the pretreatment pump in resistant isolates of *pseudomonas aeruginosa* and carbapenemic and aminoglycoside isolates.

**Discussion and Conclusion:** Based on the results, *cinnamon essential* oil can be used in combination with gentamicin, amikacin and meropenem antibiotics as opolex pump inhibitors to suppress resistant *Pseudomonas aeruginosa*.

**Key words:** *Cinnamon essential* oil, Aflox pump inhibitor, *Pseudomonas aeruginosa*, Carbapenemic and Aminoglycoside resistance
PB-099

The antibiotic resistance and virulence factors of different phylogroups of\textit{Escherichia coli} in Tehran, Iran

Majid Eslami

**Background:**\textit{Escherichia coli} (\textit{E. coli}) isolates carry numerous virulence factors which cause nosocomial and community associated infections. Some of these virulence factors are fimbrial adhesions and toxins. The aim of this study was detection of several virulence genes among \textit{E. coli} isolates were collected from various clinical sites in Tehran, Iran.

**Materials and Methods:** In this study, 100 clinical isolates of \textit{E. coli} were collected in Tehran, Iran. The antibiotic susceptibility test was done for 15 antibiotics using Mueller Hinton Agar (MHA) by CLSI guidelines. The virulence encoding genes were detected by PCR.

**Results:** All of \textit{E. coli} isolates were sensitive to phosphomycin. The prevalence of \textit{cnf, cdt, iutA, csgA, KpsMII, ibeA, vat, traT, TcpC, Sat, hly} and \textit{pic} were 13\%, 5\%, 70\%, 84\%, 57\%, 11\%, 15\%, 79\%, 0\%, 32\%, 86\% and 8\%, respectively.

**Conclusion:** All of \textit{E. coli} isolates were sensitive to phosphomycin. Half of isolates were multidrug resistant. The predominant virulence factors of \textit{E. coli} isolates were the genes \textit{hlyA, iutA, traT} and \textit{csgA}.

**Key words:** \textit{Escherichia coli}, virulence factors, drug resistance
The effect of *Saccharomyces cerevisiae* extracts of local isolate on the expression of alkaline protease gene in *Pseudomonas aeruginosa* (PAO1) strain.

Dehghan zadeh Z\(^1\)(MS), Owlia P (PHD)\(^2\), Marashi M.A(PHD)\(^3\).

\(^1\)Department Of Microbiology, Faculty Of Medicine, Shahed University, Tehran, Iran. \(^2\)Molecular Microbiology Research Center Shahed University, Tehran, Iran. \(^3\)Department Of Microbiology, Faculty Of Medicine, Qazvin university, Qazvin, Iran.

**Corresponding author:** Dehghan.z1990@gmail.com

**Introduction:** Probiotics are “live microorganisms which when administered in sufficient amounts award a health advantages on the host. *Saccharomyces cerevisiae* is the first non-pathogenic yeasts as a probiotics. *Pseudomonas aeruginosa* is one of the most significant opportunistic pathogen in immunocompromised individuals as well as in nosocomial infection. Alkaline protease enzyme can be disrupt the immune system of hosts. This enzyme can destroy Interleukin 6 and the cause of Bacterial protection By controlling the host’s safety paths.

**Material and method:** In order to investigation the gene expression of alkaline protease gene, quantitative real-time polymerase chain reaction (qPCR) method was performed at sub-MIC concentrations of *Saccharomyces cerevisiae* extracts (Supernatant-lysate).

**Result:** According to the results, Both of *Saccharomyces cerevisiae* extract (lysate) can be inhibited proteolytic activity of *Pseudomonas aeruginosa* (PAO1).

**Conclusion:** The results of this study indicated that *S. cerevisiae* extract has inhibitory effect against alkaline protease enzyme of *Pseudomonas aeruginosa*, that by more research it can be promising way for reducing pathogenicity of (PAO1).

**Keyword:** PAO1- *Saccharomyces cerevisiae* - proteolytic activity-probiotic.
Introduction and Objectives: The etiologic agent of whooping cough or pertussis is a gram-negative bacillus named *Bordetella*. *B. Pertusis* is a human pathogen incriminated in the majority of cases of whooping cough. A common childhood infection *B. Parapertusis* is also occasionally found in whooping cough (these organisms colonize mucous membranes of throat and nasopharyngeal area and by producing various toxins) the characteristic clinical manifestation of the disease predominantly coughing and cyanosis starts. Chronic stages of disease lasts for several days to weeks. The aim of this study was epidemiologic survey on clinical specimens collected from hospitals Qazvin province in 3 times & comparison with together.

Materials and Methods: In a retrospective descriptive cross-sectional study by dacrons samples taken from nose of children a mean age 3.0 years in the swabs transferred to transport media and send to the Pasteur Ins. If although the cases of errors sampling were some.

Result: In 6 months this year 37 samples totally cases were negative with culture of them.

Conclusion: Therefore it result mass vaccination for pertussis (DPT) during last decades results total control in children in adults, and youngest how ever the disease could be observed sporadically that may transmit to neonates and predisposed children.

Keyword: *B. Pertusis*, whooping cough, neonates, vaccination
PB-103

Investigation of antibacterial effect of native Narcissus Tazzetta hydro-alcoholic extracts on antibiotic-resistant Streptococcus pneumoniae

Marjan Fatahi1, Parvin Gharibpanah2, Meysam Manouchehri Far3, Keyvan Shafieni4, Samira Hushyar3

1. Department of Microbiology, I. A. U. of Sarab Branch, Tabriz, Iran
2. Department of Microbiology, I. A. U. of Karaj, Karaj, Iran
3. Department of Microbiology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran
4. Department of Microbiology, School of Medicine, Rasht University of Medical Sciences, Rasht, Iran

Background: The advancement of science and more attention to health issues have increased the use of medications. Due to the Side effects, high prices and complex phases of chemical drugs production, the use of medicinal plants Is located. Pneumonia, respiratory tract infections, is associated with high mortality and complications in humans. This study investigated antibacterial activity of the hydro alcoholic extracts of the native medicinal plants, Narcissus Tazzetta, as a natural alternative to antibiotics, on antibiotic-resistant Streptococcus pneumoniae, the main bacteria that cause pneumonia.

Methods: Alcoholic extract and aqueous extract The petals and flower flags of Narges Shirazi were prepared separately. Antibacterial activity of the hydro alcoholic extracts of medicinal part of the theses plants was evaluated by the disk diffusion susceptibility test method and broth dilution test method on bacteria.

Results: The rate of MIC for Narcissus Tazzetta bacteria were and 320μg/μl (S. pneumoniae) and the rate of MBC were 340 μg/μl (S. pneumonia as well as the maximum amount of inhibition zone diameter were in concentration 800 μg/μl, S. pneumoniae (22.3, 17.2, 6.8 mm)

Conclusions: The results of these studies showed that the extract of this native plant in domestic habitats is an effective antibacterial agent. So these plants with having effective ingredients can be used as an affordable and available source for medicinal purposes.

Keywords: Streptococcus Pneumonia, Narcissus Tazzetta, antibiotic-resistant
Investigation of antibacterial effect of Lilium candidum hydro-alcoholic extracts on antibiotic-resistant Klebsiella pneumonia

Marjan Fatahi1, parvin Gharibpanah2, Zahra shahouri3, Meysam Manouchehri far4, Keyvan Shafieni5, Samira Hushyar4

1. Department of Microbiology, I. A. U. of Sarab Branch, Tabriz, Iran
2. Department of Microbiology, I. A. U. of Karaj, Karaj, Iran
3. Department of Biochins, Islamic Azad University - Science and Research Branch, Ahar Private University in Tabriz, Iran
4. Department of Microbiology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran
5. Department of Microbiology, School of Medicine, Rasht University of Medical Sciences, Rasht, Iran

Background: Klebsiella pneumoniae is a cause of most hospital infections, including burn and respiratory infections, is in patients, especially the elderly. Although antibiotics are used to treat this infectious disease, but lead to many problems such as unwanted side effects and resistance to antibiotics. This study investigated antibacterial activity of the Lilium candidum hydro-alcoholic extracts of the native medicinal a natural alternative to antibiotics, on antibiotic-resistant Klebsiella pneumoniae, the main bacteria that cause pneumonia.

Methods: Antibacterial activity of the Lilium candidum hydro-alcoholic extracts of medicinal part of the these plants was evaluated by the disk diffusion susceptibility test method and broth dilution test method on bacteria. The minimum inhibitory concentration (MIC) values were determined for the bacterial strains based on a macrodilution method which were sensitive to the extracts in disk diffusion assay.

Results: The rate of MIC of the Rosmarinus officinalis hydro-alcoholic extracts on bacteria were 200μg/μl (K. pneumonia), and the rate of MBC were 280μg/μl (K. pneumonia); as well as the maximum amount of inhibition zone diameter were in concentration 350 μg/μl, K. pneumonia (9, 5.4, 3.8 mm), respectively.

Conclusions: This work showed that substances in the Lilium candidum hydro-alcoholic extracts of medicinal plants prevented the growth of bacteria. So these plants with having effective ingredients can be used as an affordable and available source for medicinal purposes.

Keywords: Klebsiella pneumonia - Pneumonia; Lilium candidum; antibiotic-resistant
Detection of extended-spectrum $\beta$-lactamase production in Escherichia coli

Saeed mahdavi omran$^1$, Mehdi rajabnia$^1$, fatemeh moradian$^3$, elaheh ferdosi shahan dashti$^2$, aynaz khademian$^3$

$^1$) Infectious Diseases and Tropical Medicine Research Center, Babol University of Medical Sciences, Babol, Iran
$^2$) Department of Biotechnology, Faculty of Medicine, Babol University of Medical Sciences, Babol, Iran
$^3$) Department of Microbiology, faculty of medicine, Babol University of medical sciences, Babol iran

Aynz1393@gmail.com

Background: Escherichia coli is the most common cause of urinary tract infection. This bacteria have been resistant to beta-lactam antibiotics, including broad-spectrum cephalosporins, due to the acquisition of plasmids encoding broad-spectrum beta-lactamas (ESBL). The production of ESBLs is considered as a major threat to the use of broad-spectrum cephalosporins. Therefore, you should consider choosing the appropriate antibiotic to treat infections suspected of producing beta-lactamase organisms. Therefore, they should be careful about choosing the appropriate antibiotic to treat infections suspected of producing beta-lactamase organisms. The aim of this study was to evaluate the frequency of E. coli isolated from ESBL producing urinary tract infections.

Methods: fifty two samples of urinary tract infection of E.coli were collected from from the hospital Ayatollah Rouhani of Babol. After Bacterial identification test, ESBL production was tested with the CLSI confirmatory test using combination disk method with CAZ and CTX with clavulanic acid and alone.

Results: In the present study, a total of 52 E.coli isolates, 21 Cases (40.5%) were producing ESBLs.

Conclusion: The prevalence of broad-spectrum beta-lactamas varies among clinical species in different regions. Therefore, it is necessary to have continuous control of E.coli which produces ESBL in hospitals and community.

Keywords: Escherichia coli, Urinary Tract Infection, ESBL.
Class I Integron-Associated Gene Cassettes and Antimicrobial Resistance in Isolates of *Citrobacter* spp with Multidrug Resistance

Alisha Akya¹*, Roya Chegene Lorestani ², Azam Elahi²

¹Associate Professor, Department of Microbiology, Kermanshah University of Medical Sciences, Kermanshah, Iran.

²MSc students of medical microbiology, Department of Microbiology, Faculty of Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran.

Abstract

Background: Integrons play a major role in the transmission and accumulation of resistance factors in multidrug resistant bacteria. This study aimed to evaluate the gene cassettes of class I integron and antimicrobial resistance in isolates of *Citrobacter* with multidrug resistance (MDR).

Methods: Ninety isolates of *Citrobacter* spp. were collected from the largest hospital in Kermanshah, Iran. Antimicrobial resistance was determined using disc diffusion method. The class I integron and associated gene cassettes were detected by PCR. PCR products using 5’ and 3’ conserved region primers were sequenced and analysed to determine the type of gene cassettes. The data were analyzed using statistical analysis.

Results: Of 90 *Citrobacter* isolates, 46 (51.1 %) were multidrug resistant. Class I integrons and gene cassettes were determined in 30 isolates (65.2 %). Four distinct cassette arrays were found, contained genes encoded resistance to aminoglycosides and trimethoprim, and a putative gene. Gene cassette arrays *dfrA12-orfF-aadA2*, *dfrA1-aadA1*, *aadA1* and *dfrA15-aadA2* were found in *Citrobacter* isolates.

Conclusion: Our results indicate a high frequency of class I integron with a diverse gene cassettes in multi-drug resistant strains of *Citrobacter* isolated from hospitalized patients. This can play an important role in the creation and transmission of drug resistance among bacteria in particular in health care associated centers. A high frequency of class I integron and the associated gene cassettes, in particular *dfr* and *aadA*, present in MDR strains of *Citrobacter* isolated from hospitalized patients. They may play an important role in the creation and transmission of MDR strains.

Keywords: *Citrobacter*, Gene cassettes, Integrons, Multidrug-resistant
The Relation between blaTEM, blashV, blaNDM Genes and Antibiotic Resistance in Klebsiella pneumonia Strains Isolated from Hospitalized Patients in Tehran

Najmeh Lashgari, Parisa Morsali

Department of Microbiology, School of Medicine, AJA University of Medical Sciences, Tehran, Iran.

Background: The emergence of drug-resistant Klebsiella pneumonia (K. pneumonia) poses a serious problem to antibiotic management. We aimed to determine the frequency of blaTEM, blashV and blaNDM genotypes in K. pneumoniae clinical isolates from hospitalized patients and to determine their antibiotic resistance patterns.

Methods: A total of 111 strains of K. pneumoniae isolated from various clinical specimens was analyzed by Kirby-Bauer technique for determining the antimicrobial susceptibility status, and interpreted according to the guidelines of Clinical and Laboratory Standards Institute. Then, DNA was extracted by boiling method and polymerase chain reaction (PCR) was performed for detection of target genes. The statistical analysis was performed using SPSS version 20.0.

Results: Sixty percent of patients were female and the remaining were males. The rates of resistance to different antibiotics were in the following order: Cefotaxime (23.0 %), Ceftazidime (19.0%), Imipenem (12.0%), Meropenem (2.0%). According to PCR results, the prevalence of target genes was as follows: blaTEM 58% (n = 64), blashV 81% (n = 91) and blaNDM 72% (n = 80).

Conclusion: The frequency of all three antibiotic resistance genes was high in K. pneumoniae isolates. On the other hand, most of the isolates were susceptible to above mentioned antibiotics. This implies that these genes are not expressed in all the time, despite the existence. It has been shown that overuse or misuse of antibiotics may cause these genes to overexpress and lead to antibiotic resistance. Therefore, more efforts should be undertaken to limit the antibiotic consumption.

Keywords: blaTEM, blashV, blaNDM, antibiotic resistance
Rapid diagnosis of bacteremia in whole-blood specimens of suspected patients using polymerase chain reaction assay

Farzaneh Firoozeh¹, Azam Shiralinezhad², Mansooreh Momen–Heravi³, Esmat Aghadavod⁴, Mohammad Zibaei⁵

¹. Department of Microbiology, School of Medicine, Alborz University of Medical Sciences, Karaj, I.R. Iran
². Department of Microbiology, School of Medicine, Kashan University of Medical Sciences, Kashan, I.R. Iran
³. Department of Infectious Diseases, School of Medicine, Kashan University of Medical Sciences, Kashan, I.R. Iran
⁴. Research Center for Biochemistry and Nutrition in Metabolic Diseases, Kashan University of Medical Sciences, Kashan, I.R. Iran
⁵. Department of Parasitology and Mycology, School of Medicine, Alborz University of Medical Sciences, Karaj, I.R. Iran

Background: Sepsis is a clinical lethal syndrome in response to an infection. Mortality rate due to sepsis especially among Intensive Care Unit (ICU) hospitalized patients is high. Although blood culture is used as the gold standard method for diagnosis, because of low sensitivity and delay in time, use of new molecular detection method is necessary. The aim of this survey was rapid detection of bacteremia in whole-blood specimens of suspected patients by polymerase chain reaction assay.

Methods: This study was performed at Shahid Beheshti University Hospital in Kashan between November 2016 and December 2017. A total of 265 suspected neutropenic patients with fever entered to study. Blood samples of patients were obtained for blood culture and were studied by polymerase chain reaction (PCR) method.

Results: The finding of current survey showed that of the 265 patients, only 27(10.2%) was positive with using blood culture; however positive PCR results were obtained in 80(30.2%) whole-blood samples.

Conclusion: The sensitivity of PCR method in detection of bacteremia in whole-blood specimens of suspected neutropenic patients in compared to blood culture method was higher.

Keywords: Whole-blood; Blood culture; Bacteremia;
Effect of probiotic yeast *Saccharomyces cerevisiae* on hemolytic activity and expression of alpha-hemolysin in *Staphylococcus aureus*

Navid Saidi¹, Horieh Saderi¹*, Parviz Owlia¹, Seyed Mahmoud Amin Marashi²

1. Molecular Microbiology Research Center, Shahed University, Tehran, Iran
2. Department of Microbiology and Immunology, Qazvin University of Medical Sciences, Qazvin, Iran

**Background:** Alpha-hemolysin is one of the *S. aureus* exotoxins that plays an important role in the pathogenicity of this bacterium. Alpha-hemolysin, by expanding the pores in the lipid bilayer membrane, causes the osmotic lysis and cell disruption. Furthermore, this toxin can cause tissue damage by changing cellular signaling pathways and inflammatory responses. This study addressed the effect of probiotic yeast *S. cerevisiae* on hemolytic activity and expression of alpha-hemolysin in *S. aureus*.

**Methods:** The 24-h broth culture of indigenous *S.cerevisiae* yeast was centrifuged. The supernatant was extracted using ethyl acetate. Ethyl acetate was then removed by rotary evaporator and dried extract was obtained. After determining the MIC of the extract for two standard strains of *S. aureus* ATCC 29213 (MSSA) and ATCC 33591 (MRSA), the effect of 1/2 MIC concentration was evaluated on hemolytic activity (by measuring the hemoglobin released from rabbit’s RBC) and alpha-hemolysin gene expression (using Real-Time PCR).

**Results:** MIC of supernatant extract was 4096 µg/ml for both strains. Concentration of 2048 µg/ml of supernatant extract was significantly reduced the hemolytic activity of both strains (*P* < 0.001). This extract reduced the alpha-hemolysin gene expression 40 fold in the *S. aureus* ATCC 29213 strain and 71 fold in ATCC 33591 strain.

**Conclusion:** In this study, the reduced production of alpha-hemolysin in methicillin-susceptible and resistant *S. aureus* was observed by *S. cerevisiae* supernatant. Further studies could be done to treat the infections caused by *S. aureus* using probiotic yeasts.

**Keywords:** Alpha-hemolysin, Probiotic, *Saccharomyces cerevisiae*, *Staphylococcus aureus*
PB-111

Study of antibacterial resistance and molecular typing of clinical strains of Klebsiella pneumoniae

Bahareh Arabzadeh 1, Reza Ranjbar 1

1- Molecular Biology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran

Background: Klebsiella pneumoniae is one of the opportunistic pathogens and the cause of hospital infection. Increased drug resistance among Klebsiella pneumoniae isolates, restricts therapeutic options to control infections caused by this bacterium. Pulse Field Gel Electrophoresis (PFGE) is a Golden Standard Genotyping Method for Typing isolated microbial strains. The purpose of this study was to classify Klebsiella pneumonia strains isolated from clinical specimens of patients in Baqiyatollah Hospital of Tehran.

Methods: Different clinical specimens of Baqiyatollah Hospital were evaluated bacteriologically for the presence of Klebsiella pneumoniae. The drug resistance pattern of isolates was determined using disc diffusion method versus 10 antibiotics. Then, using the pulse field gel electrophoresis method and using the XbaI enzyme, the genetic pattern of its strains was determined and the results were analyzed.

Results: In this study, 100 samples of Klebsiella pneumoniae were isolated and evaluated. The results of antibiotic resistance pattern for antibiotics Trimethoprim (63%), cefoxitin (50%), ciprofloxacin (47%), nalidixic acid (45%), nitrofurantoin (42%), tetracycline (40%), streptomycin (30%), gentamycin (25%), cefalexin (5%) and polymyxin B was 3% respectively. As a result of dendrogram for clinical specimens, 31 different genetic patterns were identified using the PFGE method.

Conclusion: In this study, trimethoprim with the highest rate of resistance and polymyxin B with the lowest rate of resistance was the most effective antibiotic among the strains examined. The result of this study indicated that the Klebsiella pneumonia strains isolated from Baqiyatollah hospitals are belonging to various clones.

Key Words: Klebsiella pneumoniae, Antibiotic resistance, Genotyping, PFGE
The effect of Satureja essential oils on motility of *Pseudomonas aeruginosa*

Elaheh Taghian¹, Navid Saidi¹, Fatemeh Sefidkon², Horieh Saderi¹, Parviz Owlia¹*¹

1. Molecular Microbiology Research Center, Shahed University, Tehran, Iran.
2. Research Institute of Forests and Rangelands, Tehran, Iran.

**Background**: *P. aeruginosa* is one of the most important opportunistic pathogens with remarkable resistance to a wide range of antimicrobial agents and antibiotics. Pathogenicity of this bacterium is based on the production of a number of virulence factors. In this study, the antimicrobial effect of 4 types of Satureja essential oils, including: *S. khuzestanica*, *S. bachtiarica*, *S. Mutica* and *S. rechingeri* was evaluated on motility of *P. aeruginosa*.

**Methods:** First, the MIC of the Satureja essential oils were determined by agar dilution method for *P. aeruginosa* strain PAO1. Then, to evaluate the effect of essential oils on motility, the Muller Hinton medium (with 0.3% agar) containing 1/2 and 1/4 MIC concentrations of the essential oils was prepared, and the bacteria were cultured in the center of the plate. The medium without essential oil was used as a positive control.

**Results:** All four Satureja essential oils had antimicrobial activity on *P. aeruginosa* PAO1 strain. All essential oils at the 1/2 MIC concentration inhibited the motility completely. Also the level of motility reduction at the 1/4 MIC concentration of all essential oils was significant (P <0.05).

**Conclusion:** The results showed that the Satureja essential oils have antimicrobial effects on *P. aeruginosa* and can inhibit its motility. Further studies can contribute to the use of Satureja to control *P. aeruginosa* infections.

**Keywords:** *Pseudomonas aeruginosa*, Satureja, Antagonistic activity

Determination of fluoroquinolone resistance in Streptococcus pneumoniae isolates
Antimicrobial Effects of Phenoxy Ethanol and Caprolyl Glycol (Verstatil pc) as Preservatives in Cosmetic Products

Mojtaba Sadeh¹*, Samira Sepehri²

¹- Department of Microbiology, School of Basic Sciences, Saveh Branch, Islamic Azad University, Saveh, Iran.  
²- Microbiology expert of Pars Azmaye Teb Co.  
* Corresponding Author’s Email: msade110@gmail.com

Background: The probability of transmission of contamination and its risks in the cosmetics industry is considered as one of the important health problems for the consumers of these products and, on the other hand, due to the widespread use and non-standardization of some of the raw materials and the presence of some of the compounds in these products as a food source for microorganisms can provide the context and conditions for the infection to consumers.

Methods: In this study, the bacterial and fungal contamination of cosmetic products produced by Pars Azma Medical was evaluated by evaluating the power of maintenance of Verstatil pc. In this study, the minimum inhibitory concentration of verstatil pc was investigated against five microorganisms of Candida albicans (PTCC), Escherichia coli (ATCC: 25922), Pseudomonas aeruginosa (ATCC: 27853), Aspergillus niger (PTCC), Staphylococcus aureus (ATCC: 25923) It turned out.

Results: The results of microbial tests showed that the verstatil pc bacteriuria and fungal power for the above microorganisms was Log level ≥ Log 7.

Conclusion: Due to the repeated use of cosmetics, measures should be taken to prevent the growth of bacteria and pathogenic fungi in these products. According to the results of this study, it is recommended that the substance The preservative (V.PC) is used to prevent the growth of microbial and fungal contaminating agents in the cosmetics industry.

Keywords: Logarithmic Reduction, Verstatil pc, PTCC, ATCC, Concentration inhibition, Preservatives.
Evaluation of PCR test for detection of *Pseudomonas aeruginosa* in keratitis

Zahra Rostami\(^1\&2\), Mohammad Hassan Shahhosseiny\(^1\& 2\), Mahsa Malekmohammadi Kalahroudi\(^2\)

\(^1\)Department of Microbiology – shahr-e-Qods Branch – Islamic Azad University –Tehran / Iran
\(^2\)Iranian Gene Fanavar Institute (IGF), Tehran/Iran

**Background:** *Pseudomonas aeruginosa* is an opportunistic pathogenic bacterial disease and considered as one of the main causes of keratitis infections. *Pseudomonas* keratitis is a dangerous ophthalmic infection that can lead to severe disability of the cornea and corneal ulcer if immediate treatment is not appropriate. These days, extensive using of contact lenses is a risk factor for developing corneal infections. The aim of this study was to investigate and detect *Pseudomonas* keratitis in patients with corneal lesions by PCR method.

**Method:** This project was performed on 70 samples of suspected keratitis from *Pseudomonas* that referred to Tehran Labafinejad Hospital. Sample’s DNA extracted by DNG-plus method and optimized PCR test was done on samples. Limit of detection (LOD) and specificity test were evaluated.

**Results:** 956 bp PCR product observed in 1.5% agarose gel. In specificity test with multiple organisms, *Pseudomonas aeruginosa* amplicon just witnessed. From 70 suspected keratitis from *Pseudomonas aeruginosa* 11 samples (15.7%) was infected.

**Conclusion:** Due to the importance of ocular infections, this study attempted to investigate *Pseudomonas* keratitis by PCR method. This study showed that part of the specimens contains this bacterium by PCR method. Probably some other specimens have been clinically wrongly diagnosed or other causes have caused keratitis.

**Keywords:** *Pseudomonas aeruginosa*, Evaluation, PCR, Keratitis.
Rapid molecular detection of Streptococcus pyogenes in sinusitis

Elaheh Rahimi 1, Mohammad Hassan Shahhosseiny 2 & 3, Alireza Dehnad 1 &4

1. Rab’ Rashid Institute of Higher Education, Tabriz / Iran
3. Department of Microbiology – Shahr-e- Qods Branch-Islamic Azad University, Tehran / Iran
2. Iranian Gene Fanavar Institute (IGF), Tehran / Iran
4. Biotechnology Department of East Azerbaijan Agriculture and Natural Resources Research and Education Center, Agricultural Research and Education Organization, Tabriz / Iran

Background: Inflammation of the mucous membrane of the inner surface of the sinus is called sinusitis and in terms of the type of sinus afflicted, in addition to general symptoms, there are certain signs that may be caused by infection, allergies or autoimmune diseases. In acute infections caused by viruses or exogenous organisms, Natural flora organisms have a good reproductive environment, increasing their number, and elsewhere in the body such as Eustachian tube, middle ears, larynx or sinuses. Chronic sinusitis is a disease that affects a significant percentage of the population and long-term complications and discomfort to follow. Viral infections of the upper respiratory tract act as a source of bacterial sinusitis, and so far, viral types of bacteria have been reported as the underlying causes of sinusitis. One of the bacteria associated with sinusitis is Streptococcus pyogenes. The aim of this study was to determine the DNA of bacteria of Streptococcus pyogenes in patients with sinusitis by PCR molecular method and its incidence.

Methods: In this study, 70 samples of sinusitis fluid were collected from patients. DNA extraction from patient samples was done by DNG_PLUS method. An optimized PCR test was performed on the DNA extracted from the sinusitis samples, plus a positive control sample that extracted the DNA from the standard strain, and a negative control sample was performed. The test was also assessed in terms of diagnosis and specificity.

Results: In this study, an optimized PCR test and Amplicon of 398 bp were performed using specific primers for Streptococcus pyogenes. In examining the specificity test Primers only formed band with DNA streptococcus pyogenes and no band was detected with DNA other micro organism. The Copy / reaction 50 detection limit was obtained. Of the 70 samples examined, 2 positive samples were obtained.

Conclusion: The results show that about 2.8% of the samples of patients with sinusitis were positive by using the PCR technique, which is a quick and accurate method. These observations indicate that Streptococcus pyogenes is one of the important factors involved in the mixed sinusitis infection.

Keywords: Streptococcal Pyogenes, Sinusitis, Polymerase Chain Reaction, Diagnosis
Molecular characterization and antimicrobial resistance of Shigella species isolated from diarrheal patients in Golestan tertiary hospital, Ahvaz, southwest Iran

Ahmad Farajzadeh Sheikh1,2, Mahtab Abdi2, Mohsen Heidary3, Fatemeh Shahi2, Nabi Jomehzadeh4, Sakineh Seyed-Mohammadi1,2,5, Morteza Saki1,2,5, Saeed Khoshnood1,2,5

1. Infectious and Tropical Diseases Research Center, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Department of Microbiology, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Department of Microbiology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
4. Abadan School of Medical Sciences, Abadan, Iran
5. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Backgrounds: Shigella is a facultative intracellular enteric pathogen which remains an important public health threat responsible for almost 165 million cases of diarrhea annually. The main aims of current survey were to identify Shigella spp. isolated from diarrheal patients by biochemical tests, detect the ipaH gene using PCR and determine the antimicrobial susceptibility profiles by disk diffusion.

Methods: This study was performed in cooperation with Golestan Hospital, Ahvaz, Iran during September 2015 to August 2016. Bacteria identified as Shigella by their morphological and biochemical features were tested for antigen-antibody reaction. Antimicrobial susceptibility testing was performed using the Kirby–Bauer disk diffusion method. DNA was extracted from Shigella colonies by the boiling method and PCR amplification was performed using a thermal gradient cycler to detect ipaH gene.

Results: The Shigella strains were isolated from 522 patients with various diarrhea, including bloody diarrhea (3.06%), mucoid plus bloody diarrhea (1.9%), mucoid diarrhea (3.2%), and watery diarrhea (3.2%). Overall 69 (13.21%) isolates were positive for Shigella spp, of which 34 (49.28%) serotypes were identified as S. flexneri, 22 (31.9%) S. sonnei, 9 (13%) S. boydii, and 4 (5.8%) S. dysenteria. Antibiotic susceptibility tests revealed that the highest resistance percentage was related to ampicillin (82%) and trimethoprim-sulfamethoxazole (77%), and ciprofloxacin and ceftriaxone were the best antibiotics against Shigella isolates.

Conclusion: We conclude that Shigella spp. can be considered as an etiological agent of diarrhea with a high level of antibiotic resistance in Ahvaz, Iran. Since the drug resistance pattern of Shigella differs geographically and over time within a country, continuous and regular surveillance program is necessary.

Keywords: Shigella, Iran, Antimicrobial resistance, Diarrhea,
Antibiotic resistance of Gram-negative bacteria isolated from patients with blood infections referring to Besat Hospitals of Sanandaj city during 2016-2017 years

Samireh Amini¹, Nooshin Abdolmaleki², Saeede Jafari¹*, Samaneh Rouhi¹,²

¹. Student Research Committee, Kurdistan University of Medical Sciences, Sanandaj, Iran.
². Cellular & Molecular Research Center, Kurdistan University of Medical Sciences, Sanandaj, Iran.

*Corresponding Author: Saeede Jafari. E-mail: jafari.313333@yahoo.com

Background: Antibiotic resistance is one of the biggest threats to health. The aim of this study was to evaluate the antibiotic resistance of Gram-negative bacteria isolated from blood infections.

Methods: This cross-sectional study was conducted on 128 patients in the Besat Hospital, Sanandaj, Kurdistan Province, Iran, from 20 April 2016 to 20 January 2017. Patients' information was collected from the Hospital Information System. Culture and biochemical tests used for detection of bacteria in blood samples. Disk diffusion was used for antibiotic pattern survey. Statistical analysis was done in the Stata/SE 12 by chi-square test.

Results: Prevalence of blood infection in women (54.69%) was higher than that of men (45.31%). Based on time-frequency analysis, the highest rate of infection was in summer (40.63%) and January (25.78%). The most common cause of infection in women was E. coli (27.14%), and in men were Acinetobacter (27.59%) and E. coli (27.59%). There was no significant association between bacterial type and gender (P>0.05). In women, the highest antibiotic resistances were Ceftazidime (77.14%), Cefotaxime (70%), and Ciprofloxacin (61.43%) and in men were Ceftazidime (82.76%), Cefotaxime (63.79%) and Amikacin (62.07%), respectively. A statistically significant association between the antibiotic resistance of Cefixime and Nitrofurantoin with gender was observed (p<0.05). The frequency of antibiotic resistance of Cefixime and Nitrofurantoin in women was higher than that of men.

Conclusion: Survey of the pattern of antibiotic resistance in the isolated bacteria in hospitals can be prominent and necessary in the choice of treatment and appropriate antibiotics by physicians.

Keywords: Antibiotic resistance, Gram-negative bacteria, Blood infections
PCR detection of *Mycoplasma genitalium* in women with recurrent Abortions

Yasaman yaghoobi\(^1\), Mohammad Hassan Shahhosseiny\(^2\)\(^3\)

1. Department Of Biotechnology, Faculty Of Advanced Sciences & technology, pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran (IAUPS)
2. Department of Microbiology – shahr-e-Qods Branch – Islamic Azad University –Tehran / Iran
3. Iranian Gene Fanavar institute, Tehran, Iran (IGF)

**Background:** The phenomenon of infertility in women, in recent years, many couples have been worried about health. According to WHO reports, 43% of women in the world suffer from infertility. It has been observed that Infectious agents are important factors and one of the major causes of abortion and infertility. On the other hand, different infectious agents that can make abortions. *Mycoplasma genitalium* is one of the most important mycoplasmas involved in vaginal infections, abortion, Pelvic inflammatory diseases, Pyelonephritis & Urethritis in women and its Quick diagnosis can be a solution to treatment and prevention. Multiple molecular methods and multiple primers have been developed for the detection of these bacteria. The purpose of this study is rapid detection of *Mycoplasma genitalium* in women with recurrent abortions by PCR.

**Methods:** In this study, 100 samples of woman's vaginal secretion with recurrent abortions and infertility were collected. DNA extracted by using of boiling /DNG_PLUS method. Optimized PCR test was performed on DNA extracted from vaginal specimens.

**Results:** In this study, PCR test optimized and 427bp amplicon was amplified by DNA of standard *Mycoplasma genitalium*. In specificity test, primers were positive only by *Mycoplasma genitalium* and there was no band with DNA of other microorganisms. Limit of detection (LOD) measured 10 Copy/Reaction. Of the 100 samples studied, one sample was positive for *Mycoplasma genitalium*.

**Conclusion:** *Mycoplasma genitalium* have a lower role in infertility than other microbial agents. The PCR method is a convenient, quick and sensitive molecular technique than traditional methods for detecting *Mycoplasma genitalium* in women with recurrent and infertile abortions.

**Key words:** *Mycoplasma genitalium*, abortions, Detection, PCR
در این گزارش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آسیب‌پذیر در پیشگیری از ابتلای بیماران به بیماری‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گردد. در این پژوهش از توانایی و گستردگی سلول‌های پتیت در دستگاه‌های آلرژیک و ایمنی گزارش می‌گر dennih.habaei@srbiau.ac.ir}
Impact of morphine on the expression of insulin receptor and protein levels of insulin/IGFs in rat neural stem cells

Sadegh Salarinasab (Department of Biochemistry and Clinical Laboratories, Faculty of Medicine, Tabriz University of Medical sciences, Tabriz, Iran) [sadeghsalari70@gmail.com]

Abstract

Alzheimer's disease is correlated with neuronal degeneration and loss of neuronal precursors in different parts of the brain. It has been found disturbance in the homeostasis neural stem cells (NSCs) can cause neurodegeneration. Morphine, an analgesic agent, can disrupt the dynamic and normal state of NSCs. However, more investigations are required to clearly address underlying mechanisms. The current experiment aimed to investigate the effects of morphine on the cell distribution of insulin factor and receptor and insulin-like growth factors (IGF1, IGF2) in NSCs.

NSCs were isolated from rats and stemness feature confirmed by antibodies against nestin and Sox2. The cells were exposed to 100 µM morphine, 50 µM naloxone and combination of these two drugs for 72 hours. The neural cell growth, changes in levels of insulin and insulin-like growth factors secreted by NSCs as well as the insulin-receptor-gene expression were assessed by flow cytometry, ELISA, and real-time PCR, respectively.

Cell cycle assay revealed the exposure of cells to morphine for 72 h increased cell apoptosis and decreased neural stem cell growth. The biosynthesis of insulin, insulin-like growth factors, and insulin receptor were reduced (p<0.05) after NSCs exposure to morphine at the concentration of 100 µM for 24, 48 and 72 hours. Naloxone is a competitive antagonist which binds MOR where morphine (and endogenous opioids) bind, and reversed the detrimental effects of morphine.

It can be concluded that morphine initiated irregularity in NSCs kinetics and activity by reducing the secretion of insulin and insulin-like growth factors and down-regulation of insulin receptor.
Role of pancreatic duct cell in beta cell neogenesis: A mini review study

Shahdokht Rastegar¹, Esmaeel Ebrahimi², Saeed Shirali³

1. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
3. Hyperlipidemia Research Center, Department of Laboratory Sciences, School of Paramedical Sciences, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Abstract

Background and purpose: Diabetes mellitus is known as main threatening for health society. Main characteristic of type 2 diabetes is hyperglycemia, which is associated with the selective destruction of pancreatic beta cells, these cells as the main center of blood glucose preservation at normal level. Proliferation and neogenesis are two factors for preservation of beta cell mass. Continues production of beta cell is a therapeutic strategy to keep normal blood glucose and pancreatic duct cell can be one of the sources of new beta cells.

Materials and methods: Review method For better access to relevant articles, we searched keywords such as beta cell neogenesis; beta cell replication and regeneration; diabetes mellitus; duct cell and compensatory mechanisms in databases of Wiley; Scopus; Science Direct; Springer and PubMed. Then obtained papers from 1990 to now according to the year publication were classified. Indeed; our goal was evaluation of articles based on chronological order.

Results: In the study, reviewed the role of pancreatic duct cell in the production of beta cell based on a chronological. Reviewed show one of the sources of beta cell production is pancreatic duct cells and it has well been known that they have the ability to convert beta cells in the postnatal period and even adulthood. Pancreatic duct-derived cells can be a potential source for the production of beta cells because when they were cultured in endothelial growth-promoting media resulted in expression reduction of their many markers and expression increase of their common markers with mesenchymal cells. Indeed they acquire mesenchymal characteristics and then differentiate into cells with potential of insulin secretion.

Conclusion:

In final, we concluded given that inobese people and patients with diabetes there are probability of duct cell replication and beta cell neogenesis under obesity and diabetes especially in the early stages of diabetes. Follow up studies to determine effect factors on differentiation duct cell into beta cells were found that INGAP, Pdx1, Ngn3, and Mafa are factors involved in this process.

Keyword: Diabetes, Pancreatic duct cell, Beta cell, neogenesis.
Katacalcin (PDN-21) Serum Level in Patients with Medullary Thyroid Carcinoma: Case-Control Study

Pouria mohammadi (M.Sc. in Medical Biotechnology, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran)
pouria1987m@yahoo.com

Abstract

Background and Aim: Healing Medullary Thyroid Carcinoma (MTC) heavily relies on its early detection. Since the current genetic procedures for diagnosis takes reasonable cost and time, studies to find and introduce biochemical biomarkers have been conducting. In this study, the measurement of serum katacalcin (PDN-21) as a biochemical biomarker has been conducted in patients with moderate thyroid cancer and has been compared to healthy people.

Methods: This is a case-control study, which patients with medullary thyroid carcinoma who have not yet been treated have been invited to participate as a case group as well as healthy subjects as the control group. Demographic and anthropometric data including age, sex, marital status, smoking, history of disease and drug use, height and weight of patients and healthy subjects were recorded. Subsequently, all participants received 5ml of blood for measuring serum katacalcin by using an ELISA kit and data were compared with appropriate statistical tests.

Results: Ninety subjects with MTC in the case group and 90 healthy subjects in the control group were evaluated. Demographic and anthropometric data were matched between the case and control groups (P <0.05). The MTC group consisted of 39 men (43.3%) and 51 women (56.7%) with a mean age of 29.7±12.8 years, and the healthy group included 42 (46.7%) men and 48 (53.3%) women with a mean age of 30.5±11.2 years. The results of ELISA test showed that the mean serum level of katacalcin in patients was 80.76±7.45 μg/L and in the healthy subjects was 17.87±0.87 μg/L. Significant differences were observed between the serum concentration of katacalcin in the control and MTC groups (p=0.001).

Conclusion: In the current study, the serum levels of katacalcin had significantly increased in patients with moderate thyroid carcinoma compared to the healthy subjects. These preliminary findings suggest that katacalcin can be associated with medullary carcinoma of thyroid, and further studies are needed in this area for more accurate examination.
Pbi-005

Prostate-Specific Antigen as a Novel Diagnostic Biomarker of Breast Cancer

Ghader babaei¹; Azadeh Aliarab²; Sina Abrun¹; Shiva Gholizadeh- Ghaleh Aziz¹*

1. Department of Clinical Biochemistry, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Clinical Biochemistry, Faculty of Medicine, Sshahid beheshti University of Medical sciences, Tehran, Iran

Introduction:
Breast cancer is the most frequently diagnosed cancer in women and ranked second among causes for cancer related death in women. The identification potential of breast cancer has been improved markedly. Prostate-specific antigen (PSA), the serine protease, is identified as a well-established marker of prostate cancer with high levels in prostate epithelium. As well as numerous studies have demonstrated the production of PSA in female tissues such as the breast and low level of PSA has been detected in female sera. PSA is produced by the majority of breast tumors which is a favorable indicator of prognosis in breast cancer. Low levels of PSA are released into the female circulation, while the level of serum PSA is elevated in both benign and malignant breast disease, the molecular form of circulating PSA differs between women with and without breast cancer. Thus, PSA represents a marker with numerous potential of clinical applications as a diagnostic and/or prognostic tool in breast disease.

Methods
The current review has been achieved by using an organized search of the scientific data published on molecular biology of prostate specific antigen in women from various databases, including PubMed, ScienceDirect, Scopus, Scielo, SciFinder and Google Scholar.

Results
The results of the present study showed PSA could be a good candidate as a prognostic factor to diagnosis of breast cancer.

Discussion
Prostate-specific antigen (PSA) has been reported as a potential biomarker of breast cancer. Given the dire need for tumor markers, only further studies can establish the utility of PSA in the detection and treatment of breast diseases and provide irrefutable evidence for its diagnostic and/or prognostic use as a new weapon against human breast cancer.

Key words:
Prostate-specific antigen, Breast cancer, Diagnostic biomarker
**Pbi-006**

**Investigate effect of Plants with D-chiro-Inositol and its Derivatives on Diabetes**

Shahdokht Rastegar 1, Esmaeel Ebrahimi *2, Shirin Soltani 3, Azade Roohipoor 4, Saeed Shirali 5

1. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
3. Department of Pharmacology 3, School of Pharmacy, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
4. Department of Biochemistry 4, Taft University of Payame-Noor, Yazd, Iran.
5. Hyperlipidemia Research Center, Department of Laboratory Sciences, School of Paramedical Sciences, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

**Background and Objective:** Diabetes mellitus is a multi-factorial endocrine disorder, which is due to deficiency in secretion or action of insulin. Human always has great consideration to plants for treatment of illnesses, especially diabetes and it is probably due to common ingredients with mammalian cells such as inositol, especially isomer of D-chiro-inositol, which plays a vital role in signalling pathway of insulin, and its lack in structure of inositol phosphoglycan leads to insulin resistance. In the study, we reviewed the effects of D-chiro-inositol and its derivatives on diabetes.

**Search Method:** Review method: In the recent study, we reviewed the effects of D-chiro-inositol and its derivatives on diabetes in conducted studies on diabetic animal models and patients with type 2 diabetes. We also reviewed plants contain this compounds and their effects on diabetes. For conducting this study, we obtained related articles using keywords such as D-chiro-inositol, D-pinitol, and D-chiro-inositol derivatives, diabetes and herbal medicine since 1980 from to now based on databases such as Wiley, Scopus, Science Direct, Springer and PubMed. Then, the articles were categorized and reviewed.

**Findings:** In the study, we reviewed the effects of D-chiro-inositol and its derivatives on diabetes and categorized the plants, which contained such compounds. We mention that to possess an available and inexpensive source of D-chiro-inositol is necessary for patients with diabetes and herbs can help us to achieve this goal.

**Conclusion:** In final, we concluded given world health organization (WHO) persuade researchers in the field of diabetes to more focus on plants and their compounds for remedy of diabetes because by use of plants can obtain impressive treatment with fewer side effects.

**Key Words:** Diabetes, Insulin, D-chiro inositol, Inositol phosphoglycan.
The role of cathepsin enzyme as a biomarker of stress in Alzheimer's disease

Shahdokht Rastegar, Ramin Tavakoly, Mohammad Aberomand

1. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
3. Department of Clinical Biochemistry, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz 15794-61357, Iran.

*Corresponding author: Shahdokht Rastegar, Email: Shahdokht63rastegar@gmail.com

Background and purpose: Alzheimer's a multifactorial disease, in addition to the precipitating of two proteins of beta-amyloid peptide and neurofibrillar spiral, the main mechanisms of which are the pathogenesis of Alzheimer's disease. Various factors such as inflammatory mechanisms, lysosomal changes play a fundamental role in the pathogenesis of this disease. Increasing and decreasing lysosomal proteases, such as cathepsins can lead to functional impairment and gradual death of neurons. Alzheimer's disease, which is a progressive disease of the nervous system, is manifested by loss of memory and a change in personality and function.

Materials and methods: Review method For better access to relevant articles, we searched keywords such as cathepsin; Alzheimer's; lysosomes; stress and compensatory mechanisms in databases of Wiley; Scopus; Science Direct; Springer and PubMed. Then obtained papers from 1959 to now according to the year publication were classified. Indeed; our goal was evaluation of articles based on chronological order.

Results: In the study, reviewed the role cathepsin in the development of Alzheimer's disease. The cathepsins, by processing βAPP and converting it into amyloid beta, have the effect of exacerbating the conditions within the neurons, as well as catalyzing the decomposition of beta-amyloid reactions and converting them into cut-off forms from the carboxyl end region, have a protective role against Alzheimer's. The 24KD fragment from the effect of cathepin D on Apo E is the second binding to the Apo E receptor, which may also be the cause of the pathogenicity of Apo E in Alzheimer's disease.

Conclusion: The proteolytic activity of lysosomes is critical to hydrolysis enzymes, including cathepsins. In vivo conditions, beta-amyloid degradation can be performed by various proteases. Excessive suppression or expression of the gene of these proteases increases or decreases the amount of amyloid beta, proportionally, including proteases that can be mentioned. Cathepsines have the ability to degrade amyloid derivatives, and in particular the type of Aβ42. Studies have shown that cathepsins of type D, B, and possibly L, play a significant role in the decomposition of beta amyloid derivatives.

Keyword: Alzheimer's, Cathepsin, stress, cystatin B
The role of Cathepsin enzyme as a marker of stress on epilepsy
Shahdokht Rastegar*, Ramin Tavakoly2, Saeed Shirali3

1. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
3. Hyperlipidemia Research Center, Department of Laboratory Sciences, School of Paramedical Sciences, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Background and purpose: Epilepsy is one of the most commonly diagnosed disorders of the nervous system, which results in activation of the neurons in the entire brain cortex. One of the genes involved in epilepsy, gene expression of cystatin B. The mutation in cystatin B protein gene (replacing glutamine with proline) by reducing the binding of cystatin B to cathepsins caused epilepsy. Consequently, cathepsin B protease activity will not be inhibited by cst B and will increase the rate and activity of cathepsin B and epilepsy.

Materials and methods: This study was performed on 15 patients with epilepsy and 15 normal subjects as control group. After preparation serum from the group, stages of isolation and measurement of enzyme activity were performed on patients with epilepsy in comparison with healthy subjects (control test). The enzyme activity was measured using the modified Anson method. All statistical analyses were performed using SPSS software (SPSS, Inc., Chicago IL, USA). Continuous variables are expressed as mean ± SD, and compared by one-way analysis of variance (ANOVA) followed by Tukey’s post hoc test. The significant level was set at P < 0.05.

Results: Average activity of the enzyme cathepsin in the blood of patients with epilepsy and 37.42 ± 2.56 in healthy subjects (control group) 11.94 ± 1.011, respectively. This difference is statistically significant (P> 0.03).

Conclusion: Stress with increase release cathepsin B can help in development the process of epilepsy. According to the findings of the enzyme cathepsin measurement as a diagnostic marker for early detection of epilepsy can be considered.

Keyword: epilepsy, Cathepsin, stress, cystatin B.
Association between polymorphism of SIRT1 gene and changes in BMI and renal complications in patients with type 2 diabetes

Ramin Tavakoli1,2, Mehrnoosh Zakerk1, Ali Karimi Akhormeh1, Mohammad Taha Jalali3, Hamid Yaghooti1,3,*

1Department of Medical Laboratory Sciences, School of Allied Medical Sciences, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2Diabetes Research Center Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
3Hyperlipidemia Research Center, School of Allied Medical Sciences, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Background and Objective: Type 2 diabetes mellitus (T2DM) is a complex multifactorial and polygenic metabolic disorder. SIRT1 has an essential role in insulin signaling pathway and energy homeostasis. Several studies have demonstrated that calorie restriction leads to change expression of SIRT1 in various tissues such as kidney. We aimed to investigate whether rs3758391 variant was associated with diabetic nephropathy, measures of kidney function and BMI in a population with and without diabetes in southwest Iran.

Materials and Methods: The study composed 132 patients with T2DM (with and without nephropathy) and compared to normal subject (n=66). Subjects were genotyped for rs3758391 polymorphism by PCR-RFLP method. Fasting blood glucose, HbA1c, Urea, creatinine, and urinary albumin were measured using a biochemistry analyzer. Serum cystatin C levels were measured by ELISA.

Findings: The genotype distribution and allele frequencies were significantly different between the entire diabetic group and healthy subjects (p value<0.05). The odds ratio (OR) for TT genotype and T allele carrier were 5.7 (95% confidence interval (CI) 2.2-14.9, p<0.001) and 4.01(2.1-7.5) (95% CI 2.1-7.5, p<0.001) for T2DM, respectively. The OR for TT genotype and T allele carrier were 3.96 (95% CI 1.5-10.0, p=0.003) and (OR:3.0,95% CI1.4-6.4, p=0.003) for diabetic nephropathy, respectively. The OR for TT was 2.9 (95% CI 1.1-7.5, p=0.02) for decreased eGFR below 60 ml/min/1.73m².

Conclusion: Our results confirm that the risk allele of the rs3758391 SNP in the SIRT1 gene is strongly associated with T2DM and diabetic nephropathy. The TT genotype was also associated with decreased eGFR.

Key Words: type 2 diabetes, diabetic nephropathy, sirtuin, SIRT1, rs3758391 polymorphism, eGFR

IRCT: IR.AJUMS.REC. 1395.76
The changes of BDNF and lipid factors in development and severity of depression.

Ramin Tavakoly1*, Shahdokht Rastegar2, Hamid Yaghoty

1. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
3. Department of Clinical Biochemistry, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

*Corresponding author: Ramin Tavakoly, Email: tavakoliramin42@ymail.com

Abstract

Background and purpose: Depression is one of the most common psychiatric disorders worldwide. Depression is a complex disease and various risk factors such as stressful life style are involved in its development. The collegiate life is a stressful period due to the presence of multiple stressors and is considered as an important risk factor for developing depression. In this study we aimed to investigate university students with different levels of depression symptoms. We evaluated lipid profile and BDNF levels in these students and the association of these factors with depression was studied.

Materials and methods: In this cross-sectional study we studied 100 male students in Ahvaz Jundishapur University of Medical Sciences. Beck depression questionnaire were completed by students and serum levels of BDNF were assayed by ELISA technique. Serum lipids including cholesterol, triglycerides, low density lipoprotein (LDL), and high-density lipoprotein (HDL) were measured using a biochemistry analyzer.

Results: Based on Beck scaling score, higher scores were achieved in subjects categorized as moderate and severe depression. Decreased levels of BDNF (P<0.01), TG, Cholesterol, and HDL were found in groups with higher levels of depression (P<0.05), but LDL was significantly increases in these subjects. There was an inverse correlation between Beck scores and BDNF (P<0.001), TG, Cholesterol, LDL and HDL levels (P<0.05), However a direct correlation between Beck scores and LDL levels was found (r=0.671, P<0.01).

Conclusion: These findings suggest that the changes of BDNF and lipid factors could be associated to the development and severity of depression.

Keyword: Depression, Lipid profile, BDNF, Beck depression questionnaire.
Pbi-011

The role of neurotransmitters nerves and brain neurotropic factor in development depression.

Ramin Tavakoly1*, Shahdokht Rastegar2, Hamid yaghoty

1. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2. Department of Biochemistry, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
3. Department of Clinical Biochemistry, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

*Corresponding author: Ramin Tavakoly, Email: tavakoliramin42@ymail.com 09376943690

Abstract

Background and purpose: Depression is a multi-factorial ethilogy and most common psychiatric and behaviour illness. This is associated with the imbalance of inhibitory and stimulatory neurotransmitters and disorders of the brain neurotrophic factor (BDNF).

Materials and methods:
Review method for better access to relevant articles, we searched keywords such as Depression; stimulatory neurotransmitters; monoamine; inhibitory neurotransmitters and compensatory mechanisms in databases of Wiley; Scopus; Science Direct; Springer and PubMed. Then obtained papers from 1959 to now according to the year publication were classified. Indeed; our goal was evaluation of articles based on chronological order.

Results: In the study, reviewed the role inhibitory and stimulatory neurotransmitters in the development of Neuropsychiatric disorders. Depression is accompanied by a decrease in the transfer of amine-functional neurotransmitters in the synapse and increased monoamine and glutamate in the synaptic gap also decreased levels of BDNF (P<0.01), TG, Cholesterol, and HDL, So there is an meaning correlation between inhibitory and stimulatory neurotransmitters to psychiatric and behavior illness.

Conclusion: These findings suggest that the changes of BDNF and inhibitory and stimulatory neurotransmitters could be associated to the development and severity of depression.

Keyword: Depression, BDNF, InhibitoryNeurotransmitters, Stimulatory Neurotransmitters, Monoamine.
Serum Irisin changes following endurance exercise and calorie restriction in obese and hypertriglyceridemic rats

Anahita Abbasifard1, Samad Akbarzadeh2, Ali movahed2, Afshar Bargahi2, Afshin Ostovar3, Hajar Jaberi2

4. Student of Msc Biochemistry, Student Research Committee, Bushehr University of Medical Science, Bushehr, Iran
5. Department of Biochemistry, Faculty of Medicine, Bushehr University of Medical Science, Bushehr, Iran
6. Department of Epidemiology, Faculty of Medicine, Bushehr University of Medical Science, Bushehr, Iran

Abstract:
Background: The aim of this study was to confirm the hypothesis that indicates the role of Irisin as an adipokine, in boosting energy consumption and heat generation in brown fat tissue following moderate exercise and calorie restriction.

Methods: In this experimental study, 28 male Wistar rats (180-250g) were divided into four groups: the Standard Control (STC), the High Fat-high Carbohydrate diet (HFC), the Stop High Fat- high Carbohydrate diet (S-HFC) and the Exercise (EXE). The first 16 weeks were used to apply the especial model (HF-HC diet for long-term) for inducing hypertriglyceridemia and weight gain, followed by five weeks treatment for both the groups (S-HFC and EXE). S-HFC group diet changed to standard food and the EXE group ran on treadmill for 20 minutes daily for 5 days in a week. The other two groups continued the same diet as the first 16 weeks (standard diet for STC and HF-HC diet for HFC). The lipid profile was measured by spectrophotometry and Irisin by ELISA method.

Results: The model we used to induce the hypertriglyceridemia (p=0.000) and obese (p=0.001) was significantly successful. Serum triglyceride levels decreased after the treatment (p=0.011); while there were not significant changes in other component of lipid profiles, weight and serum Irisin concentration. Moreover, the serum concentration of Irisin and triglyceride was not correlated (p=0.693, r=0.071).

Conclusion: The result of this study suggested that, exercise along with calorie restriction significantly reduced serum triglyceride levels, but did not necessarily affect the weight loss. There was no correlation found between the concentration of triglyceride and Irisin.

Keywords: Irisin, Obesity, Hypertriglyceridemia, Exercise, Diet
بررسی و تحلیل ریشه ای (RCA) یک مورد خطای آزمایشگاهی منجر به عارضه (sentinel event) یک مورد خطای آزمایشگاهی بندر گردید که حادثه کوری مرند 1396

مقدمه:
ارتقایی کیفیت و کیهش لطیهی پزشکب در واقت دو نیم نرای  ک هدف هس ند و هر  ک ندون د گری
وجد ندارند. لطیهیی آزمی شگیهب جزئب از لطیهیی پزشکب هس ند. نطور کلب  عیلی هیی آزمی شگیهب نه سه مر
حله قک
ل از
آزمی شی حین آزمی ش و نعد آزم
ی ش تقسیم مب شود. ندلیل اهمیت تیریر جوانهیی آزمی ش نر روی سیر در
مین نی
میری در
ا ن مقیله  کب از لطیهیی آزمی شگیه در مرحله نعداز آزمی ش که جزو رخدادهای نگاور بود با تحلیل ریشه ای مورد
بررسی قرار گرفت.

روش کار: این مطالعه یک مطالعه موردی است. عارضه 6 ماهه اول 96، از تمام واحدهای از درمانی توسط فرم های
گزارش خطا که بررسی و از بین آنها یک مورد خطای منجر به آسیب (sentinel event) از جمله، از انتخاب
گردد. در این خطا، تأثیر جواب از آزمایش (RCA) برای کردن نتایج ویژه به دو ترجیح و با توجه به وضعیت ظاهری
بیمار، و توجه به جواب از آزمایش پرکه سریاً بار یک بار کاتری دیالیز تعیین و بیمار به دیالیز متنقل شده بود. در
 حين
دیالیز دیالیز از علائم دم شد، همگی بیمار دیالیز علت و جسد از آزمایش برای بیمار ارسال شده بود که در
بار
دیالیز، تأثیر از آزمایش (RCA) گردد. باید بیمار متخصص گردد که نتایج منجر به ایجاد ویژه (RCA) با استفاده از نمودار
استخوان‌نما (Fish bone) بررسی گردد.

بحث و نتیجه گیری:
با توجه به نتایج مطالعه این بیمار، شناسایی خطاهای و تحلیل ریشه ای از آن یکی از از از منجر به از از این
داد. این روش به هوش و ارتباط اینم در آزمایشگاه
منجر شد.

کلمات کلیدی: خطای آزمایشگاهی، تحلیل ریشه ای (RCA)
Anti-Müllerian hormone (AMH) is a homodimeric glycoprotein produced by granulosa cells of growing ovarian follicles. AMH is considered the best hormonal marker to assess ovarian reserves; therefore, it is crucial to determine which factors influence AMH levels for prognostic and diagnostic purposes. These factors enable better interpretation of AMH levels in clinical practice and optimization of treatment strategies to reduce possible clinical errors such as placing patients in the wrong ovarian reserve group.

Environmental factors:

Vitamin D deficiency

The presence of vitamin D receptor in female reproductive tissue suggests that vitamin D is involved in female reproduction. It has been reported that the promoter region for the AMH gene contains a domain for vitamin D response element and vitamin D, via these response elements, directly modulates AMH expression. Also, the authors proposed that vitamin D deficiency might be associated with lower AMH levels and it should be considered and checked when utilizing serum AMH levels for clinical diagnosis.

Smoking

Cigarette smoking contains over 4000 chemical components that many of these constituents could accumulate in ovarian follicles and disrupt biological processes that involve follicular development. Possible mechanisms include abnormal oxidative stress, increased cellular apoptosis, and impairment of oocyte nuclear function. In parallel to the quantitative effect of cigarettes on follicle numbers, a qualitative effect of cigarettes on the alteration of ovarian reserve markers and ovarian steroidogenesis has been proposed.

Genetic factors:

MTHFR C677T genotype

The methylenetetrahydrofolate reductase enzyme plays a central role in many biological processes considered important for cell division and embryo development. Since the folic acid transport protein and MTHFR enzyme have been identified in human oocytes and preimplantation embryos, reduced MTHFR activity has been highlighted due to its important roles during oocyte growth. Lately, two studies have revealed a 677TT genotype was associated with higher serum AMH levels in women with normal ovarian function. Possibly, reduced MTHFR activity may be delayed for follicular maturation and this leads to an increased rate of initial follicular recruitment thereby leading to elevated AMH levels.
Study of protective effect of hydroalcoholic extract of Pistacia atlantica against hepatotoxicity of acetaminophen in rat

Yaser Eshaghi-Milasi¹, Seyed Asadollah Amini¹, Esfandiar Heidarian¹

¹Clinical Biochemistry Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran

Corresponding Author: yaser.eshaghi-milasi, Msc of Clinical Biochemistry

Background and Aims: Acetaminophen is one of the most common anti-fever and analgesics. It causes stroke oxidation and liver deficiency. This study evaluated the effects of hydroalcoholic extract of Pistacia atlantica leaf after acetaminophen administration in rats.

Methods: 48 male Wistar male rats were randomly divided into six groups. First, (negative control) in this group was the daily gavage of distilled water and one hour after intraperitoneal injection of serum physiology. In the second group (non-treated) was the daily gavage of distilled water and one hour after intraperitoneal injection of 835 mg / kg acetaminophen. In the third group (positive control), 835 mg / kg of acetaminophen was injected and 50 mg / kg of silymarin was gavaged for one hour. In the 4th, 5th and 6th groups, intraperitoneal injection of 835 mg / kg acetaminophen and hydroalcoholic extract of Pistacia atlantica leaf were administered with doses of 200, 400 and 800 mg / kg at intervals of one hour respectively. After seven days blood samples were taken from the heart and their liver tissue was removed. Then, liver catalase (CAT), serum antioxidant capacity (FRAP).

Results: In the group receiving acetaminophen, levels of CAT and the antioxidant capacity significantly decreased (P <0.05) compared with the control group. Treatment with hydroalcoholic extract of P. atlantica leaf resulted in a significant increase (P <0.05) in catalase and antioxidant capacity. The best dose for antioxidant parameters was a dose of 800 mg / kg body weight. Also, the reduction in hepatic necrosis rate in the treated groups with hydroalcoholic extract of P. atlantica leaf was quite evident.

Conclusion: According to the results obtained in this study, hydroalcoholic extract of P. atlantica leaf has increased antioxidant activity.

Keywords: Acetaminophen, liver toxicity, Pistacia atlantica
The effect of ethanol on vascular endothelial growth factor receptors gene expression

Mahrokh Samadi 1, Maryam Sadeghzadeh 2, Alireza Shirpoor 3, Elaheh Heshmati

1. Department of Physiology, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
2. Department of Physiology, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
3. Department of Physiology, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
4. Department of Nutrition, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran

Background: Chronic alcohol ingestion is associated functional alteration and structural damage in the kidneys, but the precise molecular underlying is not well known. The aim of this study was to investigate the effect of chronic ethanol exposure on vascular endothelial growth factor receptor (VEGFRs) isoforms gene expression.

Methods: Sixteen male wistar rats with an initial body weight of 220±10 gr were divided into the following two groups: 1- control, 2- ethanol. Similar to our previous study, rats in the ethanol group received ethanol with a dose of 4.5 g/kg body weight (Merck KGaA, Darmstadt, Germany) saluted in tap water (20% w/v) intragastrically by gavage once a day, for six weeks.

Results: After six weeks of treatment, the results revealed a significant increase in isoforms VEGFR1 and VEGFR2 of VEGFR gene expression, in the ethanol group, compared to that in the control group.

Conclusion: These findings indicate that ethanol-induced kidney abnormalities may in part be associated with overexpression of VEGFR1 and VEGFR2 of VEGFR gene as a molecular mediator

Keywords: Ethanol, Kidney, VEGFR, Rat
Pbi-019

Water extract of dill has significant antiglycation and antioxidant effects
Sudabeh Mashayekhi1, Ebrahim Abbasi Oshaghi2
1Student Research Committee, Hamadan University of Medical Sciences, Hamadan, Iran
2Department of Clinical Biochemistry, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

Objective: Hyperglycemia can lead to advanced glycation end-products (AGE) formation, which directly related with diabetic complications. Experiments have been shown that natural antioxidants can inhibit stress oxidative and reduced AGEs levels by suppressing glycation. The aim of this study was to assess the antiglycation and antioxidant properties of Anethum Graveolens.

Methods: The antiradical and antioxidant properties of dill extract was measured by scavenging activity of superoxide anion, DPPH radical, hydrogen peroxide, reducing power and nitric oxide. The contents of total flavonoids, phenols, alkaloids, saponin and tannins were determined. Anti-glycation effect of was measured using the AGEs and fructosamine formation assay. Protein oxidation was determined by protein carbonyl content and thiol group assays as well as protein fragmentation and protein aggregation.

Results: Our finding showed that different dose of dill (0.031-1mg/ mL) has potential antiradical and antioxidant activity. Dill also inhibited AGEs and fructosamine formation and decreased protein carbonyl formation and prevented thiol group reduction.

Conclusion: Dill extract is a novel anti-glycation herbal medicine which can be used for diabetes treatment.

Keyword: antiglycation, antioxidant, dill, herbal medicine
Permanent and transient congenital hypothyroidism (CH) and the relevant factors in infants born during 2011-13 in Hormozgan province

Farzaneh Dehghan1, Zeynab Gholamipoor2*, Masoumeh Kherandish3

1. Molecular Medicine Research Center, Hormozgan Health Institute, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
2. Student Research Committee, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
3. Endocrinology and Metabolism Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

Correspondence: Zeynab Gholamipoor, Student Research Committee, Hormozgan University of Medical Sciences, Bandar Abbas, Iran. E-mail: Zeynabgholamipoor73@gmail.com

Abstract:

Background and Purpose of the Study: Congenital hypothyroidism is among the most prevalent preventable causes of mental retardation among infants. A timely diagnosis and treatment can contribute greatly to the prevention of irreparable cerebral/auditory effects. Therefore, the present research aimed to investigate the occurrence of permanent and transient hypothyroidism and its underlying factors in infants born during 2011-13 in Hormozgan province.

Materials and Methods: The present descriptive, cross-sectional research was retrospective in type and was conducted in Hormozgan on 91,938 infants born from March 2011 to the end of February 2013. The occurrence rate of permanent and transient hypothyroidism was estimated through thyroid tests and the data were analyzed statistically via SPSS v.21.

Results: The overall occurrence of congenital hypothyroidism in three years was estimated to be 1:574. In 169 patients with CH, 107 patients were diagnosed with permanent CH (63.31%) and 48 with transient hypothyroidism (28.40%). 14 patient were not referred to determining the permanency of CH. This study also revealed a statistically significant correlation between CH and geographical place of residence.

Conclusion: The overall results indicated a higher rate of CH in south Iran and a higher rate of permanent CH than the global rate. It harshly requires meticulous tests upon childbirth so as to prevent mental retardation as far as possible and also cut down on the financial costs imposed on the healthcare system.

Key terms: congenital hypothyroidism, neonatal screening
The advantages of curcumin on metformin in attenuation of oxidative stress and diabetic nephropathy

Soheila Asadi (PhD candidate), Mohammad Taghi Goodarzi (PhD), Jamshid Karimi (PhD), Iraj Khodadadi (PhD)

1 Department of Clinical Biochemistry, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan-Iran

Asadi S (sohila.asadi75@yahoo.com); Goodarzi MT (mtgoodarzi@yahoo.com); Karimi J (jamshidkarimi2013@gmail.com); Khodadadi I (khodadadi@umsha.ac.ir)

Background: The role of oxidative stress on the development of diabetic nephropathy (DN) has previously been established. Since curcumin is a natural polyphenol with powerful hypoglycemic and antioxidant properties, we aimed to investigate the comparative effects of curcumin and metformin (a common therapeutic medicine for type-2 diabetes with beneficial antioxidant effects) on oxidative status in kidney of type-1 diabetic rats.

Methods: In this experimental study 60 male Wistar rats were divided into 10 groups. Type-1 diabetes was induced by streptozotocin. Rats received chow diet and treated with either normal saline in normal control (N) and diabetic control (D) groups or different doses of metformin (300 or 500 mg/kg body weight) or curcumin (50 or 150 mg/kg body weight) in N+Met300, N+Met500, N+Cur50, N+Cur150, D+Met300, D+Met500, D+Cur50, and D+Cur150 groups.

Urinary creatinine, urea, and protein were measured. Total antioxidant capacity (TAC), total oxidant status (TOS), malondialdehyde (MDA), and the activity of superoxide dismutase (SOD), glutathione peroxidase (GPx), and catalase were assessed in kidney tissues. Data was analyzed using SPSS16 software, one-way ANOVA was used for comparison between groups, and p<0.05 was considered as level of significance.

Results: Both metformin and curcumin showed significant effects on urinary creatinine, urea, and protein levels. Unlike metformin, curcumin completely restored TAC and TOS, and MDA in kidney tissues and significantly recovered the activities of SOD, GPx, and catalase.

Conclusion: Curcumin was found more effective than metformin in attenuating oxidative status in diabetic nephropathy.

Keywords: Curcumin, Diabetic nephropathies, Metformin, Oxidative stress.
Investigating the relationship between Serum Anti-Mullerian Hormone, Follicle Stimulating Hormone and luteinizing hormone Concentrations in Infertile Women

MAH DIEHSAF ARZ AD@GMAIL.COM

Background: Anti-Mullerian hormone (AMH), a member of the transforming growth factor superfamily, is secreted by the granulose cells of growing follicles during the primary to large astral follicle stages. AMH levels are regarded as an age-specific marker for predicting the ovarian reserve in women of reproductive age. LH and FSH are the hormones that encourage ovulation, both are secreted by the pituitary gland in the brain and their levels are commonly used for the prediction of the ovarian reserve in the early follicular phase even though they have a lower predictive value. Abnormal levels of AMH and follicle stimulating hormone (FSH) may indicate a woman’s diminished ability or inability to conceive. The aim of this study is to investigate the serum AMH, FSH and LH concentrations at two different age in infertile women.

Method: This cross-sectional study analyzed serum AMH, FSH, LH levels from 37 infertile women, whose mean ages were 35 years (21-47). Patients were divided into two groups >35 and <35 age. Sample collection was performed by random sampling. AMH levels were assessed in serum by the enzyme linked immunosorbent assay (ELISA) method (Beckman Coulter, USA). Luteinizing hormone (LH) and FSH levels were assessed in serum by the chemiluminescent immunoassay (CLIA) method (ADVIA Centaur CP, Siemens, Germany). Sample collection was performed by random sampling at days 2-3 of a spontaneous menstrual cycle. The serum was separated one hour after sampling and frozen at -20°C until assayed. The result analyzed with SPSS version 16 software.

Results: There were significantly lower mean serum AMH levels among >35 years old women (0.81ng/ml) compared to <35 years old group (5.59ng/ml). The serum AMH level was inversely correlated with age (P < 0.001). The mean AMH serum levels from different ages decreased with increasing age. The mean FSH serum levels in >35 years old women were significantly higher than the <35 years old group. Mean serum FSH levels consistently increased with increasing age; however there is no difference between LH levels among two group. A significant negative correlation was found between AMH and FSH levels (r= -0.326, P<0.05), and significant correlation between FSH and LH levels (r= 0.874, p<0.001).but there was no correlation between AMH and LH (P>0.05).

Conclusion: We have observed increased FSH levels and decreased AMH levels with increasing age in women older than 35 years old. Evaluation of AMH and FSH levels in combination with female age can help in predicting ovarian reserve in infertile women.

Keywords: Anti-Mullein Hormone, Follicle Stimulating Hormone, Luteinizing hormone, Infertility.
Effect of a novel copper (II) complex on the induction of apoptosis in human hepatocellular carcinoma cells

Azadeh Rezaee1,2, Soudeh Khanamani Falahati-pour2, Fatemeh Mohammadizadeh1,3, Maryam Mohamadi2, Mohammad Reza Hajizadeh1,3, Mohammad Reza Mirzaei1,2, Alireza Khoshdel1,2, Mohammad Ali Fahmidehkar1,3, Mehdi Mahmoodi1,3 *

1- Department of Clinical Biochemistry, Faculty of Medicine, Rafsanjan University of Medical Sciences, Rafsanjan, Iran. 2- Pistachio Safety Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran. 3- Molecular Medicine Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.

*Corresponding author: Mehdi Mahmoodi

Prof. of clinical Biochemistry, Department of Clinical Biochemistry, Faculty of Medicine and Molecular Medicine Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran. P.O. E-mail: mahmoodies@yahoo.com

Abstract

Copper is an essential element for cell growth. Many drugs, used in clinical practice, have metalchelating ability and display cytotoxicity. In vitro copper complexes generally show an enhanced anti-proliferative activity. In the present study, we aimed to identify the anti-proliferative potential of [Cu(L)(2imi)] complex as a novel Cu complex against HepG2 cells as an in vitro model of human hepatocellular carcinoma and normal mouse fibroblast L929 cells using MTT assay. Cytotoxicity induced by [Cu(L)(2imi)] complex was time dependent manner. Also, therewas a positive correlation between cytotoxicity and an increase in Cu complex concentration. For HepG2 cells, the cell viability percentage was 50% at 58 μg/mL after 24 h treatment, whereas in the same concentration and conditions, the viability percentage was surprisingly higher (about 100%) for L929 cells. Also, after 48 h treatment, the viability percentage of HepG2 cells at 55μg/mL concentration was 50% in contrast with 89.3% for L929 cells in the same conditions. Flow cytometry findings suggest that [Cu(L)(2imi)] complex is capable of decreasing cancer cell viability through apoptosis and did not efficiently activate the necrosis process. Finally, we found that [Cu(L)(2imi)] complex possess the potential for development as an anti-cancer drug for human hepatocellular carcinoma.

Keywords: Hepatocellular carcinoma, [Cu(L)(2imi)] complex, Apoptosis, Cytotoxicity, Mouse fibroblast L929 cells
Pbi-027

Evaluation of optimum concentration of N-Acetyl Cysteine (NAC) on RBC metabolism during RBC storage in Blood Bank Condition

N.Mehrdadi 1, M.R. Deyhim 2, A.Hekmat 1

1Department of Biochemistry, Science and Research Branch, Islamic Azad University, Tehran, Iran
2Iranian Blood Transfusion Research Center, High institute for research and education in transfusion medicine, Tehran

Background

Red blood cell (RBC) metabolism impairment is one of the main causes of RBC storage lesion during RBC storage in blood bank condition. In this study, we evaluate the effect of different concentrations of N-acetyl cysteine (NAC) on RBC metabolism and quality during RBC storage.

Methods

In this experimental study, 5 bag of packed RBC were randomly assigned to the Iranian Blood Transfusion Organization's Innovation Center. Each blood bag split into 4 equal blood bags. Three of them for injection of different concentration of NAC (0.5, 1 and 1.5 mmol) and one of them have kept as a control bag (untreated NAC). The effect of different concentrations of NAC on metabolism parameters; including glucose and lactate concentration, lactate dehydrogenase enzyme activity and pH were investigated. Also, hematological parameters including; RBC count, Hb, HCT, MCV, MCH, MCHC concentration were measured during RBC storage up to 42 day. The results of this study were compared between 3 groups of NAC treated RBC and untreated RBC. All of the data were analyzed with SPSS statistical program version 18.

Results

In this study, the concentration 1.5 mmol of NAC compared to 0.5 and 1 was more effective to maintain concentration of lactate and Glucose (P <0.05). Also this concentration was more effective than other concentration of NAC on RBC count, Hb, HCT and MCH concentration in treated-RBC compare with untreated RBC during storage.

Discussion

The results of this study indicated that the use of concentration of 1.5 mmol of NAC as an additive solution could better maintain RBC metabolism and RBC quality during storage. In the future NAC in concentration of 1.5 mmol may be used as an additive for maintaining of the RBC survival and RBC quality during storage in blood bank condition.

Keywords: RBC metabolism, RBC storage, N-Acetylcysteine
Sclerostin level changes in osteoporosis induced Bile Duct Ligated rats

Mona moradi a, Amir Hossein Doustimotlagh b, Ahmad Reza Dehpour c and Abolfazl Golestani a

aDepartment of Clinical Biochemistry, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
bDepartment of Clinical Biochemistry, School of Medicine, Yasuj University of Medical Sciences, Yasuj, Iran
cDepartment of Pharmacology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Correspondence to Abolfazl Golestani, Department of Clinical Biochemistry, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran e-mail: golsetan@tums.ac.ir

Introduction: Osteoporosis is a frequent complication of chronic liver disease termed as hepatic osteodystrophy. Although the exact pathophysiology of hepatic osteodystrophy is not completely recognized, low bone formation seems to be the major pathogenic mechanism of bone loss which Wnt/β-catenin pathway plays an important role in osteoblastogenesis and sclerostin, is a soluble glycoprotein mainly produced by osteocytes, acts as Wnt antagonist that inhibits bone formation. The aim of this study was to evaluate the circulating levels of sclerostin in bone loss after bile-duct-ligated (BDL) rats.

Materials and Methods: Experimental procedures were performed on male Sprague-Dawley rats (weighing 200-250 g). Under general anesthesia (ketamine HCl, 50 mg/kg, i.p. and xylazine 10 mg/kg, i.p.) Laparotomy was accomplished and bile duct was ligated with absorbable surgical threads. Sham-operated animals were manipulated as above without ligation. On day 28 post-surgery, animals were sacrificed by exsanguination (cardiac puncture) under general anesthesia. Plasma levels of sclerostin were detected in duplicate, using enzyme-linked immunosorbent assay (ELISA) kit (MyBiosource, USA) according to the manufacturer’s instructions. To confirm liver damage, biochemical tests such as total bilirubin and ALP were done.

Results: The results demonstrated a significant increase in total bilirubin and ALP in the BDL group when compared to sham operated (SO) rats. Serum sclerostin levels were elevated in BDL group as compared to SO group (334.5 ± 18.64 versus 219.25 ± 90 pg/ml, p < 0.05). Sclerostin levels were closely correlated with hepatic injury and cholestasis markers e.g., ALP (r = 0.644, p = 0.001) and correlated significantly with total bilirubin (r = 0.705, p = 0.000).

Discussion: Decreased bone formation is the main mechanism of bone loss in hepatic osteodystrophy, and sclerostin as a Wnt antagonist enhances this process by repressing osteoblast differentiation and proliferation. We demonstrated that serum sclerostin levels increased after BDL in cirrhotic rats. The high sclerostin levels showed positive correlation with markers of liver cholestasis such as total bilirubin and ALP. This implies which indicates a possible role of liver in sclerostin metabolism and this concept that increased sclerostin in cirrhosis may have a potential role in bone loss.

Key words: Bile Duct Ligation-Sclerostin-Hepatic osteodystrophy
Diabetes and anemia of seafarers in Bushehr city

Zeynab Gharehdaghi¹, Shaghayegh Rostami Yasuj¹, Eisa Safavi²

¹. MSc of Hematology and Blood Banking, Student of Research Committee, Bushehr University of Medical Sciences, Bushehr, Iran
². PhD of Social Health, School of Paramedicine, Bushehr University of Medical Sciences, Bushehr, Iran

Background: Diabetes is a metabolic disease in which the body’s inability to produce any or enough insulin causes elevated levels of glucose in the blood. It damages other organs because of chronic hyperglycemia, abnormal metabolism in carbohydrate, protein and fat. Anemia means reducing hemoglobin concentration in the blood which can affect the quality and quantity of red blood cells, itself disrupts physical and mental functions. Nutrition, lifestyle and genetics influence on anemia significantly. In other hand Seafarers have a special diet because of the type of work condition and activity in the seaside and coastal areas. The lack of such a diet and mobility cause some diseases such as high blood pressure, diabetes and anemia. In line with this issue this study was done for estimate of diabetes and anemia in seafarers of Bushehr city.

Method: This descriptive cross-sectional study which was done on seafarers who complete their medical records for annual checkup in Bushehr city. Detail of parameters such as age, Hb, Hct and FBS of them were obtained. For data analysis SPSS21 software, Descriptive statistics (including frequency, mean and standard deviation) and inferential statistics (Pearson correlation coefficient test and Eta) were utilized.

Result: The statistical population included 77 seafarers with 20 to 72 years old. The average of age, FBS, Hb and Hct were 42.3 years old, 94.8 gr/dl, 14.06 g/dl and 42.3%, respectively. FBS in 59.7% of them were between 80-100 mg/dl and also 19.4% of them had more than 100 mg/dl. 52 persons were 20-49 years old that the hemoglobin level in 36.5% of them was less than 13.7 g/dl and also 24 seafarers were 50-69 years old that 37.5% of them had less than 13.3 g/dl hemoglobin. No significant correlations were found between age, Hb and FBS with each other.

Conclusion: This study showed that there was a high prevalence of Hyperglycemia in the seafarers and also about one third of them had anemia. Therefore, the officials of the Ports and Shipping Organization should pay more attention to the health of the employees working at the Persian Gulf.

Keywords: Sailors, seafarers, anemia, diabetes, Bushehr, Persian Gulf
The effects of *Ocimum Basilicum* aqueous extract on hippocampus amyloid beta level and fatty acid composition in high-cholesterol diet fed rats

Neda Heshami¹, Iraj Khodadadi¹*, Alireza Komaki², Heidar Tayebinia¹, Ebrahim Abbasi Oshaghi¹, Soheila Mohammadali¹

¹Department of Clinical Biochemistry, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan-Iran
²Department of Physiology, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan-Iran

*Corresponding author: Iraj Khodadadi Email: khodadadi@umsha.ac.ir

Introduction: Dyshomeostasis in brain and plasma cholesterol has been known as a contributor of Alzheimer’s disease (AD) and increased serum cholesterol was found correlated with the greater deposits of amyloid β (Aβ) protein in the brain. Therefore, this study investigated the lipid lowering effects of *Ocimum Basilicum* (OB) aqueous extract on serum cholesterol level, hippocampus Aβ and fatty acid composition in high-cholesterol diet fed rats.

Methods: Twenty four male Wistar rats (weighing 180-200 g) were divided into the four groups and treated with designated diet as following for 16 weeks; (C): control rats received chow diet, (HCD): rats received high cholesterol (%2) diet, (C+OB): rats received chow diet and treated with OB aqueous extract (400 mg/kg), and (HCD+OB): rats received high cholesterol (%2) diet plus OB aqueous extract (400 mg/kg). Serum cholesterol was measured using commercial enzymatic kit and Aβ (1-42) protein level was determined in homogenized hippocampus by ELISA kit. Lipids were extracted from hippocampus by Folch method and hippocampus fatty acid composition was determined by gas chromatography.

Results: Serum cholesterol (210.33±17.7 mg/dl) and hippocampal Aβ level (144.9 ± 51.5 pmol/mg protein) were significantly greater in HCD group compared with control group (67.0±5.77mg/dl and 42.14±8.88pmol/mg protein, respectively). Treatment with OB extract remarkably (p<0.001) ameliorated serum cholesterol (139.1±6.4 mg/dl) and strongly (P<0.05) retarded accumulation of Aβ deposits in hippocampus (51.0±8.5 pmol/mg protein) compared with those of untreated HCD rats. High cholesterol diet did not affect on the hippocampus total saturated (SFA), monounsaturated (MUFA), polyunsaturated (PUFA), and unsaturated (UFA) fatty acid contents, but significant positive correlation was observed between serum cholesterol level and hippocampus total PUFA or n-6 PUFA.

Conclusion: The present study showed that *Ocimum Basilicum* aqueous extract lowers serum cholesterol and prevents accumulation of Aβ (1-42) in hippocampus.

Key words: Amyloid beta; Cholesterol; Fatty Acids; Hippocampus; *Ocimum Basilicum*
Pbi-032

Evaluating the Haptoglobin Genotypes, level of serum p53, MDA and Nutritional habits as a Risk factor of esophageal Cancer.

سارا حسین زاده
s hosseinzadeh yahoo.com

Haptoglobin is an acute-phase glycoprotein that affects host responses to infections and tumors. The haptoglobin locus is polymorphic consisting of 2 classes of alleles, Hp-1 and Hp-2, yielding 3 different phenotypes including Hp-1, Hp-2 and Hp-2. The phenotypes generate structurally and functionally distinct protein products, indicating that haptoglobin polymorphism may influence susceptibility to infections and cancers. To evaluate the polymorphism of haptoglobin genes in patients with esophageal cancer, total of 44 patients and 44 healthy controls were included in this study. Genomic DNA was extracted from blood samples, and investigated by polymerase chain reactions (PCR). Results from this study demonstrated that there is a significant difference between the groups regarding Hp genotypes. Our data showed that Hp-1 is the most common genotype in the patient group. The distribution of the three major Hp phenotypes, Hp-1, Hp-2 and Hp-2, was found to be 56.1, 14.6 and 29.3% in esophageal cancer patients, respectively. However, the distribution of Hp genotypes in healthy individuals was 21.4, 23.8, and 54.8% for Hp-1, Hp-2 and Hp-2, respectively. There were no significant statistical differences between HP phenotypes with serum p53 level and serum MDA level in case and control groups. Based on nutritional habits, significant correlation was shown between consumption of vegetables, fish, chicken and beans with serum MDA level in control group as well as between consumption of industrial soft drinks, cake, and biscuits with serum p53 level in case group. Our findings emphasized an increased risk of esophageal cancer among patients with the Hp-1 phenotype. This highlights the important role of the Hp 1-1 phenotype, as an important predictor to identify a subset of patients with an increased need for preventive measures.

Keywords: Esophageal Cancer, Haptoglobin, Genetic Polymorphism
Study the effects of extremely low frequency electromagnetic fields on oxidative status of plasma in major beta thalassemia patients.

Hadi Ansarihadipour
Mohamadreza Bayatiani
Ali Khosrowbeygi

Arak Univ. of Med. Sci.

Background: Major beta thalassemia is a prevalent inherited disease in Iran and is associated with oxidative stress, anemia and hypoxia. Extremely low frequency electromagnetic fields (ELF-EMF) can generate reactive oxygen species which induce structural modifications in biomolecules.

Objective: This study investigated the effects of ELF-EMF on oxidative status of plasma in major beta thalassemia patient.

Materials and methods: The blood samples were obtained from 24 age and sex matched healthy volunteers and Major beta thalassemia patients. Collected bloods were subjected to 0.5 and 1 mT and 50 Hz of EMF for 60 and 120 min. Antioxidant power of serum was measured according to Benzi and Strain. Carbonyl groups of plasma was evaluated by reaction with 2,4 dinitrophenyl hydrazine. Catalase activity was assayed according to Hadwan.

Results: A significant decrease in antioxidant power of serum from 1183.6 ± 211.2 to 1019.1±213μM was shown major beta thalassemia patients. After exposure to ELF-EMF similar results were obtained from healthy subjects. A significant increase in carbonyl groups were increased from 5.3 ± 1.5 to 7.1 ± 2.7 nmol per mg of serum proteins (p<0.05). No significant changes were observed in healthy subjects. A significant increase was observed in catalase activity from 3.42 ± 1.46 to 5.216 ± 2.04 (KU) in major beta thalassemia patients.

Conclusion: Our results showed a reduction in antioxidant power of serum in thalassemia patients and oxidative susceptibility to electromagnetic fields. We suggest that dietary antioxidants can reduce ROS and improve viability of erythrocytes.
Anethum graveolens L. aqueous extract protects hippocampus against oxidative stress induced by cholesterol-rich diet in rats

Soheila Mohammadali¹, Iraj Khodadadi¹*, Alireza Komaki², Heidar Tayebinia¹, Ebrahim Abbasi Oshaghi¹, Neda Heshami¹  
¹Department of Clinical Biochemistry, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan-Iran  
²Department of Physiology, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan-Iran  
*Corresponding author:
Iraj Khodadadi  
Department of Clinical Biochemistry, Faculty of Medicine, Hamadan University of Medical Sciences, Shahid Fahmideh Street, Hamadan-Iran  
Email: khodadadi@umsha.ac.ir

Background: Previous studies have shown that a high-cholesterol diet (HCD) develops oxidative stress and damages the structure and function of the hippocampus whereas antioxidant agents such as herbal plants or herb-derived chemicals scavenge free radicals and protect membrane fatty acids from peroxidation. The aim of this study was to investigate the antioxidant effects of Anethum graveolens L. (dill) aqueous extract on oxidative stress parameters in hippocampus of high cholesterol diet fed rats.

Methods and materials: Twenty four adult male Wistar rats (weighing 180-200 g) were randomly assigned into four groups: control rats received chow diet (C); rats received high (2%) cholesterol diet (HCD); rats received chow diet and treated with dill aqueous extract (C+Dill); and rats received high (2%) cholesterol diet plus dill aqueous extract (HCD+Dill). Dill extract was used in a concentration of 400 (mg/kg) and treatment was carried out for 16 weeks. Oxidative stress markers in the hippocampus including malondialdehyde (MDA), nitric oxide (NO), total antioxidant capacity (TAC), and the activity of superoxide dismutase (SOD) were determined.

Results: The consumption of HCD significantly \( (p=0.001) \) reduced hippocampal SOD activity \( (2.08\pm0.27\text{U/mg protein}) \) compared with chow diet-fed rats \( (6.89\pm5.77\text{ U/mg protein}) \) whereas the MDA and NO were increased \( (0.23\pm0.01\text{ nmol/mg protein} \text{ and } 4.17\pm0.42\text{ nmol/mg protein}, \text{ respectively}) \) compared with control group \( (0.099\pm0.002\text{ nmol/mg protein} \text{ and } 2.3\pm0.37\text{ nmol/mg protein}) \). In contrast, dill extract alleviated oxidative damage by significantly reducing NO and MDA levels, and remarkably increasing SOD activity. However, no significant difference was observed in TAC between groups.

Conclusion: Dill extract improved hippocampus oxidative stress status. Further studies are needed to clarify the underlying mechanisms of oxidative damages in more dept.

Keywords: Anethum graveolens L.; Cholesterol; Hippocampus; Oxidative stress; Superoxide dismutase
Pbi-035

FBS and Hemoglobin A1c in hemodialysis patients in Bushehr city

Shaghayegh Rostami Yasuj 1, Zeynab Gharehdaghi 1*, Eisa Safavi 2

1. MSc of Hematology and Blood Banking, Student of Research Committee, Bushehr University of Medical Sciences, Bushehr, Iran
2. PhD of Social Health, School of Paramedicine, Bushehr University of Medical Sciences, Bushehr, Iran

Background

Chronic kidney disease is one of the global issues that results in a significant increase in mortality. Though, a number of patients recover during dialysis or kidney transplantation. Diabetes is one of the main causes of renal failure. Long term hyperglycemia causes a pathogenic condition, including chronic renal failure, dysfunction, progressive and irreversible renal disease and patients die if necessary treatments such as dialysis or kidney transplantation are not performed. Fast blood sugar and hemoglobin A1c are two basic keys for diagnosis and follow up of diabetes. In line with this issue this study was conducted on FBS and Hemoglobin A1c in hemodialysis patients in Bushehr city.

Method

This is a descriptive cross-sectional study which was done on hemodialysis patients admitted to the hospitals of Bushehr city. Details of parameters of age, sex, FBS and HbA1c were collected. For data analysis, SPSS21 software, descriptive statistics (including frequency, mean and standard deviation) and inferential statistics (Pearson correlation coefficient test, Eta) were utilized.

Result

The statistical population included 63 patients (female 46%, male 54%). The average of age, FBS and HbA1c parameters among females were measured 59.3 years old, 173 mg/dl and 6.5%, respectively. The results of these parameters for males were 50.5 years old, 154 mg/dl and 6.3%. HbA1c were more than 5.7% in 52% of patient. 63% of patients had higher than 100 mg/dl FBS and 46% of patients had more than 5.7% HbA1c and also higher than 100 mg/dl FBS. Findings revealed significant correlations between age and FBS, HbA1c (Pvalue<0.001, <0.001) and also between FBS and HbA1c (Pvalue<0.001). No significant correlations were found between sex and other variables.

Conclusion

This study showed that many hemodialysis patients had high levels of Fast blood sugar and hemoglobin A1C. Patients aging could play a significant role on the increasing of FBS and HbA1c.

Keywords

FBS, HbA1c, hemodialysis, CKD, Bushehr
The study of urinary biopyrrin levels and its correlation with blood oxidative stress in patients with liver cirrhosis
Maryam Shams¹, Mohammad Rahmati Yamchi², Homayun Dolatkhah³*

1. MSc Student in Biochemistry, Dept. of Molecular Biology, Faculty of Basic Sciences, Islamic Azad University, Ahar Branch, Ahar, East-Azarbaijan, Iran. Email: shamse.maryam@yahoo.com
2. Associated in Clinical Biochemistry, Dept. of Clinical Biochemistry and Laboratories Medicine, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, I. R. IRAN. Email: rahmati_bio@yahoo.com
3. *Corresponding Author, Assistant Prof. in Clinical Biochemistry, Dept. of Clinical Biochemistry and Laboratories Medicine, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, I. R. IRAN. Email: dolatkhahh@gmail.com

Introduction & Objectives: Reported that urine biopirin is one of the most valuable biomarkers for assessment of oxidative stress. On the other hand, liver cirrhosis is one of the hepatic disorders that significantly affects the antioxidant defense system and increases oxidative stress. Therefore, the main aim of this study was to investigate the amount of biopyrrin in urine and its relationship with the level of oxidative stress in patients with liver cirrhosis.

Methods: In this study, a total of 136 subjects were selected in four groups: control group (group A), healthy subjects, and the patients were divided into three groups; the cirrhotic patients without ascite fluid (group B), the cirrhotic patients with ascite fluid and Infected (group C) and cirrhotic patients with ascitic fluid without infection (group D). In subjects with the aim of this study, and by obtaining informed written consent of the urine samples for measuring the biopyrrin using CostebioELISA kit and serum for measuring malondialdehyde using calorimetric thiobarbituric acid method and total antioxidant capacity using Randox kit was taken from them. SPSS software version 16 was used to analyze the results.

Results: The mean levels of urinary biopyrrin and lipid peroxidation increased significantly in the three case groups compared to the control group (in both cases, p <0.0001). The mean levels of total antioxidant capacity in the three case groups showed a significant decrease compared to the control group (p <0.0001). There was an inverse and significant correlation between urine biopyrrin levels and total antioxidant capacity of serum (r = -0.814, p = 0.001), and a direct and significant correlation between urinary biopyrrin and levels of malondialdehyde in serum was observed (r = 0.819, p = 0.004).

Conclusion: The results of this study show that oxidative stress increases in patients with liver cirrhosis and the other hand, there is a strong and significant correlation with the amount of urinary biopyrrin and oxidative stress in patients with liver cirrhosis.

Key Words: Urinary Biopyrrin, Oxidative Stress, Liver Cirrhosis
The association of rs266729 adiponectin level with BMI and obesity related factors between Iranian populations

Introduction: Overweight or obese status is the fifth leading risk factor for global deaths and is a major global public health problem known in some populations. Adiponectin gene which is mostly secreted from adipose tissue has influence on improvement of obesity related factors. The objective of the current study is to evaluate whether there is association between BMI and ADIPOQ gene of rs266729 In Iranian population.

Material and method: Study population included 80 volunteers having FBS >100 (mg/dl) in diabetic group and 80 volunteers having FBS 70-100 in healthy group. DNA extraction was done on blood samples by salting-out method and ADIPOQ rs266729 SNP was genotyped by enzymes HHAIII using PCR-RFLP method.

Result: The result also shows that adiponectin level correlated negatively with BMI and waist and these two parameters had significant association with adiponectin level. It means that when adiponectin level increases the BMI and waist circumference decreases (Table 3). The variable of BMI had statistically significant association with rs266729. (Table 2). The means of LDL, waist circumference, Hip circumference, BMI, Cholesterol, was significantly different between normal and obese participant.

Conclusion: The adiponectin level has improvement effect on BMI and waist condition of participants. The gene polymorphism of 266729 had significant association with BMI. The normal subjects have lower ratio of LDL, waist circumference, Hip circumference, BMI, Cholesterol compared to obese subjects.
Pbi-039

Placental growth factor (PIGF) as an angiogenic/inflammatory switcher: lesson from early pregnancy losses.

Introduction

Placental growth factor (PIGF) is an angiogenic factor which belongs to vascular endothelial growth factor (VEGF) family. In addition to the angiogenic function of PIGF, in some conditions such as preeclampsia and early pregnancy losses, it can induce inflammatory reactions which could be accompanied with reduced angiogenesis. Hence, it is crucial to investigate inflammatory and angiogenic switching states and understand underlying mechanisms.

Methods

The current review has been achieved by using an organized search of the scientific data published on role of PIGF in embryo implantation databases, including PubMed, ScienceDirect and Google Scholar.

Results

PIGF is expressed in endometrium, placenta and trophoblast cells and is involved in maturation of uterine NK cells. Up-regulation of PIGF directs VEGF to VEGFR-2 and reinforces angiogenesis. However, when VEGF/VEGFR-2 signaling pathway is impaired, PIGF may shift to severe inflammation and cause tissue damages which could lead to early pregnancy losses. Downregulation of PIGF has also been reported in pregnancy complications.

Conclusion

If we can unravel PIGF inflammatory and angiogenic switch mechanisms, we would be able to implement PIGF therapy on different conditions and test its clinical values in the prevention of gestational losses.
Proteomics and cluster analysis of human cystic echinococcosis sera using two dimensional gel electrophoresis

Fatemeh Sadat Sadjjadi, Mostafa Rezaie-Tavirani, Nayeb Ali Ahmadi, Seyed Mahmoud Sadjjadi, Hakimeh Zali

**Background:** Diagnosis and successful treatment of cystic echinococcosis (CE) is a major challenge up to now. Identification of related expressed proteins using proteomics tools and bioinformatics analysis of patients sera have not been investigated, so far.

**Methods:** Sera from confirmed CE patients and healthy controls were collected, tested by 2-DE for total protein separation of serum and analyzed using proteomics and bioinformatics methods. The gels were stained by Coomassie blue followed by scan imaging of the gels. The protein spots in each gel were analyzed using Progenesis Same spots software. Proteins names were obtained from TagIdent server.

**Results:** A total of 263 protein spots with different expression were detected in both normal and diseased samples. Comparison between diseased and normal gels showed the expression of 45 up regulated protein spots with fold≥2 in diseased gel of which 10 were new proteins with statistical difference by normal gel (p-value<0.05). On the other hand, the expression of 50 down regulated protein spots were observed of which 11 proteins have been suppressed. Clustering of all detected sera proteins (263) using correlation analysis, divided the proteins into 2 clusters based on up-regulated and down-regulated expression of proteins. Clustering resultswas approved by principal component analysis (PCA).

**Conclusion:** Using proteomics methods and bioinformatics analysis, it can be concluded that protein expression has been significantly changed in human CE sera which is demonstrable by bioinformatics analysis.

**Keywords:** Proteomics, cystic echinococcosis, Cluster, Hydatid cyst, 2-D electrophoresis (2-DE)
**Pbi-044**

**Association of Leu72Met polymorphism in the preproghrelingene with plasma ghrelin level and diabetic nephropathy in an Iranian subjects**

Somayeh Rahimi¹, Faranak Kazerouni¹, Mehdi Hedayati², Mehr Ali Rahimi³, Marjan Zarifyeganeh², Ali Rahimipour¹, Mehmoosh Shanaki¹

¹Department of medical laboratory sciences, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
²Cellular & Molecular Research Center, Research Institute of Endocrine Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
³Department of Endocrinology, Medical School, Kermanshah University of Medical Sciences, Kermanshah, Iran.

**Presenter:** Somayeh rahimi. E-mail: Somayeh.rahimi89@yahoo.com
**Corresponding author:** Faranak Kazerouni. E-mail: f_kazerouni@sbmu.ac.ir

**Background:** Research shows that preproghrelin Leu72Met polymorphism is associated with a lower rate in patients with diabetic nephropathy in some, but not in all studies. Due to genetic differences among nations and conflicting results in different studies, we conducted this study to examine the possible association between the polymorphism of ghrelin gene Leu72Met and diabetic nephropathy among an Iranian population. Moreover, we examined the association of this polymorphism with plasma ghrelin level.

**Materials and Methods:** 45 patients with diabetic nephropathy [DN] and 45 patients with diabetes without diabetic nephropathy [NDN] were enrolled in this study. DNA extractions were performed by salting out method, and the ghrelin gene was amplified using PCR. The presence of the Leu72Met polymorphism and the total plasma ghrelin levels were determined using the RFLP and the ELISA method, respectively.

**Results:** There were no differences in the Leu72Leu and Leu72Met genotype frequencies in the two groups. Plasma ghrelin in CC and CA genotype was not statistically significant difference (1.13(0.98-1.37) vs 1.25(1.02-1.44), p=0.84).

**Conclusion:** Our findings in this study indicate that there is no relationship between polymorphisms Leu72Met preproghrelin gene and diabetic nephropathy in Iranian population and this polymorphism had no effect on plasma ghrelin level.

**Keywords:** Ghrelin, kidney, Diabetic Nephropathies, Polymorphism, Type 2 diabetes mellitus
Epidemiology of T4 and TSH in individuals referred to central manoojan laboratory, Manoojan from September to December 2017

Introduction: Your thyroid produces a hormone called thyroxine, which is known as T4. This hormone plays a role in several of your body’s functions, including growth and metabolism. Thyroid-stimulating hormone (TSH) is a pituitary hormone that stimulates the thyroid gland to produce thyroxine (T₄).

Materials and methods: In a cross-sectional study, serum samples from 400 people that referring to central manoojan laboratory in Manoojan city in last three months (September - December 2017) were examined. The samples are in one group of women (n=400) with an average age 34.87. T4 & TSH hormone tests were used for the detection of T4 & TSH level.

Results: 35 people of the total number of people were high TSH and 8 people were low TSH. 6 people of the total number of people were high T4 and 13 people were low T4.

Conclusion: according to the results of this study, %8.75 were high TSH & %2 were low TSH & %1.5 were high T4 & %3.25 were low T4.
Oxidative Stress and Conformational Changes of Hemoglobin.

Hadi Ansarihadipour1, Abdolamir Allameh2, Mohamadreza Bayatiani1, Mohammad Arjomandzadegan1, Fatemeh Seif4, Mohammad Taghi Goodarzi3, Hamidreza Dorostkar1, Mohammad Hossein Mohammedi4, Saeideh Rahmani1, Ali Molaei Nezamabadi1, Afsaneh Norozi1, Esmaeil Shariatmanesh8, Morteza Shariatmanesh5, Mehdi Bahrami1, Nazanin Amini1, Hasan Ziafatikafi1, Abbas Alimoradian1, Saeid Ziraki1, Mohammad Saiadi1, Maryamsadat Alhoseini1, Soheila Rostami1, Nargess Farahani1, Mahia Hashemi1, Alireza Moradabadi1, Mohammad Mansori1, Mohadesesadat Azimi1, Ehsan Boniadirad6, Rasol Pachoh7, Ghasem Habibi1, Reza Talebi1, Mehdi Ansarihadipour7, Seiedeh Fatemeh Heydari1, Farzaneh Alamshahi1, Golnaz Ansarihadipour8, Azam Asadi1, Saeid Karbalaei Jafar1, Setareh Folad9.

Background: Erythrocytes are continuously exposed to exogenic and endogenic agents which can change the normal structure and function of hemoglobin (Hb). This article investigates the conformational changes of Hb in presence of different physical and chemical oxidizing agents.

Methods: After blood collection, erythrocytes were exposed to, a) physical agents: extremely low frequency electromagnetic fields and X-ray, b) metal catalyzed oxidation systems with aluminum, copper, iron or lead, c) oxidizing drugs: phylloquinone, sunitinib, ascorbate and doxorubicin. Oxidation markers were: a) carbonyl content of proteins, b) oxy-Hb, met-Hb and hemichrome concentrations and c) spectral analysis of Hb. Also we applied artificial neural networks (ANN) to find the most important parameters which were related to Hb conformation.

Results: Our results showed the oxidative modifications of Hb according to: a) increased concentrations of carbonyl groups, b) significant changes in oxy-Hb, met-Hb and hemichrome concentrations and c) significant changes in Hb absorbance at 275 nm (dynamic motion of Hb), 340 nm (globin-Heme interaction), 420 nm (soret bond), 542 nm (oxyHb), 577 nm (oxyHb) and 630 nm (metHb).

Conclusion: Our results demonstrated: a) different conformational changes of Hb and b) importance of ANN analysis as a powerful and reliable tool for studying oxidative stress in erythrocytes.

Keywords: Artificial neural network, Conformational changes, Hemoglobin, Oxidative stress.
Effect of thymoquinone one serum antioxidant capacity in mice 
Amin Mahmoudi¹, keyhan ghatre samani¹
1-Clinical Biochemistry Research Center, Shahrekord University of Medical Sciences

Authorcorespondent: Amin Mahmoudi. www.amin.mahmoudi1992@gmail.com

Background and Aim: Obesity is a Chronic Multifactorial Disease as the Greatest Health Problem in the World Especially in Industrial Countries. In this Study The Antioxidant Effects of Thymoquinone on Repair of Oxidative Damage Caused in High Fat Diet were Investigated.

Methods: Thirty Mice were Divided into three Groups. The First Group Received a Normal Diet, The Second Group Received a High-Fat Diet, The Third Group Received a High-Fat Diet and Thymoquinone (100 mg/kg). The Mice were Weighted Every Week and After the Treatment. They were Sacrificed for Blood Sample. PON₁, MDA and Antioxidant Capacity were Measured in Serum Samples and the Results Analyzed With Using on One way Anova and Mann whitney Test.

Results: Weight of Mice in the Second Group Compared to the First Group Increased. Weight in The Third Group Compared to the Second Group Decreased. Malondialdehyde (MDA) Increased in Mice of the Second Group Than the First Group But Total Antioxidant Capacity (TAC) Decreased Compared to the Control Group (P < 0.05). MDA also in Thymoquinone Receiving Mice Declined Compared to the Second Group (P < 0.05). PON₁ Activity in the Second Group Compared to the First Group Decreased. PON₁ Activity, TAC in Third Group has Increased Compared to the Second Group (P < 0.05).

Conclusion: The Results of the Present Study Suggest Thymoquinone has a Protective Role Against Oxidative Stress in High Fat Diet or Obesity.

Keywords: malondialdehyde, Thymoquinone, Obesity, PON₁.
Salivary, plasma and cord blood oxidative stress biomarkers in mother and neonate: A combined analgesia concern

Fatemeh Shobeiri¹, Akram Ranjbar², Faegheh Gol Alizadeh³, Mansour Nazar⁴

¹ Mother and Child Care Research Center, Hamadan University of Medical Sciences, Hamadan, IR - Iran.
² Department of Pharmacy, School of Pharmacy, Hamadan University of Medical Sciences, Hamadan, IR - Iran.
³ Student Research Center, Hamadan University of Medical Sciences, Hamadan, IR - Iran.
⁴ Department of Entomology, School of Medicine, Hamadan University of Medical Sciences, Hamadan, IR - Iran.

Background: Oxidative stress is believed to appear in seemingly normal pregnancy, even with lack of complications. To measure oxidative stress biomarkers in saliva and venous blood of mothers and cord blood of newborns delivered with and without combined analgesia.

Method: In this analytical cross-sectional study, carried out in 2015. 68 parturient mothers and newborns were recruited in random to two groups in Fatemieh Teaching Hospital, Hamadan City, Iran. Thirty four of them were delivered via normal vaginal delivery (NVD) and 34 delivered through combined analgesia (CA). This study was designed to measure total antioxidant capacity (TAC), Total thiol molecules (TTM) and catalase activity (CAT), in blood and saliva of mothers at the second stage of labor and cord blood of newborns delivered through these different delivery modes.

Results: No significant difference could be observed in the mean of first and third labor stages in CA and NVD groups, but the difference was significant during the second stage in CA and NVD groups, respectively. No statistically significant difference was noticed between the means of oxidative stress parameters (TTM, TAC and CAT) in plasma, saliva and umbilical cord samples in two groups (P > 0.05). A significant positive correlation existed between (plasma and umbilical cord TAC) and (plasma and saliva CAT). There was no significant relationship between newborn birth weight and oxidative stress parameters in two groups.

Conclusion: Markers of oxidative stress does not seem to have a major role in the delivery with combined analgesia.

Key Words: Oxidative stress, Combined analgesia, Labor, Newborn
Determination of IRS-1 Gene Polymorphism in Individuals with Diabetes mellitus in North Khorasan, Iran.

Arman Farahi, Habibeh Sadat Shakeri, Mehdi Kafash Bajestani, Mohammad Javadzadeh, Amirhossein Khoshir

Introduction: Insulin receptor substrate-1 (IRS-1), as the first substrate of the insulin receptor in the insulin signalling pathway, has central role in cellular metabolism and growth. Many studies have shown that substitution of glycine by arginine at position 972 (Gly972Arg) due to polymorphism is related to diabetes mellitus, however some studies have shown controversy results. The aim of the present study was to determine the association between the prevalent IRS-1 Gly972Arg polymorphism and insulin resistance in population with diabetes mellitus.

Materials and methods: 200 individuals were enrolled include 130 new cases with diabetes mellitus and 70 matched controls, aged 20-70 years, were selected randomly by clinician. Biochemical tests include fasting blood glucose (FBG) and fasting insulin were done by enzymatic and ELISA methods, respectively. For detecting insulin resistance, the homeostasis model assessment of insulin resistance (HOMA-IR) was calculated. The Gly972Arg polymorphism of IRS-1 gene was examined by PCR-RFLP.

Results: The genotype frequency of IRS-1 Gly972Arg in study groups were different, significantly (P=0.0001). In addition, there was a significant association between Gly972Arg polymorphism and familial history of diabetes (P=0.001). However, there was not relationship between this polymorphism and insulin resistance (P=0.083).

Conclusion: The results of the present study confirmed the relationship between IRS-1 Gly972Arg polymorphism and diabetes mellitus in north-east of Iran. In addition, the developing chance of diabetes mellitus in individuals who had Arg allele was 2.6 times greater than individuals without this allele. Since the results was shown that IRS-1 Gly972Arg polymorphism is related to familial history of diabetes, the examination of this polymorphic region may be important.

Keywords: IRS-1, Polymorphism, Diabetes mellitus, Insulin resistance
The effect of glutathione on renal oxidative stress biomarkers in renal ischemia reperfusion injury

Hassan Ahmadvand¹ ², Negar Naderi³, Esmaeel Babaeenezhad*³ ⁴

¹Razi Herbal Medicine Research Center, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran
²Department of Biochemistry, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran
³Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran
⁴Student of Veterinary Medicine, Faculty of Veterinary Medicine, Lorestan University, Khorramabad, Iran

Corresponding author: Esmaeel Babaeenezhad, Student of Veterinary Medicine, Faculty of Veterinary Medicine, Lorestan University, Khorramabad, Iran. E-mail: Es.babaeenezhad1391@gmail.com

Introduction: Renal ischemia reperfusion (RIR) injury is the major reason of acute renal failure (ARF). Various clinical conditions make RIR injury such as kidney transplantation, peripheral vascular disease, sepsis, and trauma. It has been demonstrated that the main factors which induce renal injury during IR are reactive oxygen (ROS) or nitrogen species (RNS). The increase of free radical generation after the reperfusion makes cellular damages and the decrease of innate antioxidant enzyme activities. So, free radical scavengers can be useful in RIR injury. Glutathione (GSH) is the main non-protein sulphydryl compound in the mammalian cells. GSH protects the cell from oxidative injury. GSH is considered a free radical scavenger and an inhibiting lipid peroxidation.

Purpose: This study was designed to evaluate the effect of GSH on renal oxidative stress biomarkers in renal ischemia reperfusion injury.

Materials and Methods: Twenty four adult male Wistar rats were divided into 3 equal groups (n=8): group 1 (control group), group 2 (RIR group + saline (0.25 ml/day, i.p.)), group 3 (RIR group + GSH (100mg/kg/day, i.p.)). The treatment with saline or GSH began daily 12 days before RIR induction. Induction of RIR was performed by occluding renal pedicles for 45 minutes and 24 hours of reperfusion. After reperfusion period, the animals were anesthetized. After that, the right kidney was removed and kept frozen for the evaluation of renal oxidative stress biomarkers including malondialdehyde (MDA), glutathione (GSH), and catalase (CAT).

Result: The level of renal MDA in the RIR group significantly increased in comparison to the control group. GSH significantly reduced renal MDA in the treated group in comparison to the RIR group. Renal GSH level in RIR rats was significantly less than that of control rats. GSH significantly increased renal GSH level in treated rats compared to RIR rats. Renal CAT activity significantly reduced in RIR rats in comparison to control rats. GSH administration in the treatment group significantly increased renal CAT activity in comparison to untreated animals.

Conclusion: Our study showed that GSH had beneficial effects on RIR-induced oxidative stress in the kidney of Wistar rats. So, the use of natural antioxidants such as GSH with good antioxidant properties can ameliorate RIR complications which are associated with oxidative stress.

Key words: glutathione, oxidative stress, renal ischemia-reperfusion.
Pbi-052

Optimization of erythropoietin protein production by Chinese Hamster ovary cells

رجب مردانی
الهام فری
کارشناس انسیستوپیاستور ایران

rajabmardani@yahoo.com

Due to the ability of mammalian cells to produce high-quality proteins with biochemical properties similar to the normal form of protein, today a large number of recombinant therapeutic proteins are produced in mammalian cells. Although today a large number of cell types are available, about 70% of the recombinant therapeutic proteins are produced in Chinese hamster ovary cell (CHO) ovarian cells. In this study, we use flasks containing ovarian cells Chinese Hamsters have been studied at three different temperatures (35, 37 and 38.5 °C) and percentage of different fetal bovine serum (FBS) (0.01%, 0.03%, 0.05%) under the same culture conditions as cell proliferation and growth. It should be noted that this study was carried out under conditions defined for DMEM and etc., and only the temperature element and fetal bovine serum after 72 hours, the amplification and growth of cells using inverter microscope. It was found that the ideal temperature and best percentage fetal bovine serum (FBS) for increased protein production is temperature 37 °C and percentage fetal bovine serum (0.01). Of course it is worth mentioning for each temperature, the percentages of different fetal bovine serum were used. The product at 35 °C and with percentage of different fetal bovine serum shows a decrease in cell growth and at 38.5 °C it is a control of cell death and cell apoptosis. Then, the ideal temperature and percentage fetal bovine serum (0.01) for growth better cells, resulting in higher levels of erythropoietin secretion by Chinese Hamster cells at 37 °C.
Pbi-053

The effect of Biochanin A and aqueous extract of leaves of *Origanum Vulgare* on LDL particle diameter and sdLDL-c serum levels as a risk factor of cardiovascular diseases in Streptozotocine-Nicotinamide induced diabetic rats

Darva Ghadimi; Ph.D\(^1\), Mohammad Taghi Goodarzi; Ph.D\(^1\), Mahdi Bahmani; MSc\(^1\), Zohreh Khajehahmadi; MSc\(^1\)

1- Research Center of Molecular Medicine, Hamadan University of Medical Sciences, Hamadan, Iran
2- Biochemistry and Nutrition Department, Medical School, Zanjan University of Medical Sciences, Zanjan, Iran

**Background**: Small dense LDL (sdLDL) particles are smaller and heavier than typical LDL particles. It can penetrate the endothelium of coronary arteries more easily because of its small size. Diabetes mellitus is a metabolic disorder accompanied with dyslipidemia such as increasing concentration of plasma VLDL and sdLDL. Peroxisome proliferator activated receptor α (PPARα) can decrease the level of sdLDL in plasma. Biochanin A (BCA), a natural compound, is a PPARα agonist. Present study was designed to investigate the effect of BCA on sdLDL-Cholesterol level in diabetic animals.

**Methods**: Adult male rats from Wistar strain were animal models of this study. Animals were made diabetic by single intraperitoneal (IP) injection of Streptozotocin- Nicotinamide and treated by 1 , 5 ,10, 20 mg/kg of BCA and 20 mg/kg of aqueous extract of *Origanum Vulgare* for 28 days. Body weight (BW) and fasting blood glucose (FBG) were also tested before and at the end of treatment. Furthermore, the size of LDL particles was measured by nondenaturing polyacrylamide gradient gel electrophoresis (PAGGE) assay.

**Results**: Results of the present study indicated that BCA administration at dose of 5,10 ,20 mg/kg; and 20 mg/kg of aqueous extract of *Origanum Vulgare* decreased the FBG level and increased BW and diameter of LDL particles in diabetic animals significantly.

**Conclusion**: Administration of BCA and aqueous extract of *Origanum Vulgare* can decrease FBG and sdLDL-c levels, which can lead to controlling the diabetes mellitus and its important complication, diabetic dyslipidemia.

**Keywords**: sdLDL-c, diabetes mellitus, Biochanin A, Origanum Vulgare ,PPARα
Total anti-oxidant capacity and plasma malondialdehyde in dairy cattle with subclinical mastitis

Omolbanin Ghasemian 1.
1. Young Reaserchers and Elite Club, Behbahan Branch, Islamic Azad University, Behbahan, Iran.

ghasemian1249@yahoo.com

Abstract
Introduction: Mastitis is the inflammatory reaction of the udder to invading pathogens, characterized by pathological changes in the mammary tissue, an increase in the number of somatic cells, physical, chemical and microbiological changes in the milk.

Aim: The objective of the present study was to determine lipid peroxidation intensity by measurement of plasma malondialdehyde (MDA) concentrations and plasma TAS (Total Antioxidant Status) in the cows with subclinical mastitis and healthy cows.

Material and Methods: Milk and heparinized blood samples were collected from 45 normal cows and 45 cows with subclinical mastitis from dairy cows in Tehran province, Iran. Plasma MDA concentrations were measured according to Satoh and plasma TAS was measured using a commercially available kit.

Results: No significant difference (P>0.05) was shown between plasma MDA and TAS concentrations in the studied groups. The correlation between SCC and TAS was negative and significant (P<0.001).

Conclusion: Low antioxidants concentration was correlated with an increase in lipid peroxidation, particularly polyunsaturated fatty acids, as demonstrated by the increasing concentration of malondialdehyde.

Key words: Subclinical mastitis, Malondialdehyde, Total antioxidant status, Somatic cell, Cattle
Dyslipidemia caused by Antiretroviral therapy in HIV infected individuals: a review of literature

Samaneh Abolbashari 1,4, Zahra Meshkat* 1,2, Majid Ghayour-Mobarhan 1,3, Sara Samadi 1,4

1Department of Modern Sciences and Technology, Medical Faculty, Mashhad University of Medical Sciences, Mashhad, Iran
2 Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
3 Cardiovascular Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
4 Student Research Committee, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction:
While both asymptomatic HIV infection and AIDS are associated with a higher risk of coronary artery disease, treatment of HIV infection with anti-retroviral drugs is associated with dyslipidemia, which itself increases the risk of cardiovascular disease. We conducted this study to review the available literature about dyslipidemia caused by ART.

Method:
We searched the databases of PubMed, Scopus, ISI Web of SCIENCE, MEDLIB and SID using the keywords HIV, ART, dyslipidemia and atherosclerosis.

Results:
Many HIV patients on ART have hypertriglyceridemia and low plasma concentrations of high density lipoprotein-cholesterol. Another study has showed that dyslipidemia in these patients is associated with larger HDL, LDL and VLDL, and impaired HDL hepatocyte binding. Also it has been shown that they demonstrated peripheral tissue hyperlipolytic activity and lower lipoprotein and hepatic lipase activities. Plasma level of phospholipid transfer protein was also reduced in those HIV patients who are on antiretroviral therapy.

While HIV infection reduced the capacity of HDL subfractions to promote cholesterol efflux from macrophages; it was observed that ART restored the capacity of plasma from HIV patients to stimulate cholesterol efflux from macrophages.

Conclusion:
Dyslipidemia caused by Anti Retroviral therapy is well documented. Therefore it is necessary to manage this problem in HIV infected patients who are on ART in order to prevent cardiovascular diseases in them.

Key words: Dyslipidemia, Antiretroviral therapy, HIV
Pbi-056

The combination effect of sodium selenite and vitamin E on renal ischemia-reperfusion injury in rats

Samaneh Pakravan*
Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran

Abstract:

Background: This study was performed to evaluate the combination impact of sodium selenite (SS) and vitamin E (Vit E) on renal ischemia-reperfusion (RIR) injury in rats.

Method: Thirty two adult male Sprague Dawley rats were divided into four equal groups: group 1 (control), group 2 (IR + 0.25 ml saline), group 3 (IR + 1 mg/kg SS and 100 mg/kg Vit E), and group 4 (IR + 100 mg/kg Vit E). RIR was induced by clamping of right and left pedicles for 45 minutes and reperfusion period for 24 hours. Daily treatment began intraperitoneally 12 days before the induction of RIR.

Results: RIR significantly increased serum urea, creatinine (Cr), triglyceride (TG) and malondialdehyde levels and serum activities of alkaline phosphatase (ALP) and myeloperoxidase (MPO) and renal level of malondialdehyde. However, RIR significantly decreased serum level of glutathione (GSH) and serum activities of glutathione peroxidase (GPX), paraoxonase 1 (PON 1) and renal activities of GPX and CAT. In RIR animals, SS plus Vit E significantly improved serum levels of Cr, fasting blood sugar (FBS), nitric oxide and serum activities of ALP, CAT, PON 1 and MPO. Also SS plus Vit E significantly improved levels of malondialdehyde and GSH and activity of GPX in the kidney.

Conclusion: SS plus Vit E have protective effects on renal and liver function markers, oxidative stress and inflammatory indices in RIR injury in rats. Protective effect of SS plus Vit E in amelioration of oxidative stress and inflammatory indices is collectively more than that of Vit E alone.

Key words: Sodium selenite, Vitamin E, Renal ischemia-reperfusion.
Pbi-057

Study of the association between STAT3 polymorphism and development of acute kidney injury

Mahsa Rahimzade¹, Sara Aghakhani¹, Nadereh Naderi², Hossein Montazerghaem³, Mahmoud Khayatian¹

¹.Department of Biochemistry, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
². Department of Immunology, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
³. Cardiovascular Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.

Background: Acute kidney injury (AKI) is one of the main side effects of cardiopulmonary bypass (CPB) and twenty to thirty percent of patients undergoing CPB develop AKI. STAT3 is a transcription factor in the Janus kinase/STAT signaling pathway and plays a key role in development of inflammation. Since inflammation is the main cause of AKI after CPB (CPB-AKI), in this study the influence of STAT3 gene polymorphism on development of CPB-AKI has been elucidated.

Methods: 90 patients undergoing coronary artery bypass, in Jorjani heart center, Bandar Abbas, Iran were enrolled in this study. Creatinine serum levels of all patients were measured during 48 hour after surgery and according to its changes, patients categorized to AKI (n=33) and Non-AKI (n=57) groups. The effect of STAT3 SNP rs744166 on development of AKI was evaluated using sequence-specific primers (PCR-SSP method).

Results: The mean age of the subjects was 52.1±7 with a range of 37-75 years in AKI group and 50.5±9 with a range of 25-73 years in non-AKI group (P>0.05). Distribution of SNPrs744166 genotypes was in Hardy-Weinberg equilibrium (HWE). Comparison of the frequency of genotypes in AKI and Non-AKI group showed that the frequency of TT (28% versus 20.7%), TC (43% versus 39.1%) and CC (12% versus 21.1%) genotypes were not significantly different between two groups. Allele frequency of this SNP also did not show significant differences (p>0.05). Categorization of patients according to their age showed that in patients older than 60 years that CC genotype decreased the risk of AKI development (OR=0.1, 95% CI=0.01-0.98, p=0.02).

Conclusion: The results showed that although rs744166 was not associated with the risk of disease development, but compared to patients younger than 60 years, in old patients, CC genotype had protective effect against AKI.

Keywords: Acute kidney injury, cardiopulmonary bypass, polymorphism
FoxP3 polymorphism as a susceptibility marker in breast cancer

Mahsa Rahimzade¹, Nadereh Naderi², Fahimeh arabpour², Amin Shafizad³, Marzieh Norouzian²

1. Department of Biochemistry, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
2. Department of Immunology, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
3. Department of Radiation oncology, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.

Background: FoxP3 is an X-linked tumor suppressor gene and its association with breast cancer have been evaluated. The aim of this study was to evaluate the effect of two single-nucleotide polymorphisms (SNPs) of FoxP3 promoter on the development of breast cancer in Iranian women.

Methods: 50 breast cancer patients and 100 healthy women were enrolled in this study. Two SNPs, SNP rs3761548 and SNP rs4824747, located in the promoter region of FoxP3 with minor allele frequency more than 5% were selected. The influence of these SNPs on development of breast cancer was assessed using sequence-specific primers (PCR-SSP) technique.

Results: Both allele and genotype frequency of of rs3761548 were significantly different between cases and control group. The frequency of AA genotype was higher in breast cancer patients compared to control group (27.4% versus 8.1%) and the risk of the disease was increased (OR= 4.3 and 95% CI=1.7-10.7, p=0.002). A allele carriers also showed increased risk of the disease development (OR= 3.5 and 95% CI=2.2-5.6, p=0.0001). CC genotype and C allele frequency were lower in the breast cancer subjects compared to the control group (3.2% versus 44.4%, and 38% versus 98.2% respectively). Both CC genotype and C allele significantly decreased the risk of the disease. No significant association was found between rs4824747 polymorphism and development of the disease.

Conclusion: This study proposes the rs3761548 polymorphism of FoxP3 gene as a risk factor, but not a prognostic marker in the development of breast cancer in Iranian population.

Keywords: FoxP3, breast cancer, polymorphism
Neurofilament light chain as biomarkers in multiple sclerosis

Ghader Babaie (PhD Student of research committee, Urmia University of Medical Sciences, Urmia, Iran)

Roghayeh Paribanaem (MS.c Student of research committee, Urmia University of Medical Sciences, Urmia, Iran)

Background: Circular RNAs (circRNAs) are a novel type of universal and diverse endogenous noncoding RNAs (ncRNAs) and they form a covalently closed continuous loop without 5' or 3' tails unlike linear RNAs. Most circRNAs are presented with characteristics of abundance, stability, conservatism, and often exhibiting tissue/developmental-stage-specific expression. CircRNAs have been suggested to regulate gene expression at transcriptional, post-transcriptional, and translational levels. Circular RNAs can exist in exosomes and blood plasma because of their stability. Studies show that circRNAs in exosomes were enriched by at least 2-fold compared to those in its producer and the expression levels of circRNAs were significantly increased in cancer serum compared to normal serum. An increasing number of studies have shown that circRNAs play important roles in the development and progression of diseases including cancer. In particular, circRNAs have shown great potential in cancer diagnosis, prognosis, and therapy.

Method: In this review, we briefly summarized the formation, characteristics, biological functions and clinical values of circRNAs with an emphasis on cancer.

Results: Increasing evidence suggest that circRNAs are involved in the pathogenesis of a variety of diseases, including osteoarthritis, diabetes, heart failure, Alzheimer's disease, and cancer. In particular, circRNAs are reported to play important roles in cancer growth, metastasis, and therapy resistance. Moreover, the stability of circRNAs in body fluids and the specificity of circRNAs in diseases have made them new molecular markers for cancer diagnosis.

Conclusions: If circRNAs as biomarkers of cancers are to be used in the clinic, their specific expression may assist in solving the problem of existing markers’ low organ specificity.

Keywords: circRNA, Non-coding RNA, Cancer, Biomarker
Activity enhancement of cABC I enzyme by introducing of the a new tyrosine pair

Mohammad Esmaeil Shahaboddin¹, Abolfazl Golestani², Khosro Khajeh³, Rana Shafabakhsh¹*

1. Research Center for Biochemistry and Nutrition in Metabolic Diseases, Kashan University of Medical Sciences, Kashan, Iran
2. Department of Clinical Biochemistry, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
3. Department of Biochemistry, Faculty of Biological Sciences, Tarbiat Modares University, Tehran, Iran

Background: Spinal cord injury (SCI) is damage to the spinal cord that causes changes in its function. Chondroitinase ABC I (cABC I) catalyzes the degradation of glycosaminoglycan chains and it causes axon regrowth following SCI. Despite clinical importance of cABC I, its utilization has been restricted due to low activity or thermal instability. Among the aromatic amino acids, tyrosine is more present in thermophile proteins. The aim of this study was to increase the activity or stability of this enzyme by introducing of the new tyrosine pair (Tyr⁵⁷⁶/Tyr⁵⁸¹).

Methods: Bioinformatics approaches used to examine the effect of Tyr⁵⁷⁶/Tyr⁵⁸¹ pair at the surface of ChABC I. Amino acid substitution (S581Y) carried out through site-directed mutagenesis. After protein expression, recombinant enzymes were purified via Ni-NTA affinity column. The purity of chABC I was assessed by SDS-PAGE and the stability and activity of purified enzymes were examined at 4 °C. The fluorescence spectra of wild-type and its mutant were recorded at 25 °C using Perkin Elmer luminescence spectrophotometer. Circular dichroism (CD) was used for examining the secondary structure content of enzymes in solution to clarify the structural effects of the mutation.

Results: The results showed that introducing of Tyr⁵⁷⁶/Tyr⁵⁸¹ aromatic pair have increasing effects on the chABC I enzyme activity. Comparison of the kcat/Km of WT and S581Y mutant indicates that km and catalytic efficiency of mutant is improved as compared to wild-type enzyme, significantly. Meanwhile, this new aromatic pair had not considerable effect on the stability of the enzyme at 4°C. Although, the secondary and tertiary structure of enzymes showed no significant alterations by adding of new aromatic pair, but fluorescence data indicated that mutation increases flexibility of the wild type enzyme, slightly.

Conclusion: It can be concluded that S581Y mutation affects cABC I enzyme activity without remarkable conformational changes.

Keywords: tyrosine pairs; Chondroitinase ABC I; site-directed mutagenesis; catalytic efficiency
Assessing the changes in some biochemical parameters in hemodialysis patients before and after hemodialysis, in Northern Iran

Alireza Ahmadi¹, Azadreza Mansourian², Zahra Hesari³, Ghasem Ghasempour⁴

1. Department of Clinical Laboratory Sciences, Faculty of Health and Para Medical, Golestan University of Medical Sciences, Gorgan, Iran.
2. Department of Biochemistry, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran.
3. Department of Biochemistry, School of Medicine, Iran University of Medical Sciences, Tehran, Iran.
4. Department of Biochemistry, School of Medicine, Iran University of Medical Sciences, Tehran, Iran.

Background: The serum levels of various hormones change in patients with chronic renal failure.

Methods: This study included 111 patients with chronic renal disorder and was conducted in Gorgan's 5th Azar hospital. Blood samples were collected from all patients before and immediately after dialysis to measure T3, T4, FT3, T3UP, TSH, FT4, cholesterol, triglycerides, creatinine, BUN, uric acid and fasting blood sugar.

Results: The results showed that the levels of FT3, FT4, T3 were significantly increased after hemodialysis; The levels of creatinine, BUN and uric acid were decreased; and cholesterol, triglycerides and FBS showed a significant increase in blood.

Conclusions: The dialysis can improve the levels of thyroid hormones in patients with renal failure. On the other hand, hemodialysis increases total cholesterol and triglycerides and as a result can increase the risk of cardiovascular diseases.

Keywords: hemodialysis, thyroid hormones, biochemical parameters
The effect of quercetin on oxidative stress markers in renal ischemia-reperfusion injury in rats

Hassan Ahmadvand¹, Saber Abbaszadeh*², Esmaeel Babaeenezhad³, Sobhan rahimi monfared⁴, Abdolhakim amini⁵

¹Razi Herbal Medicine Research Center, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran
²Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran
³Student of Veterinary Medicine, Faculty of Veterinary Medicine, Lorestan University, Khorramabad, Iran
⁴Department of Biochemistry, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran
⁵Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran

* Correspondence: saber abbaszadeh, Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran TEL: +98 9119182429; E-mail: saberabaszade1370@gmail.com

Introduction: Renal Ischemia-Reperfusion (RIR) is one of the reasons of Acute Renal Failure (ARF). Renal ischemia is a major event usually happens due to renal transplantation, hemi nephrectomy, repair of suprarenal aneurysm, cardiac arrest, hemorrhagic shock and heart failure. The main factors which cause kidney damage during I/R, are the production of reactive oxygen (ROS) or nitrogen species (RNS). Quercetin (3, 3’, 4’, 5, 7-pentahydroxyflavone) is known as a famous compound in polyphenolic flavonoids family. It is recognized as a potent scavenger that can eliminate free radicals and lipid peroxidation so that it has been found that quercetin is an antioxidant that is stronger than some natural antioxidants like vitamin C and E.

Objectives: Considering the role of RIR in induction of renal oxidative stress, we used quercetin as an antioxidant agent to investigate its effect on renal oxidative stress markers in renal ischemia-reperfusion injury in rats.

Methods: Twenty-two adult male Sprague-Dawley rats were randomly divided into 3 groups: Group I (Control; non-ischemic animals, n=8), Group II (renal I/R injury, n=7), Group III (renal I/R injury + quercetin 100 mg/kg i.p daily, n=7). Pedicles were occluded for 45 minutes (ischemia) and subjected for 24 hours of reperfusion. Daily pretreatment began 15 days before the induction of RIR. Renal malondialdehyde (MDA) and glutathione (GSH) were determined. Also, catalase (CAT) and glutathioneperoxidase (GPX) activities in the kidney were assessed.

Results: The level of malondialdehyde (MDA) in the kidney of the rats in RIR rats significantly increased compared with control rats. The level of malondialdehyde (MDA) in the kidney significantly decreased in treated RIR rats compared with the untreated RIR group. Glutathione (GSH) level in the kidney of RIR rats significantly decreased compared with control rats. The level of GSH in the kidney significantly increased in treated RIR rats compared with the untreated group. Catalase (CAT) and glutathioneperoxidase (GPX) activities in the kidney were significantly less in the untreated RIR group than the control group. Quercetin significantly increased catalase (CAT) and glutathione peroxidase (GPX) activities in the Kidney of treated group.

Conclusions: Our study showed that the pretreatment with quercetin as an antioxidant agent has protective effects on renal oxidative stress markers in renal ischemia-reperfusion injury in rats.

Key word: Quercetin, Renal ischemia-reperfusion, oxidative stress.
Pbi-064

Selenium effects on anti-inflammatory indices in renal ischemia-reperfusion injury in rats

Banafshe Yalameha¹

¹. Department of Biochemistry, School of Medicine, Lorestan University of Medical Sciences, Khoram Abad, Iran

Background: Selenium (Se) is an antioxidant and reactive oxygen species scavenger.

Objectives: This study was conducted in order to the evaluation of selenium effects on renal functional parameters, myeloperoxidase activity and the nitric oxide (NO) level in renal ischemia-reperfusion (IR) injury in rats.

Materials and Methods: Twenty four male Wistar rats (175–250 g) were selected and subsequently divided into three groups (n=8): group 1 as the control group, group 2 as the untreated group (IR without treatment) and group 3 as the IR group (treated with Se (1mg/kg/day, i.p.). The period of Se administration was 2 weeks before the initiation of renal IR. To cause renal IR, renal pedicles were occluded by safe clamps for 45 minutes. After that, the clamps were removed and 24 hours was considered as reperfusion. After the surgery, blood sampling from the hearts and the removal of the left kidney were done immediately for biochemical measurements.

Results: Renal IR significantly increased serum levels of creatinine, urea, serum and renal malondialdehyde levels, serum NO level, and myeloperoxidase activity. Se could reverse these findings, but the decrease of myeloperoxidase activity in IR animals was not significant.

Conclusions: It seems that Se has protective effects on anti-inflammatory indices. So, it can ameliorate renal IR complications which are associated with inflammation.

Keywords: Selenium, Renal ischemia-reperfusion, Inflammation
Pbi-065

The rs2275913C>T is not associated with acute kidney injury aftercardiopulmonary bypass

Authors:Sara Aghakhani chegeni1, Mahsa Rahimzade1, Nadereh Naderi2, Hossein Montazerghaem 3, Mahmoud Khayatian1

1.Department of Biochemistry, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
2. Department of Immunology, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
3. Cardiovascular Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.

Background: Acute kidney injury (AKI) is an inflammatory disease which is associated by abrupt and sustained decline in glomerular filtration rate. Cardiac Pulmonary Bypass (CPB) is one of the most important causes of AKI. Inflammation has a main role in the onset of AKI. Various signaling pathway plays a role in inflammation, one of the most important of them is the pathway that distinguishes a particular group of T cells called T-helper17 (TH17) and secretes IL-17A, which is an inflammatory cytokine that plays a key role in inflammation. The aim of this study was testing the hypothesis whether IL-17A polymorphism can detect CSA-AKI earlier than serum creatinine or not.

Methods:

118 patients undergoing CPB were enrolled in this study. Based on the changes in serum creatinine level, 49 patients developed AKI and 62 participants did not develop AKI (non-AKI group). Genomic DNA was extracted from the blood, and analysis of the SNP rs2275913 in the IL-17A gene was performed by SSP-PCR method.

Results:

The genotypic frequency of the SNP rs2275913 C>T polymorphism was evaluated in the AKI and Non-AKI groups. In the control group, the frequency of CC, TT, CT was 46.9%, 1.3% and 50%, respectively, and 42%, 4% and 54%, in the case group. The Statistical analysis based on chi-square test showed no significant differences in genotype frequency between AKI and Non-AKI group. Analysis of the allele frequency in AKI (C, 75% and T 25%) and Non-AKI (C, 73.4% and T 26.6%) group did not show significant differences.

Conclusion:

This study showed that the polymorphisms rs2275913 are not suitable biomarkers for predicting AKI after open heart surgery (CPB).

Keywords:
Acute Kidney Injury; Cardiac Pulmonary Bypass; Polymorphism; IL-17A
Assessment of hemolysis effect on hemoglobin measurement by capillary electrophoresis

Armin Mokhtariye¹,²,³, Amin Alaei², Sima Marzban³, Fatemeh Keyfi*²,³

¹. Department of Biochemistry, School of medicine, Kermanshah University of Medical Science, Kermanshah, Iran
². Varastegan Institute for Medical Sciences, Mashhad, Iran
³. Pardis Clinical and Genetic Laboratory, Mashhad, Iran

Background: Hemoglobin is an heme-protein, which have four peptide subunits and four heme residues. Subunits disorders are found in patients with thalassemia, a quantitative defect in the production of subunits, and hemoglobin variants, a qualitative defect in subunits structure. In the current paper, the analytical conditions for the determination of subunit disorders by capillary electrophoresis are studied with the aim to establish hemolysis effect on hemoglobin measurement in human.

Methods: We measured the hemoglobin pattern in 350 healthy and non-healthy individual in EDTA whole blood with capillary electrophoresis (Sebia System). All of the samples measured with and without hemolysis conditions.

Results: Linear regression was used for data analysis. The method was linear for the lower limit of quantification of 9% and 0.5% up to at least 99.5% and 6.6% for HbA (\(y=0.9993X+0.2662, R^2=0.9991\)) and HbA₂ (\(y=0.9861X+0.0835, R^2=0.9783\)) respectively. Method comparison demonstrated good agreement between non-hemolyzed and hemolyzed condition for HbA and A₂.

Conclusion: This assay demonstrates excellent linearity and a good agreement with non-hemolyzed and hemolyzed conditions. Thus, unwitting use of a hemolyzed sample to measure hemoglobin pattern not lead to erroneous results.

Keywords: Hemoglobin, Hb pattern, Capillary Electrophoresis, Hemolysis
Production of recombinant mouse Granulocyte-Macrophage Colony-Stimulating Factor

Nasrin Madadi¹, Faezeh Ghasemi², Farnaz Zahedi Avval¹, Baratali Mashkani¹

¹Department of Clinical Biochemistry, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
²Department of Biotechnology, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran

Background: Hematopoietic growth factors are a group of glycoproteins that can stimulate hematopoiesis. The recombinant form of these factors is now available for clinical uses. GM-CSF is a cytokine involved in proliferation and differentiation of bone marrow precursor cells into granulocytes, monocyte that used in treatment of patient with cancer.

Method: The protein sequence of mouse GM-CSF was obtained from Uniprot database and ordered for synthesis and optimization. GM-CSF was cloned into pPICZαA expression vector and electroporated into competent Pichia pastoris cells. After induction expression and cell culture, the expression and activity of recombinant protein was confirmed by SDS-PAGE, dot blot, Western blot method and culture of FDC-P1 cell line by Resazurin colorimetric technique.

Results: To confirm the cloning process and entry of synthesis peptide into pPICZαA expression vector, the restriction enzymes and colony PCR were used. The GM-CSF protein bands with 16 kDa molecular weight observed by SDS-PAGE and Western blot analysis.

Conclusion: The recombinant GM-CSF protein was expressed into P. pastoris yeast and caused the FDC-P1 cell line proliferation.

Keywords: mouse GM-CSF, Pichia pastoris, FDC-P1 Cell line, Codon Optimization
Sexual hormones and acne vulgaris

Zahra Heidari¹, Zohreh Rahimi²

1. Department of Clinical Biochemistry, Medical school, Kermanshah university of Medical Sciences
2. Department of Clinical Biochemistry, Medical school, Kermanshah university of Medical Sciences

Background: This study was designed to investigate the role of sex hormones including testosterone, dehydroepiandrosterone (DHEA), 17β-estradiol, and also Sex hormone-binding globulin (SHBG) in patients with acne vulgaris compared to healthy controls.

Methods: The samples consisted of 163 patients with acne vulgaris (24 males, 139 females) and 139 controls (32 males, 107 females), with ages ranging from 15 to 25 years (mean age of 22.14 ±4.69 years).

Results: The mean plasma levels of testosterone, DHEA, 17β-estradiol, SHBG in patients women were 2.07 ±1.60 nmol/l, 270.49±153.21 mg/dl, 83.95±76.53 pg/ml, 24.21 ±52.81 nmol/l, respectively and in patients men were 10.20 ±23.40 nmol/l, 355.69±158.41 mg/dl, 355.69±158.41 pg/ml, 15.63 ±32.16 nmol/l respectively. In women the levels of 17 beta-estradiol, and SHBG with P = 0.001 and P = 0.003 were significantly lower than those in controls and DHEA with P = 0.03 was significantly higher than that in controls. In men the mean value of SHBG in the plasma of patients was 15.63 ±32.16 and with P = 0.02 was significantly lower than that in controls.

Conclusion: The hormonal abnormalities may be causally related to the acne vulgaris and a greater understanding of them may lead to better treatment.

Keyword: Sexual hormones, Acne vulgaris, DHEA, 17β-estradiol, Testosterone, SHBG
Essential oil of cultivated *Satureja khuzestanica* Jamzad improves activities and genes expression of hepatoglycoregulatory enzymes in diabetic rats

*Corresponding author: Ali Baghersad*

Ali Baghersad\(^1\), Fatemeh Omidi\(^2\), Gholamreza Shamsavari\(^3,4\)

\(^{1,2}\)Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran

\(^3\)Assistant Professor of Department of Clinical Biochemistry, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.

\(^4\)Razi Herbal Medicine Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran.

**Background:** The aim of the present study is to evaluate the effect of cultivated *Satureja khuzestanica* essential oil (SKEO) on activity and gene expression of hepatic glucokinase (GK), glycogen phosphorylase (GP) and phosphoenolpyruvate carboxykinase (PEPCK) in normal and diabetic rats.

**Methods:** Thirty two wistar male rats were divided into four groups randomly; group one as control, group two as diabetic untreated, group three as sham treated with cultivated SKEO (100 mg/kg/d) in aqueous solution orally for 21 days, and group four as diabetic treated with cultivated SKEO (100 mg/kg/d) in aqueous solution orally for 21 days. After 21 days, animals were anaesthetized, liver were then removed immediately and used fresh or kept frozen until analysis of GK, GP and PEPCK activity and gene expression of GK, GP and PEPCK by using the quantitative real-time RT-PCR technique.
**Results:** Hepatic GK activity and gene expression of GK in diabetic treated groups compared with diabetic untreated groups were significantly increased. Hepatic GP and PEPCK activity and gene expression of GP and PEPCK in diabetic treated groups compared with diabetic untreated groups were significantly decreased. Also, hepatic activity of GK, GP and PEPCK activity correlated positively with their gene expression.

**Conclusions:** This study showed that SKEO might be a exert beneficial effects on activities of GK, GP and PEPCK and gene expression of GK, GP and PEPCK in diabetic rats. Therefore, SKEO may contribute to reduction of serum glucose, which seems to be related to its antioxidant properties.

**Keywords:** Antihyperglycemic; Gene expression; Glycogen phosphorylase; Phosphoenolpyruvate carboxykinase; Satureja khuzestanica essential oil.
Pbi-071

The effects of the hydroalcoholic extract of *Rosa canina* L. on rat intestine sucrase and maltase activity

Hossein Tayefi-Nasrabadi, Arman Rezapour

1. Department of Basic sciences, Faculty of Veterinary Medicine, University of Tabriz

**Background:** As an herbal remedy, it has been shown that the *Rosa canina* L. (Rosaceae) possess prophylactic and therapeutic activities against a wide range of ailments, including the gastro intestinal disorders, gastric ulcer, gall and kidney stones, inflammatory disorders, arthritis, rheumatism, gout, sciatica and metabolic diseases such as diabetes mellitus. The aim of this study was to assess the effect of different concentrations of the hydroamethanolic extract of *Rosa canina* L. on activity of two specific α-glycosidic bond hydrolyzing enzymes such as sucrase and maltase, in rat intestine.

**Methods:** 40 gr finely powdered dried fruit was submitted to extraction with 300 mL methanol and water at a ratio of 1:1 in a Soxhlet apparatus for 5 h. After extraction, the solvent was filtered and then evaporated via a rota evaporator at 40 °C. The dried extract was reconstituted to prepare a solution of 10 mg/mL in distilled water just before the start of the experiments. Rat intestine sucrase and maltase activity was determined in the present of 0.01-3 mg/mL of the extract.

For sucrase activity assay in rat intestine homogenate, saccharose was used as substrate at concentration of 56 mM in 0.1 M phosphate buffer pH 7.4. For maltase activity assay, maltose was used as substrate at concentration of 5 mM in 0.1 M phosphate buffer pH 7.4.

**Results:** Data from plots of percent activity versus extract concentration showed that *Rosa canina* L. extract possessed dose-dependent inhibitory activity on rat intestinal sucrase and maltase with similar IC$_{50}$ values. As a positive control, IC$_{50}$ values of acarbose were found two fold greater for intestine maltase than sucrase enzyme.

**Conclusion:** Intestinal sucrase and maltase are specific key enzymes in the digestive system, which is responsible for the final step in the hydrolysis of carbohydrates that are the major constituents of human diet. The results of this study suggest that inhibition of these enzymes by *Rosa canina* L. fruits extracts probably is a one of the important mechanism of antidiabetic activity of this herbal medicine.

**Keywords:** *Rosa canina*, maltase, sucrase, acarbose.
Comparison of fecal pyruvate kinase isoform M2 and calprotectin in Inflammatory Bowel Disease

Mehdiieh Sorousad
Hamidreza Hosquighinb
Laboratory Sciences Research Center

Background: Fecal concentrations of pyruvate kinase isoform M2 (M2-PK) and calprotectin (FC) serve as biomarkers of inflammation of gastrointestinal mucosa. Pyruvate kinase embryonic isoform M2 (M2-PK) is an enzyme responsible for phosphate group transfer in glycolysis. It has been shown that M2-PK dimers and tetramers are present in proliferating cells in different tissues. Because M2-PK is also present in leukocytes, it can be found in fecal masses that are formed while in contact with the inflamed mucosa of the gastrointestinal tract. As M2-PK stability is high, its concentrations in stools can reflect gastrointestinal inflammation. Two main proposed uses of M2-PK in gastroenterology are the assessment of inflammatory bowel diseases (IBD) severity and cancer screening. We described the potential of M2-PK as a biomarker of pediatric IBD activity. Calprotectin is a protein of the S100 family that represents over 40% of the proteins found in the neutrophils' cytosol. Calprotectin can halt bacterial growth, playing an important role in non-specific immune reactions. Concentrations of fecal calprotectin (FC) have been measured in patients with IBD, and it was shown that they may serve a role in disease activity assessment and relapse prediction.

Objective: This study evaluated the potential value of fecal, dimeric M2-PK and Calprotectin level inflammatory bowel disease (IBD). Patients and Methods: This cross-sectional study included 78 patients with inflammatory bowel disease (32 female and 48 male). According to the medium (48) age, patients were divided into two group >48 and <48. The M2-PK and Calprotectin level was measured in all patients using a highly sensitive enzyme-linked immunosorbent assay (ELISA), which allowed the quantitative measurement of tumor M2-PK in stool. The concentration of M2-PK in feces was assessed with the use of a sandwich ELISA kit with monoclonal antibodies; the values were expressed in U/g. Calprotectin concentrations were measured in μg/mL using the PhiCal ELISA Test.

Results and conclusion: Our study revealed that M2-PK and Calprotectin median concentrations in patients with IBD were higher than reference interval (Calprotectin and M2-PK mean in patient was 323.74 mg/mL and 5.2 U/g respectively). Also the mean of M2PK ingrope of <48 years oldand male was higher, in comparison to >48 group and women. Female and >48 years oldgroup have significantly higher concentrations of fecal Calprotectin than male and <48 group. But there were no significant correlation between age and gender with Calprotectin and M2-PK levels (p>0.05).

Keywords: Calprotectin, M2-PK, Inflammatory Bowel Disease
Reactive Oxygen Species and P38 MAP kinase have role in Smad2 linker region phosphorylation induced by TGF-β

Reyhaneh Niayesh Mehr 1, Faezeh Seif 1, Parisa Dayati 1 and Hossein Babaahmadi-Rezaei 1

1 Atherosclerosis Research Center, Department of Clinical Biochemistry, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
Dr. Hossein Babaahmadi Rezaei Tel: (+98) 61 33367543-2591 Fax: (+98) 61 33738632 Email: babaahmadi-h@ajums.ac.ir

Background: Transforming growth factor-β (TGF-β) is one of major cytokines associated with atherosclerosis. TGF-β in addition to C-terminal region can also phosphorylates R-Smad transcription factor in its linker region. Smad linker region phosphorylation plays an important role in regulation of TGF-β target genes including proteoglycans invascular smooth muscle cells (VSMCs). Reactive oxygen species (ROS) as second messenger contribute to various signal transduction pathways and mediated some of TGF-β effects. In order to clarify molecular mechanism of TGF-β-induced Smad2 linker region phosphorylation, we assessed the role of possible signaling mediators including ROS and ROS-sensitive P38 MAP kinase in this signaling pathway in cultured human VSMCs.

Methods: In vitro study was performed on human VSMCs. Proteins were detected by western blotting utilizing anti-phospho-Smad2 (Ser245/250/255) rabbit polyclonal antibody and HRP-labeled secondary antibody. We used GAPDH as loading control. Phospho-Smad2 linker region (PSmad2L) detected in all experimental groups, including: control, treated group with TGF-β (2ng/ml) and treated group with TGF-β plus specific inhibitors. Data were normalised and presented as mean ± S.E.M. Statistical analysis were performed using SPSS and one-way ANOVA test. P<0.05 was considered statistically significant.

Results: VSMCs treated with TGF-β were showed time-dependent increase in PSmad2L level. The highest level was observed at 15min. In the presence of TGF-β receptor antagonist (SB431542), PSmad2L was inhibited. ROS scavenger (N-Acetyl-L-cysteine [NAC]) and inhibitor of P38 MAPK (SB202190) were able to significantly (P<0.05) reduce the increased level of PSmad2L by TGF-β.

Conclusion: Our results suggest ROS and P38 MAPK are involved in TGF-β-mediated Smad2 linker region phosphorylation in human VSMCs. As a result, TGF-β via ROS-dependent mechanism can transmit its signal to linker region of Smad2 and targeting these signaling intermediates may be atherapeutic strategy for prevention of atherosclerosis.

Key words: Transforming Growth Factor-β, Smad2 Protein, Reactive Oxygen Species, P38 Mitogen-Activated Protein Kinase
Pbi-074

The evaluation of Oxidative Stress in Iranian patients with Gaucher disease

Hadi Mozafari¹, Mohammad Taghikhani², Shohreh Khatami³, Amir Kiani⁴

1. Department of Clinical Biochemistry, Medical School, Kermanshah University of Medical Sciences, Kermanshah, Iran
2. Department of Clinical Biochemistry, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
3. Department of Biochemistry, Pasteur Institute of Iran, Tehran, Iran
4. Department of Toxicology and pharmacology, Kermanshah University of Medical Sciences, Kermanshah, Iran

Background: Gaucher disease (GD) is the most frequent autosomal recessive disorder of lysosomal storage disease (LSDs). GD results from mutations in the glucocerebrosidase (GBA) gene leads to GBA deficiency. In this disease, some complications as anemia, hepatosplenomegaly and bone disease could be occurred. Meanwhile, GBA substrate accumulation in macrophages and consequence inflammation may be lead to oxidative stress.

Methods: We investigated the 3 parameters of oxidative stress in 33 gaucher patients from different Iranian populations. As, MDA level was measured by HPLC, and both TAC and catalase activity were measured by colorimetric assays.

Results: As well, levels of TAC in control group was significantly higher than GD patients (p<0.001). In contrast, MDA concentration of plasma GD patients was insignificantly higher than normal group (p=0.06). In GD patients, there was a direct correlation between TAC and hemoglobin concentration (p=0.035; r=0.369).

Conclusion: According to present study, the oxidative stress level is higher in Gaucher disease patients. Possibly, the use of antioxidant regime could help to improve the patients from definite symptom as anemia.

Key Words: Gaucher Disease, Oxidative Stress, TAC, MDA.
Pbi-075

Abnormality of lipid profile and acne vulgaris

Zahra Heidari¹, Zohreh Rahimi²

1. Department of Clinical Biochemistry, Medical school, Kermanshah university of Medical Sciences
2. Department of Clinical Biochemistry, Medical school, Kermanshah university of Medical Sciences

Acne vulgaris (AV) is a common disease affecting all ages and ethnic groups. Acne is a multifactorial disease which, although not life threatening, has profound effects on patients. Serum lipids seem to be involved in this multi-factorial process. The aim of this work was to determine lipid profile in patient with AV.

**Methods:** Study subjects included 163 patients with acne vulgaris (24 males, 139 females) and 139 controls (32 males, 107 females), with ages ranging from 15 to 25 years (mean age of 22.14 ± 4.69 years).

**Results:** The mean plasma levels of HDL-C, LDL-C, TG, Cholesterol in patients women were 49.33±11.85, 79.14±27.22, 81.51±47.73, 134.70±32.52 mg/dl, respectively and in patients men were 44.63±8.97, 71.3±23.23, 97.71±61.75, 126.50±25.24 mg/dl respectively. In women the levels of HDL-C (in control 42.21±9.25), LDL-C (in control 68.36±20.29) and Cholesterol (in control 123.23±28.20) with P <0.05 were significantly higher than those in controls and men value of Cholesterol in the plasma of men patients (in control 146.56±29.2) was significantly lower than that in controls. (P = 0.009)

**Conclusion:** Changes in lipid profile patient with AV should be considered in disease pathogenesis and in treatment of these patients.

**Keyword:** Acne vulgaris, HDL-C, LDL-C, Cholesterol, TG
The effect of n-3 PUFAs on circulating adiponectin and leptin in patients with type 2 diabetes mellitus: A systematic review and meta-analysis of randomized controlled trials

Azam Rezaei Farimani1, Mitra Hariri1, Mohsen Azimi-Nezhad1, Abasalt Borji1, Sadegh Zarei2, Elham Hooshmand1

1. Department of Basic Medical Sciences, Neyshabur University of Medical Sciences, Neyshabur, Iran
2. Department of Clinical Biochemistry, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

Background: n-3 PUFAs can potentially influence levels of inflammatory and non-inflammatory adipokines. Given the contradictory effects of n-3 PUFAs on serum levels of adipokines in type 2 diabetes, we conducted a systematic review and meta-analysis study of randomized placebo-controlled clinical trials that examined the effects of n-3 PUFAs on serum levels of leptin and adiponectin in patients with type 2 diabetes.

Methods: The electronic databases, without regard to language restrictions including, PubMed/Medline, Google Scholar, SCOPUS and ISI web of science until August 2017 was used to identify randomized controlled trials that assessed the effect of n-3 PUFAs on serum leptin and adiponectin concentrations in type 2 diabetes. Outcomes were extracted based on the mean ±SD as effect size at baseline and end of the intervention. Between-studies heterogeneity was evaluated by the I² estimates and their 95% CIs. Funnel plot asymmetry was used to investigate the existence of publication bias. Stata software and Review Manager were used for statistical data analysis.

Results: Data from 10 eligible articles involved 494 subjects with type 2 diabetes mellitus (intervention groups = 254 and control groups = 240), were aged between 44 and 70 years, treated with doses of 0.52-7.4 g / day n-3 PUFAs. Adiponectin concentration non-significantly increased by a MD=0.17 µg/mL (95%CI -0.11, 0.44). Also, leptin concentration non-significantly reduced by a MD=-0.31 ng/mL (95%CI -0.69, 0.07).

Conclusion: Plant and marine sources of n-3 PUFAs can modify serum leptin and adiponectin levels by increasing adiponectin and decreasing leptin levels in patients with type 2 diabetes.

Key words: n-3 PUFAs, Adiponectin, Leptin, Type 2 diabetes mellitus, Systematic review, Meta-analysis
Pbi-077

The possible association of adiposity and liver injury indices in NAFLD patients

Reyhane Ebrahimi¹, Solaleh Emamgholipour¹, Hossein Poustchi²

¹. Department of Clinical Biochemistry, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran.
². Liver and Pancreatobiliary Diseases Research Center, Digestive Diseases Research Institute, Tehran University of Medical Sciences, Tehran, Iran

Background:

Non-alcoholic fatty liver disease (NAFLD) is a common chronic liver disease with ranges from simple steatosis to non-alcoholic steatohepatitis (NASH). This disorder is associated with obesity, in particular central adiposity. This study deals with the correlation of body mass index (BMI) with serum biochemical indices and markers of liver injury in healthy and NAFLD participants.

Methods:

A total of 43 subjects (all men) aged between 43 and 72 years, including 22 healthy controls and 21 NAFLD patients were recruited for this study. The participants were selected among individuals who attended the outpatient clinic of Shariati Hospital, Tehran, Iran. Venous blood was collected following an overnight fasting and measurement of metabolic markers was performed. BMI was calculated as body weight (kg)/height² (m²).

Results:

In NAFLD group, BMI was inversely correlated with triglycerides (r = −0.4917; p = 0.0236). In addition, we found a negative correlation between BMI and triglycerides (r = −0.4204; p = 0.0004) and a positive correlation between BMI and total cholesterol (r = 0.3332; p = 0.0063) in controls. In the whole study population, there were significant positive correlations between BMI and AST (r = 0.3462; p = 0.0230), ALT (r = 0.4542; p = 0.0025) and GGT (r = 0.3765; p = 0.0128) and also a negative correlation between BMI and HDL (r = −0.3393; p = 0.0260).

Conclusion:

It seems that increased adiposity is linked to lipid profile and liver injury in NAFLD. However, there is a need for future work examining the correlation of BMI and lipid profiles involved in the pathogenesis of NAFLD.

Keywords: Non-alcoholic fatty liver disease, Body mass index, obesity
Pbi-078

Evaluation of miR-920 plasma levels in liver cirrhosis

Mohabbat Ghaempoor¹, Seyed Reza Mohebbi², Ehsan Arefian³, Mehrnoosh Shanaki¹, Faranak Kazernou³, Armin Hosseinirazavi⁴, Behzad Hatami², Mohammadreza zali²

¹-Paramedicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
²-Gastroenterology and Liver Diseases Research Center, Research Institute for Gastroenterology and Liver Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran
³-Microbiology, Department of Microbiology School of Biology, College of Science, University of Tehran, Tehran, Iran;
⁴-Basic and Molecular Epidemiology of Gastrointestinal Disorders Research Center, Research Institute for Gastroenterology and Liver Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Presenting Author: Mohabbat Ghaempoor, Email: ghaempoor.bio@gmail.com

Introduction
Liver cirrhosis is the final step of liver damage arising from a wide variety of chronic liver diseases. There are many known causes for cirrhosis, such as alcoholism, chronic hepatitis virus infection, nonalcoholic fatty lives disease (NAFLD) and autoimmune hepatitis. Although liver biopsy is gold-standard for assessment of liver cirrhosis, it is an invasive and risky procedure. Noninvasive tests for diagnosis of liver cirrhosis are increasingly needed. MicroRNAs are a group of small noncoding RNAs (19–24 nt), that control more than 60% of gene expression at the posttranscriptional level. They involve in progression of various diseases such as heart disease, cancer and liver diseases. Aberrant miRNAs are very stable in body fluids; accordingly, they have potential diagnostic values for liver cirrhosis.

Method
In this study, we aimed to evaluate plasma levels of miRNA-920 in 25 cirrhotic patients and 25 healthy controls. After RNA isolated from plasma and cDNA synthesis, qRT-PCR was used to evaluate the expression levels of miRNA-920.

Result
Expression of miR-920 was not significantly different in patients with liver cirrhosis in comparison to healthy controls (fold change=0.92, P=0.07).

Conclusion:
Our study demonstrated that plasma levels of miR-920 may not play a crucial role in patients with liver cirrhosis and can’t be considered as a plasma circulating biomarker of cirrhosis.

Key words:
Liver cirrhosis – miR-920 - diagnosis biomarker
A survey on clinical signs and laboratory findings of favic patients of Kermanshah city between 2011-2014

Saeed Dehnavi¹, Fateme Fathi¹, Sajad Dehnavi², Bahare cheshmanoooshi³, DR. Nasrollah Sohrabi⁴

¹. student research committee, Kermanshah University of Medical Sciences.
². department of immunology, Mashhad University of Medical Sciences.
³. department of microbiology, Kermanshah University of Medical Sciences
⁴. department of laboratory sciences, Kermanshah University of Medical Sciences.

Background: Glucose 6-phosphate dehydrogenase (G6PD) deficiency is the most common enzymatic disorder of red blood cells in humans. Favism is an acute hemolytic anemia which occurs in G6PD deficient individuals by ingestion of fava beans or inhalation of fava plant’s pollens. In this study we collected information about the features of favic patients hospitalized in hospitals of Kermanshah city between 2011-2014.

Methods: The records of 382 favic patients who were admitted to Imam Reza and Mohammad Kermanshahi Hospitals between 2011-2014 were studied. Demographic information, clinical signs and laboratory findings of the patients were extracted from therecords. Data were analyzed by Chi-square, Mann-Whitney, T-test and using SPSS software (version23).

Results: 68.6% from the patients were male and the mean age of them was 4.1 years old. Patients had ingested fava bean (80.4%), inhalation of fava plant’s pollens (2.4%), taking oxidative drugs (4.2%), breast milk (2%) and idiopathic (11%). These patients admitted mostly during the spring season. The two main clinical signs were jaundice and urine discoloration. At the admission time, the main laboratory findings were as follows: G6PD deficient status (70.2 %), G6PD sufficient status (29.8%). Blood group: A (30.4%), B (14.4%), AB (6%) and O (49.2%). Transfusion for 80.9% of patients and hemoglobin concentration: 2.5-17 (mean 8.11 g/dl).

Conclusion: Most of favic patients who are admitted to hospitals in Kermanshah are children and this happens often in the spring. Preventing or reduce the severity of the signs and symptoms by preventing exposure to oxidative drugs, fava beans and inhalation of fava plant’s pollens also by screening for infants with G6PD deficiency and providing necessary training.

Keywords: favism, G6PD deficiency, clinical features, laboratory findings
Silibinin and liver ischemia/reperfusion

Neda Masoumi ¹, Abbas Khonakdar-Tarsi ²

¹ Department of biology, Islamic Azad university, tonekabon, Iran
² Department of Medical Biochemistry, Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran.

Back ground: One of the main reasons of liver failure in various clinical conditions, including surgery, infection, tissue damage and transplantation is ischemia/reperfusion (I/R). The dry grain (seed) extract of Milk thistle (Silybum marianum) contains 1 to 4% silymarin. Silibinin is considered as an antioxidant which is the most effective matter in silymarin. In this review, we tried to express the effect of silibinin on liver I/R injury (I/RI).

Methods: Related articles have been identified by searching in international and national databases. Eligible articles were studied after controlling the quality assessment.

Results: Several studies have been conducted to prove the protective role of flavonoid drugs such as silibinin on liver tissue aspiration by I/R. It has been proved that silymarin inhibits lipid peroxidation, malondialdehyde and ROS production by preventing glutathione evacuation, inducing of antioxidant such as superoxide dismutase, catalase, and inhibiting of 5-lipoxygenase enzyme, and thereby it prevents from renal, liver, heart and brain damage. In this regard, the efficacy of this substance was approved in tissue ischemia models.

Studies have indicated that silibinin decreased the serum levels of ALT and AST which increased in I/R. These effects of silibinin are probably due to its antioxidant effects and also its effect on reducing inflammatory factors, enhancing protein synthesis and cell regeneration.Silibinin decreased the NADPH-oxidase, iNOS and NF-kb gene expression. Carbon tetrachloride (CCl4) inhibits SOD, GSH-PX, CAT and GSH in liver. Silibinin had a protective effect against CCl4 induced the liver damage. Silibinin by activating an array of vitagenes, including HSP, thioredoxin (Trx), sirtuins and providing additional protection in stress conditions can contribute to the antioxidant defences. Silymarin oil significantly increased the levels of membrane fluidity and membrane potential of the liver mitochondria.Silibinin prevented the most significant changes (decreased ATP levels, membrane potential and state 3 respiration) that occurred in mitochondria during I/R and the associated cell dysfunction. Silymarin down-regulated the expression levels of cytoskeleton organization genes and mitochondria electron-transfer chain genes, such as cytochrome c oxidase, COX 6a2, COX 7a1, and COX 8b genes.

Conclusion: In this review study, the positive effect of silibinin on hepatocytes and their reconstitution in I/R was confirmed.
The C102T Polymorphism of Serotonin Receptor 2A (5-HTR2A) Gene, Is Associated with Life Events and Suicide in an Iranian Population

Asghar Ghasemi¹, Morteza Seifi²

1. Department of Clinical Biochemistry, School of Medicine, Tehran University of Medical Sciences (TUMS)
2. Department of Medical Genetic, School of Medicine and Dentistry, University of Alberta

Background: The association of serotonin receptor 2A (5-HTR2A) polymorphisms with psychiatric problems including suicide have been reported in several studies. However, associated gene-environment (GXE) interaction of this gene has not been well established so far. Therefore, we aimed to study the association of C102T polymorphism of 5-HTR2A gene with life events and suicide in an Iranian population.

Methods: Polymerase chain reaction–restriction fragment length polymorphism (PCR-RFLP) was used to determine genotype and allele frequencies of C102G polymorphism in suicide victims (n=191) and healthy control subjects (218). Life events were assessed by a structured questionnaire designed according to Iranian culture.

Results: We found a high frequency of 102CC genotype in suicide victims as compared to controls ($\chi^2$=8.70, $P=0.012$). Furthermore, higher 102CC genotype of 5-HTR2A was related to the higher number of life events in suicide victims ($P<0.05$).

Conclusions: Our results provide evidence that 102CC genotype of 5-HTR2A may be associated with the higher number of life events and susceptibility to suicidal behavior.

Key words: 102CC genotype, 5-HTR2A, Iran
Pbi-082

The Effect of Aqueous Extract of Avicennia marina (Forsk.) Vierh on Activity of Liver’s Enzymes, Oxidative Stress Parameters and Histopathology of Liver in Male Diabetic Rats

Akram H1, Sadoughi SD2*, Rahbarian R3

1- M.Sc Student in Biochemistry, Department of Biochemistry, Faculty of Sciences, Payam-e-Noor University, Tehran, I. R. Iran.
2- Ph.D in Developmental Biology, Young Researchers and Elite Club, Mashhad Branch, Islamic Azad University, Mashhad, I. R. Iran.
3- Assistant Professor, Department of Biology, Faculty of Sciences, Payam-e-Noor University, Tehran, I. R. Iran.

Background: Hepatic necrosis, enzymatic defects and disorders in liver metabolism have been reported in diabetic patients. Also diabetes mellitus causes hepatic damage by rising oxidative stress. Researches has recognized the anti-diabetic and anti-oxidant effects of Avicennia marina. The aim of this study is to investigate the effects of aqueous extract of Avicennia marina on activity of liver’s enzymes, oxidative stress parameters and histopathology of liver in diabetic rats.

Materials and Methods: In this experimental study 28 male rats were allocated into the equal groups of control, diabetic control and experimental diabetic 1 and 2. The diabetes in diabetic control and experimental diabetic groups was induced using an intraperitoneal injection of alloxan. The experimental diabetic groups received the aqueous extract of Avicennia marina (100 and 200mg/kg, ip) in alternate days for one month. Sterile distilled water was injected to the animals of control and diabetic control groups. At the end of injection, the serum levels of liver enzymes (ALT, AST, GGT and ALP) were measured. Then, levels of SOD, GST and CAT also MDA level were measured in liver tissue. The livers sections were prepared and were examined by means of light microscope.

Results: Injection of Avicennia marina extract (100 and 300 mg/kg, ip) to the diabetic rats, resulted significant decrease in serum levels of liver enzymes, significant decrease in MDA levels and significant increase in SOD, GST, CAT activity enzymes in liver tissue. (p<0.05). Concentrations of 100 and 200 mg/kg Avicennia marina extract dose-dependently reduce liver damage in diabetic samples.

Conclusion: Administration of Avicennia marina extract could improvements of tissue oxidative stress parameters and decrease serum level of liver enzymes. Also have a protective effect against liver damage induced by diabetes.

Keywords: Diabetes, Avicennia marina, Liver Enzymes, Oxidative Stress, Rats
Endothelin-1 mediated NADPH oxidase gene expression involves the transactivation of the transforming growth factor-β receptor

Parisa Dayati¹, Reyhaneh Niayesh Mehr¹, Narges Sharifat¹, Hossein Babaahmadi-Rezaei²*

Background: Recent evidence has suggested that reactive oxygen species (ROS) are important signaling molecules in vascular cells and play a central role in vascular biology and pathobiology. The major source of ROS in vascular cells is an NADPH oxidase (NOX) complex, which contributes to the regulation of vascular tone, inflammation, abnormal smooth muscle cells growth and endothelial dysfunction. The NOX family of proteins is comprised of seven members, including NOX1–5 and the DUOX 1/2. Two isoforms NOX1 and NOX4 have been identified in cultured vascular smooth muscle cells (VSMCs), which are implicated in the pathogenesis of atherosclerosis and are one of the potential therapeutic targets. A number of studies have shown that NOX isoforms are up-regulated in response to growth factors such as angiotensin II, endothelin-1 (ET-1) and thrombin in a variety of cell types. G protein-coupled receptor (GPCR) for ET-1 transactivates the transforming growth factor (TGF)-β receptor (TβR1) in VSMCs. The canonical downstream response to TβR1 is C-terminal phosphorylation of Smad2 transcription factor (phospho-Smad2C). In this study, we identified the role of ET-1-mediated transactivation of TβR1 to stimulate mRNA expression of NOX1 and NOX4 in human VSMCs.

Method: In the present study, using quantitative real-time polymerase chain reaction (qRT-PCR), we examined the expression levels of NOX1 and NOX4 in human VSMCs.

Results: Stimulation of human VSMCs with ET-1 induced a time-dependent increase in mRNA expression of Nox1 but not NOX4. ET-1 increased mRNA expression of NOX1 was blocked by the mixed ET receptor antagonist bosentan and the TβR1 antagonist SB431542.

Conclusion: This work shows that ET-1 plays an important role in the mRNA expression of NOX1 via ET-1 mediated the transactivation of TβR1.

Keywords: endothelin-1, NADPH oxidase, vascular smooth muscle cell, transactivation
Endothelin-1 dependent expression of GAG genes involves Smad linker region phosphorylation

Parisa Dayati¹, Reyhaneh Niayesh Mehr¹, Ali Paydar², Narges Sharifat¹ and Hossein Babaahmadi-Rezaei³*

1. Student Research Committee, Department of Clinical Biochemistry, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Student Research Committee, Faculty of Paramedical, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. Cellular and Molecular Research Center, Department of Clinical Biochemistry, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background: The initiating step in the development of atherosclerosis is the binding and retention of atherogenic low density lipoproteins (LDLs) in the blood vessel wall by modified proteoglycans, specifically those with hyperelongated glycosaminoglycan (GAG) chains. Thus, an inhibitor of the growth factors signaling pathways regulating the hyperelongation of GAG chains on proteoglycan has the potential to be an adjunct therapeutic agent, along with a cholesterol-lowering HMGCoA reductase inhibitor, a statin such as atorvastatin for the prevention of atherosclerosis. Endothelin-1 (ET-1) is implicated in the development of atherosclerosis and mediates GAG chain hyperelongation on proteoglycans. The G protein-coupled receptor for ET-1 can transactivate the transforming growth factor (TGF)-β receptor (TβR1), leading to the generation of phosphorylated Smad2 transcription factor. Our aim was to identify the ET-1-mediated signaling pathway involving Smad2 linker region phosphorylation (phospho-Smad2L) that regulate the mRNA expression of GAG synthesizing enzymes involved in GAG chains hyperelongation in human vascular smooth muscle cells (VSMC).

Method: Signalling intermediate was detected and quantified by Western blotting and the mRNA levels of GAG synthesizing enzymes were assessed by quantitative real-time polymerase chain reaction (qRT-PCR).

Results: ET-1 treatment of human VSMCs resulted in an increase in phospho-Smad2L level. The TGF-β receptor antagonist, SB431542, inhibited ET-1-mediated phospho-Smad2L level. The gene expression levels of GAG synthesizing enzymes post-ET-1 treatment were increased compared to untreated controls (P<0.01). The ET-1 mediated the mRNA levels of these enzymes were blocked by the mixed ETα and ETβ receptor antagonist bosentan, and SB431542.

Conclusion: We have shown that ET-1-mediated the TβR1 activation involving Smad2 linker region phosphorylation leads to the expression of GAG synthesizing enzymes, whose expression correlates with the hyperelongation of GAG chains on proteoglycan and preventing these modifications might represent a novel therapeutic strategy for the prevention of atherosclerosis.

Keywords: endothelin-1, atherosclerosis, Smad2, GAG synthesizing enzymes
Pbi-086

The investigation of affinity of some synthetic compounds to MMP9 enzyme, In-silico technique.

Shima rezaie¹, Naser kakavandi², Reza aramidhe³, Dr. Mohammad najafi⁴

1. Department of clinical biochemistry school of medicine Iran university of medical sciences
2. Department of clinical biochemistry school of medicine Iran university of medical sciences
3. Department of virology school of medicine Iran university of medical sciences
4. Department of clinical biochemistry school of medicine Iran university of medical sciences

Background:
Matrix metalloproteinase (MMPs) enzymes containing the zinc prosthetic group that are able to parse all the components of the extracellular matrix. They are divided into four class: collagenases (mmp1, mmp8, mmp13), gelatinases (mmp2, mmp9), stromylisins (mmp3, mmp10, mmp11) and membrane type MMP(MT-MMPs). MMP inhibitors can be divided into non-synthetic (endogenous) or synthetic. Types of synthetic inhibitors of MMPs have been identified, including hydroxymates, thiols, β-lactams, hydrazine and so on. Our aim in this study is to investigate the binding power of the synthetic inhibitors of MMPs and eventually choose the best of them.

Methods:
The chemical structures of MMP9( PDBID:1L6J ) enzyme were obtained from PDB (www.RCSB.org/pdb). The chemical structures of the synthetic compounds were obtained from the data base PubChem (https://pubchem.ncbi.nlm.nih.gov) in sdf format. The graphic program ADT version 4.2.6 was used to prepare ligands and proteins. At last, we used Autodock vina version 1.1.2 to estimate their affinity to enzymes.

Result:
In the present study, the affinity of study ligands to the MMP9 enzyme was investigated by using docking analysis. N4, N6-Bis(4-fluoro-3-methylbenzyl) pyrimidine-4,6-dicarboxamide, Rebimastat, Marimastat, Doxycycline and 3-hydroxy pyran-4-one ligands had the affinity rating ΔG=-10.2, ΔG=-7.6, ΔG=-7.1, ΔG=-5.9 and ΔG=-5.1 respectively.

Conclusion:
N4,N6-Bis(4-fluoro-3-methylbenzyl) pyrimidine-4,6-dicarboxamide, Rebimastat and Marimastat compounds have the most affinity to the MMP9 enzyme. So, they may be used as lead compounds to use selective inhibitors of MMP9.

Keywords: MMP9, Rebimastat, Marimastat
Prediction of peptide ligands for inhibition of MMP9 enzyme

Naser kakavandi¹, Shima rezaie², Reza aramideh³, Dr. Mohammad najafi⁴

1. Department of clinical biochemistry school of medicine Iran university of medical sciences
2. Department of clinical biochemistry school of medicine Iran university of medical sciences
3. Department of virology school of medicine Iran university of medical sciences
4. Department of clinical biochemistry school of medicine Iran university of medical sciences

Background:

Matrix metalloproteinases (MMPs) are the enzymes that contain zinc and calcium ions as prosthetic groups. These enzymes are able to break down the proteins of extra cellular matrix. They have important roles in cellular behaviors, such as cell proliferation, differentiation, angiogenesis and apoptosis. MMPs are inhibited by internal inhibitors called TIMPs. Synthetic inhibitors contain chelating agents that are firmly attached to zinc atom in active site and make inhibit them. Our goal in this study is to compare the binding power of Batimastat and two predicted peptides from TIMP to the MMP9 enzyme.

Methods:

The chemical structures of MMP9 (PDBID: 1L6J) enzyme were obtained from PDB (www.RCSB.org/pdb). The structure was trimmed by Discovery Studio (ver-3.5). Furthermore, the chemical structure of Batimastat was obtained from KEGG, Drug databank. Two peptides (TCAP and ESLCG) were predicted from TIMP isoforms. The peptides and Batimastat were docked on the MMP9 by AutoDockTools (ver-1.5.7). The results were viewed with PyMol.

Results:

In this study, the affinity of Batimastat and peptide ligands to the MMP9 enzyme was investigated by using docking analysis. Batimastat, TCAP peptide and ESLCG peptide had the affinity rating $\Delta G = -7.8$, $\Delta G = -7.2$ and $\Delta G = -7.0$.

Conclusion:

According to the results, it can be concluded that the designed peptides can also act as enzyme inhibitors. So, with the use of bioinformatics and its facilities, compounds can be synthesized that are effective in inhibiting enzymes and treating diseases.

Keywords: Batimastat, TIMPs, MMPs
The salivary total phospholipid, zinc (Zn) and prostate-specific antigen (PSA) positively and significantly associated with the serum total phospholipid, Zn and PSA in prostate diseases

Jamal Amri1*, Heydar Farahani2, Kazem Ghaffari 3, Mohsen Hoseinkhani4
1. Department of Biochemistry and Genetic, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran. (Email: Jamal.amri71@gmail.com)
2. Department of Biochemistry and Genetic, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran.
3. Department of Laboratory Sciences, Faculty of Medicine, Khomein University of Medical Sciences, Arak, Iran.
4. Department general medical diagnostic lab, Mehr Laboratory, Arak, Iran.

Background: In recent years, the use of saliva as a specimen, due to its non-invasive and easy access increased. But their roles have not been confirmed yet. Therefore, our aim was to evaluate the correlation between salivary, serum total phospholipid, Zn and prostate-specific antigen (PSA) ratio in patients with prostate diseases.

Methods: This case control study included 20 prostate cancer (PCa) patients and 20 benign prostatic hyperplasia (BPH) patients. The total phospholipid and PSA levels and Zn levels in their saliva and serum were measured with the enzyme-linked immunosorbent assay and Biochemical kits, respectively. The derived data was compared using the Mann–Whitney U test. The correlation between salivary and serum total phospholipid, Zn and PSA was determined using Spearman’s correlation test.

Results: Significant differences were observed between the PCa and BPH groups in terms of the total phospholipid, Zn and PSA levels in the serum and saliva ($P < 0.001$). The correlation was positively and significantly between salivary and serum total phospholipid in PCa and BPH groups ($r = 0.853$, $P < 0.05$) and ($r = 0.626$, $P < 0.05$) respectively. The serum Zn in PCa ($r = 0.731$, $P < 0.05$) and BPH ($r = 0.710$, $P < 0.05$) groups was positive and statistically significant correlated with salivary Zn. As well as, the salivary PSA in the PCa ($r = 0.610$, $P < 0.05$) and BPH ($r = 0.531$, $P < 0.05$) groups was positively and significantly associated with the serum PSA in the two groups.

Conclusion: According to the results of the present study, the salivary total phospholipid, Zn and PSA can be used as an alternative to the serum total phospholipid, Zn and PSA for diagnosis and monitoring of prostate diseases.

Keywords: Total phospholipid; Zinc; Prostate-specific antigen (PSA); Saliva; Prostate diseases
The effect of curcumin on sensitivity of the non-small cell lung cancer (NSCLC) cells to ABT-737

Jamal Amri¹, Hadi Karami²*

1. Department of Biochemistry and Genetic, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran
2. Department of Biotechnology and Molecular and Medicine, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran

* Corresponding Author: Hadi Karami (Ph.D), Assistant Professor of Molecular Medicine, Department of Biotechnology and Molecular Medicine, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran. (h.karami@arakmu.ac.ir)

**Background:** Curcumin, a polyphenolic phytochemical, is a primary component of the dietary spice, turmeric that can suppresses the expression of Mcl-1, a member of anti-apoptotic Bcl-2 family proteins. Studies have shown that upregulation of Mcl-1 is responsible for resistance to apoptosis induced by ABT-737, the inhibitor of Bcl-2 protein. The aim of this study was to investigate if downregulation of Mcl-1 by curcumin would sensitize NSCLC cells to ABT-737.

**Methods:** The expression level of mRNA were measured by real-time quantitative PCR. Trypan blue assays were performed to evaluate tumor cell growth after treatments. The cytotoxic effects of curcumin and ABT-737, alone and in combination, were determined using MTT assay. Apoptosis was quantified using a DNA-histone ELISA assay.

**Results:** We found curcumin was markedly downregulated the expression of Mcl-1 and inhibited cancer cell proliferation. Moreover, MTT and apoptosis assays showed that curcumin significantly increased sensitivities of the lung cancer cells to ABT-737.

**Conclusion:** Our study demonstrated that downregulation of Mcl-1 curcumin can overcome the resistance of the lung cancer cells to ABT-737. Therefore, curcumin can use as an adjuvant in lung cancer therapy.

**Keywords:** Curcumin, Mcl-1, ABT-737, NSCLC, apoptosis
Pbi-090

Study association between serum levels of TNFα, Leptin, adiponectin, interleukin2, interleukin6 and coronary lesions in patients with high BMI and those with normal BMI.

Background:
Coronary artery disease is one of the major causes of death in the world. One of the risk factors is obesity, that plays a role in induction and progression of coronary artery disease. Two groups of obese patients (BMI>30) and normal (BMI<25) was studied.

Methods:
This case-control study was conducted between two groups of patients with BMI>30 and BMI>25. Both of them underwent coronary angiography. Serum levels of TNFα, Leptin, adiponectin, interleukin2 and interleukin6 by ELISA was measured. The demographic characteristic of patient were recorded. The data were analyzed by SPSS 19 and T test.

Results:
The mean Leptin and interleukin 6 serum levels were significantly different in two group. The interleukin 6

Levels in obese (BMI>30) was lower than control group (BMI>25), (P<0.001). The leptin levels in obese (BMI>30) higher than control group (P<0.001).

The TNFα, adiponectin and interleukin 2 levels in both groups showed no significant difference.

Conclusion:
According to the result of this study, leptin and interleukin 6 in patient with coronary disease increase and adiponectin levels in these patients decreased.

Thus, leptin, interleukin 6, interleukin 2 and adiponectin can serve as a diagnostic marker for assessing severity of coronary disease.

Keywords:
BMI, adiponectin leptin, interleukin 6, interleukin 2, Coronary artery.
Thymus vulgaris and levels of ANGPTL4 and LPL

Samad Akbarzadeh¹, Afshin Ostovar², Nooshin Angali³, Anahita Abbasifard⁴, Mostafa Chashmipoosh¹*

¹ Department of clinical Biochemistry, Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran.
² Department of Epidemiology, Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran.
³ GP Student of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran.
⁴ MSc Student of Biochemistry, Bushehr University of Medical Sciences, Bushehr, Iran.

Background: Hyperlipidemia is known as one of important risk factors for cardiovascular disease. Thyme is one of the oldest medicinal plants in world that is used mainly for medicinal aims. Since lipoprotein lipase (LPL) hydrolyzes triglycerides in lipoproteins such as chylomicrons and VLDL into free fatty acids and glycerol and angiopoietin-like protein (ANGPTL4) is a LPL regulator in various tissues under various conditions, the aim of this study is to examine effect of hydroalcoholic extract of thyme on serum levels of ANGPTL4 and LPL in hyperlipidemic rats.

Methods: This study is a case-control study, which was performed on 48 wistar male rats in weight range 180-250g and rats were divided into 6 groups under title becker control, fat control groups and 1, 2, 3 and 4 test groups. After induction of hypertriglyceridemia by fructose, high fat meal and triton, test groups (1, 2 and 3) were tested to gavage with thyme extract at dose 100, 200 and 300 mg/kg respectively and group 4 was tested to gavage with gemfibrozil at dose 10 mg/kg for 10 days. Blood samples were taken from all groups and sera were collected for measuring various parameters including LPL, ANGPTL4, lipid profiles, liver enzymes and CPK.

Results: Serum concentrations of cholesterol significantly decreased in test groups (200 and 300 mg/kg) and gemfibrozil groups compared to control group. However other factors such as lipoprotein lipase (LPL) and ANGPTL4 did not show a significant changes.

Conclusion: The use of thyme extract can be effective in lowering cholesterol levels and for more evaluating and describing is suggested use of thyme extract at higher doses and also for longer time to study the effect of this extract on lipid factors as well as factors such as Lipoprotein lipase (LPL) and ANGPTL4.

Keywords: Hyperlipidemia, Thyme extract, LPL and ANGPTL4.
Investigation of Cholesterol serum levels in individuals referred to Shafa zand medical Diagnostic Laboratory, Sirjan from March to May 2017

Fatemeh Biglari
Mohammadsadeg Razeghi

1. BSc. Student Research Committee, Sirjan Faculty of Medical Sciences, Kerman University of Medical Sciences, Kerman, Iran
2. MSc. Department of Laboratory Sciences, Sirjan Faculty of Medical Sciences, Kerman University of Medical Sciences, Kerman, Iran

Background and Aim: Results of previous randomized trials have shown that interventions that lower cholesterol concentrations can significantly reduce the incidence of coronary heart disease and other major vascular events in a wide range of individuals. But each separate trial has limited power to assess particular outcomes or particular categories of participant. The aim of this study was to assess the levels of cholesterol in individuals referred to Shafazand Medical Diagnostic Laboratory in Sirjan city-Kerman.

Methods: This retrospective cross sectional study was conducted on serum samples of individuals who were referred to Shafazand Medical Diagnostic Laboratory from March to May. 3003 of the individuals referred in two gender groups male (n=1981) and female (n=1022) were divided. Cholesterol was measured using Biochemical method in the serum samples of these people.

Results: Our results demonstrated that %84 of male and %75 of female of the whole population had normal level of cholesterol. %16 of male and %24 of female of the whole population had dangerous level of cholesterol.

Conclusion: It’s clear that dangerous and risky cholesterol levels in the men are less than in the women. The normal level of cholesterol was more in men than women.

Keywords: Cholesterol, Biochemistry, Investigation, Sirjan
The effect of Resveratrol on Perilipin 5 concentration in cardiac tissue, skeletal muscle and brown fat compared to Metformin, strength training and cold

Introduction: Obesity is associated with insulin resistance in skeletal muscle. The oxidation of lipid droplets depends on certain enzymes and proteins. One of these proteins is perilipin-5, which plays an important role in triglyceride hydrolysis at lipid droplets. In this study, this protein has been examined in mice in different conditions.

Method: 50 male mice were divided into 5 groups of 10. Group 1 was control and rest with Resveratrol, Metformin, strength training, and 4 degrees cold were treated for 45 days. Brown adipose tissue, gastrocnemius skeletal muscle, and isolated heart and RNA were extracted using Trizol and perilipin-5 gene expression was determined using Real Time PCR and amount of protein in the target tissues calculated via Western blot technique.

Results: In brown adipose tissue: Resveratrol reduced (p <0.05), and Metformin and strength training increased only in the gene expression of plin-5. In heart tissue, Resveratrol and high intensity strength training, decreased protein plin-5, but Metformin increased the protein (p <0.05). In skeletal muscle tissue: Resveratrol, strength training, cold and Metformin increased plin-5 gene expression (p <0.05).

Conclusion: Reducing Perilipin 5 in brown adipose tissue, Resveratrol has a greater effect in comparison with strength training and cold in decreasing lipid deposits of the tissue and thus can play a better role in overcoming obesity. In the heart tissue, it prevents steatosis and hypertrophy in heart, and probably decreases insulin resistance in skeletal muscle due to increased expression of plin-5 in skeletal muscle.

Keywords: Resveratrol, Metformin, Strength Training, Cold, Perilipin 5
Pbi-096

The Prevalence of Metabolic Syndrom in Air Guard Forces of Iran Army
Reza maleki1, Mostafa mostafazadeh1, Hossein nazary sharif2, Soheil rahim nejad3, Sattar Gorgani-Firuzjaee4*
1Department of Laboratory Science, Faculty of Paramedicine. AJA University of Medical Science, Tehran, Iran
2Department of Corrective Exercise and Sport Injury, Faculty of Physical Education, University of Guilan, Iran
3General Practionaire, Clinic air guard of AJA, Tehran, Iran
4Department of Laboratory Science, Faculty of Paramedicine. AJA University of Medical Science, Tehran, Iran

Background: By progression of sedentary life style in societies, increased obesity related metabolic disorders such as metabolic syndrome, insulin resistance and diabetes. Metabolic syndrome as a precursor of other chronic diseases targeted for special consideration as a worldwide public health challenge. Metabolic syndrome accompanied with a collection of risk factors like abdominal obesity, glucose, triglycerides levels, blood pressure and HDL deficiency. Etiology of metabolic syndrome is a complex and that is caused by the interaction of genetic and environmental factors. Due to lack of studies on military personnel, this study, investigated prevalence of metabolic syndrome in four age group among air guard personnel.

Methods: This cross-sectional study was conducted in 2015. During the study, Fasting glucose levels, blood lipids, weight, height, body mass index, waist circumference and blood pressure were measured between 1, 000 air guard officers that referred to annual health monitoring program. Then, the prevalence of metabolic syndrome was assayed with two International Diabetes Federation (IDF) and Adult Treatment Panel III (ATPIII) criteria.

Results: The data show that 12 participants (1.2%) were under high blood pressure, and 56 (6.5%) were at risk for high blood pressure. Due to High levels of body mass index and waist circumference, 5 (0.5%) of officers were at risk of diabetes. Abnormal triglycerides and cholesterol were measured in 411 (41.1%) and 100 (10%) participants respectively. Serum HDL levels, body mass index and waist circumference was determined, and the results show that in 110 cases (11%) and 29 (9.2%) 110 (11%) respectively positive to metabolic syndrome risk. Finally, according to IDF criteria, 44 patients (4.4%) and ATPIII criteria, 32 cases (3.2 %) were identified as metabolic syndrome

Conclusion: Despite the relatively high prevalence of metabolic syndrome in our country, The results show that incidence of metabolic syndrome risk factors among the officers of air guard is in low levels which may related to, military lifestyle. Due to the link between metabolic syndrome and other complications, the three golden orders: increased physical activity, weight control, and diet are suggested for prevention. A comprehensive program to train susceptible cases and treatment strategies is recommended.

Keywords: Metabolic syndrom, Triglycerider, Diabet, Obesity.
Circulating betatrophin is correlates with lipid profile in patients with Type 2 Diabetes

Hassan Ghasemi¹, Heidar Tavilani², Iraj Khodadadi², Massoud Saidijam³, Jamshid Karimi² *

1. Abadan School of Medical Sciences, Abadan, Iran
2. Department of Biochemistry, School of Medicine, Hamadan University of Medical Sciences
3. Research Center for Molecular Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

*Corresponding Address: Jamshid Karimi, Department of Biochemistry, School of Medicine, Hamadan University of Medical Sciences, Hamadan, TEL: +98 8138276293/4, E-mail: jamshidkarimi2013@gmail.com

Background: Betatrophin is a newly characterized circulating hormone that is produced in tissues such as adipose tissue and liver and stimulates pancreatic beta-cell proliferation. The purpose of the current study was to examine circulating betatrophin levels in Iranian patients with type 2 diabetes mellitus (T2DM) and in normal controls.

Methods: Seventy-five subjects were enrolled in this case-control study in the following two groups: T2DM patients (n=40) and a group of age-, sex-, and BMI-matched normal control subjects (n=35). Circulating betatrophin concentrations as well as the blood lipid profile, body mass index (BMI), fasting blood sugar (FBS), glycated hemoglobin (HbA1c), and insulin resistance were determined.

Results: Circulating betatrophin levels were significantly higher in patients with T2DM than in the normal subjects (4.79±1.53 ng/mL vs. 2.79±1.11 ng/mL respectively; p=0.001). Serum triacylglycerol and total cholesterol were also significantly higher in patients with T2DM than in the control group. In the patients with T2DM, serum betatrophin was positively correlated with age, FBS, TG, total cholesterol, and HbA1c.

Conclusion: The results of this initial study in Iran have shown that circulating betatrophin levels are significantly increased in Iranian patients with T2DM compared with a control group. Additionally, it is postulated that betatrophin as a novel hormone may be involved in the generation of an atherogenic lipid profile.

Keywords: Betatrophin; Type 2 diabetes mellitus; Insulin resistance; Lipid profile.
Effects of short term resveratrol supplementation on thyroid function in type 2 diabetic patients

Fatemeh Dehghani, Mohamadreza Kalantar Hormozi, Iraj Nabipour, Najmeh Hajian, Rahimeh Rahimi and Ali Movahed*

1 Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
2 Department of Internal medicine, Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
3 Department of Internal Medicine, The Persian Gulf Tropical Medicine Research Center, Bushehr University of Medical Sciences, Bushehr, IRAN
4 Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
5 Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
6 Department of Biochemistry, The Persian Gulf Tropical Medicine Research Center, Bushehr University of Medical Sciences, Bushehr, IRAN

Background: Resveratrol is one of the most effective natural polyphenolic compounds which are synthesized by plants and beneficial effects of this drug on glycemic control have been reported. Considering the prevalence of thyroid disorders in diabetic patients and the effect of resveratrol on metabolic pathway through Sirtuin1 receptors and its ability to change Iodine absorption in thyroid gland, it is suspected that this drug might influence thyroid function and also goitrogenic effects are probable.

Methods: This study included 50 subjects of Movahed et al study with type II diabetes enrolled in two intervention and control groups. Patients received 500 mg resveratrol capsules twice a day for 45 days and subjects in the control group received equivalent placebo capsules. Thyroid function tests including T3, T4, TSH and T3RU and Anti TPO were checked just before the study and after 45 days.

Results: Regarding past history and clinical and biochemical parameters including BMI, blood pressure and glycemic control, there was almost no significant difference between two groups. Anti TPO levels between the two groups had no significant changes during this study. Finally a comparison of the changes between two groups using Mann-Whitney U test was done that concluded only changes of T4 levels between the two groups during the course of the study was significant.

Conclusion: In the present study changes in thyroid hormone levels were not significant between the two groups, except for the increase in T4 levels. However, this increase was observed in the control group also, so, this could rule out the effect of resveratrol. We can conclude that, taking resveratrol 1 gr a day for 45 days as an additive blood glucose lowering treatment in type II diabetic patients will not cause goitrogenic effects. Further studies on resveratrol effects on thyroid function in humans with different doses and durations are suggested. Moreover, studies on subjects with known thyroid disease with existing underlying pathology are suggested to better understand this drug effects on thyroid function.

Key words: Resveratrol, Type II diabetes, thyroid function

Iranian Registry of Clinical Trials: IRCT201111198129N1
Comparison of serum vitamin A levels in patient with proliferative and non proliferative diabetic retinopathy

Hadi rostamkhani¹, Jalal Hejazi², Ali Awsat mellati¹, Ehsan nouri¹, Niloufar gharedaghi³

¹.Metabolic Disease Research Center and Department of Clinical Biochemistry, Zanjan University of Medical Sciences, Zanjan, Iran.

².Metabolic Disease Research Center and Department of Nutrition, Zanjan University of Medical Sciences, Zanjan, Iran.

³. Metabolic Disease Research Center and School of Health, Zanjan University of Medical Sciences, Zanjan, Iran.

Background: Diabetic retinopathy is well-known as the most common microvascular complication of diabetes mellitus. Vitamin A plays an important role in biochemical mechanism of vision. Our main objective was to investigate the biochemical correlation between serum vitamin A and degree of diabetic retinopathy.

Methods: 24 diabetic patients with retinopathy were included in the present study and divided into two groups of 12 proliferative (PDR), and non-proliferative (NPDR) patients. After 12 hours of fasting, blood samples were collected from all patients and biochemical variables including glucose, triglyceride, cholesterol, high and low density lipoproteins (HDL & LDL) and vitamin A were measured. Statistical analysis was performed by SPSS 22 using ANOVA and Tukeys post hoc tests with a significance level of 5%.

Results: Serum vitamin A in PDR group (32.73 ±7.84 µg/dl) was lower than NPDR patients (39.09 ±12.2 µg/dl). Deficiency of the tested vitamin A was observed significantly more frequently among PDR patients. Also, there was correlation between low serum vitamin A levels and some indicators of diabetic disorders.

Conclusion: Vitamin A is listed among non enzymatic mechanisms contracting oxygen species, which induce oxidative stress, that is one of the incidence of diabet. Thus, probably decreased serum vitamin A level can contribute to the development of diabetic retinopathy.

Keywords: Lipid Profile, Diabetic Retinopathy, Vitamin A
Study of relation between Klotho Polymorphisms and IGF-1 Levels for Colorectal Cancer risks in Northern Iran

Omid Goodarzvand**, Monireh Aghjani-nasab***, Fariborz Mansour-Ghenaee****, Aboalfazl Nazarian♦*

*Clinical Biochemistry Department, Zanjan University of Medical Sciences, Zanjan-Iran
** Clinical Biochemistry Department, Zanjan University of Medical Sciences, Zanjan-Iran
***Biochemistry and Biophysics Department, Guilan University of Medical Sciences, Rash-Iran
****Internal Medicine Department, Guilan University of Medical Sciences, Rash-Iran
♦Corresponding Author

Aboalfazl Nazarian, Ph .D
Clinical Biochemistry Department, Medical School ,
Mahdavi Avenue, End ofSharakekarmandan, Zanjan, Iran
Email: nazarian@zums.ac.ir

Background: Klotho gene G-395A and C1818T polymorphisms may correlate with colorectal cancer prevalence. This study evaluates the relationship between a Klotho single nucleotide polymorphism and IGF-1 with risk of colorectal cancer.

Methods: 60 colorectal cancer patients and 60 age-matched healthy controls were studied from North of Iran . Patients admitted under supervision of a gastro intestinal specialist and according ethics right. G-395A and C1818T polymorphisms were extracted with polymerase chain reaction technology. IGF-1 and certain biochemistry markers were analyzed. Statistics was applied to compare appropriate correlation.

Results: Allele partitions for G395A and C1818T were different. Odds ratio were applied to analyze the association between haplotypes and colorectal cancer risk. The AA (odds ratio: 1.437, 95% confidence interval: 0.596) and GA (odds ratio: 1.958, 95% confidence interval: 1.133-3.385) allotypes of the G-395A polymorphisms showed a low relation with the risk of colorectal cancer. The A allele had a much higher frequency in the case group (31.2%) compared with the control group (17.6%). There was no significant relationship with the C1818T polymorphism between the case and control groups.

Conclusion: Klotho gene polymorphisms (G-395A & C1818T) did not significantly show the risk of colorectal cancer. Thus, Klotho might not have a correlation with IGF-1.

Keywords: Klotho polymorphisms, IGF-1, Colorectal cancer
Pbi-107

The visceral fat as a plausible linker between NAFLD and insulin resistance

Naghmeh Jannat Alipour¹, Solaleh Emamgholipour¹, Hossein Poustchi²

1. Department of Clinical Biochemistry, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran.
2. Liver and Pancreatobiliary Diseases Research Center, Digestive Diseases Research Institute, Tehran University of Medical Sciences, Tehran, Iran

Background:

It is well-established that nonalcoholic fatty liver disease (NAFLD) and type 2 diabetes (T2DM) are linked to obesity. Visceral fat is strongly associated with metabolic parameters involved in NAFLD and T2DM. This study aimed to investigate the correlation of visceral fat as an ectopic fat accumulation with several biochemical and metabolic parameters in context of NAFLD and T2DM.

Methods:

A total of 64 subjects (all men) aged between 43 and 72 years were recruited in this study. Participants were healthy controls (n=20), NAFLD patients (n=22) and T2DM patients (n=22) and were selected among individuals who attended the outpatient clinic of Shariati Hospital, Tehran, Iran. Venous blood was collected following an overnight fasting and measurement of metabolic markers, CBC, WHR and anthropometric assessment was performed. Visceral fat was evaluated by ultrasonography.

Results:

In NAFLD group, visceral fat was correlated with WHR (r=0.474; p=0.02) and MCV (r=0.458; p=0.032). In addition, we found a positive correlation between visceral fat and WHR (r=0.581; p=0.005) and RBC counts (r=0.477; p=0.025) in T2DM. In controls, there were significant positive correlations between visceral fat and WHR (r=0.597; p=0.005), insulin (r=0.479; p=0.032) and HOMAIR (r=0.451; p=0.053).

Conclusions:

It seems that increased adiposity is associated to NAFLD and T2DM. However, there is a need for future work examining the correlation of visceral fat and HOMAIR involved in the pathogenesis of NAFLD and T2DM.

Keywords:

Type 2 diabetes mellitus, Nonalcoholic fatty liver disease, insulin, obesity
Pbi-108

Effect of resveratrol on serum levels of adiponectin and leptin in type 2 diabetic patients in Bushehr

Ameneh Gorgin¹, Niloofar Motamed², Iraj Nabipour³, Mostafa Chashmpoosh⁴, Najmeh Hajian⁴, Rahimeh Rahimi⁵ and Ali Movahed ⁵⁺

¹ GP Student of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
² Department of Community Medicine, Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
³ Department of Internal Medicine, The Persian Gulf Tropical Medicine Research Center, Bushehr University of Medical Sciences, Bushehr, Iran
⁴ Department of Clinical Biochemistry, Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
⁵ Department of Clinical Biochemistry, The Persian Gulf Tropical Medicine Research Center, Bushehr University of Medical Sciences, Bushehr, Iran

Background: Resveratrol is one of effective natural polyphenolic compounds that is synthesized by plants. Disruption in production or release of adipokines such as adiponectin, visfatin, resistin, and leptin play a role in pathophysiology of type 2 diabetes. Because of that changes in adipokines has direct effect on diabetes and on the other hand resveratrol regulates production and secretion of adipokines, the purpose of this study was to investigate effect of resveratrol on levels of adiponectin and leptin in type 2 diabetic patients and role of resveratrol in reducing insulin resistance through adipokines.

Methods: This study was designed as a randomized and double-blind clinical trial on 51 type 2 diabetic patients referred to endocrinology clinic of the Persian Gulf Tropical Medicine Research Center in Bushehr. Patients in intervention group received 500 mg capsules of resveratrol (1g/day) twice in day for 45 days and control group received similar placebo capsules twice in day for 45 days. At the beginning of study blood pressure, BMI, lipid profile, blood levels of adiponectin and leptin and liver function tests were evaluated and also these factors were analyzed after completing 45-day period.

Results: The results of this study indicates that oral administration of resveratrol (500mg and twice in day) for 45 days in type 2 diabetic patients not have an effect on blood levels of adiponectin and leptin. However, using Mann-Whitney test there was a significant difference between control and intervention groups in leptin blood levels (p= 0.025). This means that level of leptin in intervention group was higher than control group.

Conclusion: The result of this project suggests that resveratrol has no effect on concentration of adiponectin and leptin in diabetes patients. But it may be because of size of samples or drugs used to normalize and control diabetes disease from before study.

Keywords: Resveratrol, Leptin, Adiponectin, Type 2 diabetes

Iranian Registry of Clinical Trials: IRCT201111198129N1
Whether the dissociation between toxicity and α-synuclein inclusion will be a possible therapy for Parkinson’s disease or not?

Reyhane Ebrahimi¹, Soheila Sobhani²,³, Maryam Abbastabar¹

¹. Department of Clinical Biochemistry, Faculty of Medicine, Tehran University of Medical Sciences, Tehran, Iran.
². Students’ Scientific Research Center, Tehran University of Medical Sciences, Tehran, Iran.
³. Basir Eye Health Research Center, Tehran, Iran.

Background:

The abnormal accumulation of α-Synuclein inclusions in a prion-like manner is a hallmark of Parkinson’s disease. This research supported the interplay between environmental factors, such as exposure to metals and genetic factors in affecting α-synuclein aggregation, regarding the dissociation with cytotoxicity process.

Methods:

This study used an established cell model of α-synuclein aggregation in human H4 neuroglioma cells and supplemented it with CuCl₂ 24h after transfection with plasmids encoding for α-synuclein mutants (including WT and H50Q) and incubated it for 24h.

Results:

There was a specific increase in α-synuclein aggregation only with combination of H50Q α-synuclein and Cu²⁺ that was not associated with an increase in the expression of the H50Q mutant, suggesting the H50-dependent aSyn-Cu²⁺ complex formation. 1- Anilinonaphthalene-8-sulfonic acid binding assay suggested that Cu²⁺ increased the exposure of hydrophobic surfaces in the resulting aggregates. Using NMR spectroscopy affirmed the reduced seeding activity in the recipient cell and furthermore reduced toxicity to neuronal cells in α-synuclein aggregations formed in presence of Cu²⁺. Mostly oligomer α-synuclein species may exert toxicity from the outside without the need to enter the recipient cell. In addition, the H50Q+Cu²⁺ and WT+Cu²⁺ with promoting larger inclusion were less-damaging confirming the inverse correlation between seeding and damaging capacity.

Conclusion:

This study supports the hypothesis that aggregation of protein is not a primary cause of cytotoxicity and there is a dissociation between cytotoxicity and intracellular aggregation, forming the basis for future therapeutic strategies.

Keywords: Parkinson’s disease, α-Synuclein, Cytotoxicity
Evaluation of effect of N-Acetylcysteine on free radicals mediated injuries during coronary artery bypass grafting surgery with regard to blood concentration of melon dedehyde

Navid Askari¹, Niloofar Motamed², Mostafa Chashmpoosh³, Najmeh Hajian³, Rahimeh Rahimi³ and Ali Movahed ⁴*

¹ GP Student of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
² Department of Community Medicine, Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
³ Department of clinical Biochemistry, Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
⁴ Department of clinical Biochemistry, The Persian Gulf Tropical Medicine Research Center, Bushehr University of Medical Sciences, Bushehr, Iran

Background: The cutting off blood flow to the heart muscle during coronary artery bypass grafting surgery usually leads to a lot of problems that it is an important factor in postoperative complications. The production of free radicals during operation, especially at the onset of blood re-flow is known as source of these injuries. Since various agents and drugs such as N-acetylcysteine are involved in reducing these complications and N-acetylcysteine can be considered as an antioxidant to reduce complications of cardiovascular bypass surgery, the purpose of this study was to evaluation of effect of N-acetylcysteine on reducing damages caused by activity of free radicals during coronary artery bypass grafting surgery with regard to blood concentration of melon dealdehyde.

Methods: This study was designed as a randomized and double-blind clinical trial on 58 patients under elective cardiovascular bypass. Patients were divided into two groups that test group received N-acetylcysteine and control group received placebo. Biochemical factors were monitored for 24 hours in 6 stages.

Results: The blood melon dealdehyde levels between the two groups before intervention showed significant difference, after adjustments of melon dealdehyde effect before intervention, mean changes has still a significant difference between two groups during study (p= 0.001). In other words, melon dealdehyde changes are different in the two groups so that in control group increased and in test group reduced.

Conclusion: The result of this study suggests that using N-acetylcysteine can reduce damages caused by oxidative stress in cardiovascular coronary artery bypass surgery and reduces complications of reperfusion / ischemia.

Keywords: N-acetylcysteine, anti-oxidant, melon dealdehyde, oxidative stress, cardiovascular coronary artery bypass graft (CABG)

Iranian Registry of Clinical Trials: IRCT201304178129N3
Correlation of serum biochemical parameters in patient with chronic liver disease

Sina Mohagheghi¹, Zohreh Khajehahmadi¹, Heidar Tayebinia²,

¹. Student Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
². Department of Biochemistry, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

Background: Chronic liver injury disturbs the normal wound healing, resulting in cirrhosis. The occurrence of fibrosis in chronic liver disease (CLD) presents a vast unpleasant clinical challenge. Chronic liver damage can be triggered by different mechanisms such as viral hepatitis, metabolic liver diseases, or chronic alcohol consumption. Our aim was to evaluate the biochemical findings of patients with non-alcoholic steatohepatitis-, alcoholic liver disease-, viral hepatitis-, autoimmune hepatitis- and primary sclerosing cholangitis- related liver cirrhosis.

Methods: Forty-six serum specimens were collected from patients with liver cirrhosis in Namazi Hospital, Shiraz, Iran. Cirrhosis was histologically proven. Serum biochemical parameters were measured in patients with NASH-, ALD-, PSC-, AIH- and hepatitis-related cirrhosis using spectrophotometry and the patient's MELD score was calculated.

Results: Serum Creatinine, total bilirubin and direct bilirubin levels were remarkably different between all groups and the differences were significant (P=0.004, P=0.000 and P=0.000, respectively). Also there were statistically significant differences in the MELD score of cirrhotic groups (P=0.016). But the serum AST, ALT, BS and Albumin levels did not have significant different between all cirrhotic groups (P>0.05).

Conclusion: The results of the present study indicate that some serum biochemical parameters are different between in patient with the chronic liver disease and it may be related to the mechanism of the progression of liver injury toward cirrhosis.

Keywords: Cirrhosis, Non-alcoholic Fatty Liver Disease, Liver Disease, Liver Diseases, Alcoholic
Correlation of serum biochemical parameters with Computed tomography findings in cirrhotic patients

Zohreh Khajehahmadi¹, Sina Mohagheghi¹, Heidar Tayebinia²,

¹. Student Research Center, Hamadan University of Medical Sciences, Hamadan, Iran
². Department of Biochemistry, Faculty of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

Background: Liver fibrosis is an excessive repair response to chronic liver disease (CLD). Cirrhosis is most commonly caused by alcohol, hepatitis B, hepatitis C, and non-alcoholic fatty liver disease. Computed tomography (CT) and the laboratory testing are the noninvasive diagnosis of liver fibrosis. Our aim was to evaluate the alkaline phosphatase (ALP) activity and it's correlation with the gall bladder wall thickness in computed tomography (CT) findings of patients with the cirrhotic liver.

Methods: Serum specimens were collected from 46 patients which includes non-alcoholic steatohepatitis-, alcoholic liver disease-, viral hepatitis-, autoimmune hepatitis- and primary sclerosing cholangitis- related liver cirrhosis in Namazi Hospital, Shiraz, Iran. Abdominal CT scans findings of patients were reviewed. Serum ALP activities were measured using spectrophotometry. The ALP activities were correlated and evaluated with the gall bladder wall thickness data.

Results: There were statistically significant differences in serum ALP activities between the all cirrhotic groups (P=0.044). CT scan data analysis did not show any significant differences in terms of gall bladder wall thickness in patients. Also the ALP levels were not correlated with the gall bladder wall thickness.

Conclusion: The results of the present study indicate that serum ALP levels have differences between cirrhotic patients but not correlated with the gall bladder wall thickness of patients with the cirrhotic liver.

Keywords: Cirrhosis, alkaline phosphatase, wall thickness
Antifertility effects of Dill in high cholesterol fed rats

Ebrahim Abbasi Oshaghi¹, Iraj Khodadadi¹, Mohammad Taghi Goodarzi¹, Hydar Tayebinia¹, Fatemeh Mirzaei², Tayebeh Ghiasvand¹

¹Department of Biochemistry, Medical School, Hamadan University of Medical Sciences, Hamadan, Iran
²Student Research Committee, Kermanshah University of Medical sciences, Kermanshah, Iran

Background: Dill is a traditional herbal medicine used as a hypocholesterolemic agent in Iran. However the effect of this medicine on male fertility is unknown. Hence, the aim of this study was to assess male fertility markers, testosterone, and testis histology in hypercholesteromic and normal rats.

Method: In this experimental study rats were divided into 6 groups as following; group 1: chow diet, 2: chow diet +2% cholesterol +0.5% cholic acid, group 3: high cholesterol diet + hydroalcoholic extract of Dill (300 mg/kg), group 4: high cholesterol diet + Dill tablet (300 mg/kg), group 5: chow diet + hydroalcoholic extract of Dill (300 mg/kg), and group 6: chow diet + Dill tablet (300 mg/kg). After treatment the animals were sacrificed and sperm profile and oxidative stress were determined. Some components of Dill were determined by HPLC. The histopathology of testis was evaluated.

Results: Total antioxidant, sperm profiles in high cholesterol fed animals rats significantly reduced (p<0.05) and MDA levels was significantly increased in high cholesterol fed rats compared with normal rats (p<0.05). Administration of Dill decreased MDA levels and augmented TAC in high cholesterol fed rats (ratsp<0.05). The treatment of high cholesterol fed animals rats with Dill did not change the rate of sperm profiles. However, testosterone level was reduced in Dill treated animals. Histological results showed significant changes in the high cholesterol fed animals rats, while treatment with Dill significantly normalized these changes.

Conclusion: Administration of Dill normalized oxidative stress and histological changes in the testis of high cholesterol fed animals rats. It can be concluded that Dill had not harmful effect on sperm profiles.

Keywords: Dill, cholesterol, rat, antioxidant
Pbi-114

Cisplatin attenuates the antioxidant power of human serum and induces carbonyl groupsto serum proteins.

Hadi Ansarihadipour, Saeid Karbalaee.

Department of Biochemistry and Genetics. Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran.

Presenting Author: Hadi Ansarihadipour, E.mail: hadyansary@yahoo.com

Background: Cisplatin induces oxidative changes in biomolecules. The main aim of our study was to determine the oxidative status of human serum after exposure to cisplatin.

Methods: Blood samples were taken from healthy volunteers. Antioxidant power was estimated according to FRAP assay (ferric reducing ability of plasma) with TPTZ as chromogene reagent. Protein oxidation was assayed by measuring carbonyl groups with 2, 4 dinitrophenyl hydrazine reagent. The results were expressed by statistical parameters, average and standard deviation. Comparison of groups were done by t-test and ANOVA by SPSS software.

Findings: Cisplatin decreased the FRAP values from (942±37) in control group to (796±9) in test group (cisplatin 5 mg/ml, p<0.05). The carbonyl content of serum proteins was significantly increased from 5.68±0.19 to 4.21±0.46 nanomole per mg of proteins (p<0.05). Also there was a negative correlation between antioxidant power of serum and protein carbonylation.

Conclusion: Our findings showed that cisplatin can reduce the antioxidant ability of human serum which subsequently results in protein oxidation.

Keywords: Antioxidant power, Carbonyl groups, Cisplatin, Oxidative status.
G protein coupled receptors and atherosclerosis

Masoumeh zamanpour¹, faezeh seif², hossein babaahmadi rezaei³

1. Department of biochemistry School of medicine, jundishapur University of medical sciences, ahwaz, iran
2. Department of biochemistry School of medicine jundishapur University of medical sciences, ahwaz, iran
3. Atherosclerosis research center, Department of biochemistry, faculty of medicine, jundishapur University of medical sciences, Ahwaz, Iran

G protein coupled receptors (GPCRs) are one of the most critical therapeutic target to prevent the progression of atherosclerosis. The G protein coupled receptor agonist such as endothelin-1 and thrombin can transactivate protein tyrosine kinase receptors (PTKR) and serine/threonine kinase receptors (S/TKR). Studies have shown that GPCR agonists through EGFR and TGFR receptors leads to activation of pathways including transcription factor SMAD2/3 which ultimately increased the expression of the glycosaminoglycan synthesizing enzymes such as enzymes chondroitin 4-o-sulfurtransferase1 (C4ST-1) and chondroitin sulfate synthase 1(Chsy-1). Glycosaminoglycan synthesizing enzymes (Chsy-1 , C4ST-1) involved in the elongation of glycosaminoglycan chain in subendothelial space and subsequently increased retention of LDL and developed formation of atherosclerotic plaque. More understanding of GPCR signaling is necessary to help diagnose the course of the disease and finding the appropriate therapeutics.

Keywords: GPCR, atherosclerosis, transactivation
Pbi-118

Investigating the correlation between NPC1 gene expression among patients with atherosclerosis and control group

فاطمه زالی

Atherosclerosis is the most common cause of cardiovascular disease (CVD). Disturbing of total cholesterol (TC) homeostasis is important in the foam cell formation and the hydrolysis of cholesterol ester (CE) to free cholesterol (FC) in lysosome is the rate-limiting step in the cholesterol efflux and cholesterol homeostasis. Recent studies showed that atherosclerosis is a lysosomal storage disease (LSD) that lysosomal proteins such as NPC1 which involved in removal of cholesterol from lysosome are important in the cholesterol homeostasis and formation of HDL-C. Anti-inflammatory cytokine such as IL-10 are important in atherosclerosis, therefore in this study, we investigate the correlation between IL-10 serum level with gene expression of NPC1 in PBMCs of atherosclerotic patients and control group.

Methods: The expression level of NPC1 in PBMCs were examined in male atherosclerotic patients (n=40) and control group (n=40) aged>50 years using real-time PCR and ELISA respectively.

Results: NPC1 gene expression (p=0.001) levels were significantly lower in patients group compared to control group. Serum HDL-C was significant positive correlated with NPC1 gene expression in patient groups (p=0.04, r= 0.41).

Conclusion: we sugest that Reducted gene expression of NPC1 may be involved in the pathogenesis of atherosclerosis and HDL-C may be affected by NPC1 gene expression.

Key words: atherosclerosis, lysosome, NPC1,
A comparison of qualitative method of urine proteins measurement with turbidimetric assay

Abolfazl Omidifar1, Mehrzad Nahid2, Seyed mohammad masoodian1,2, Majid Khoshmirsa2, Mahdi Ebrahimi2

1. Student Research Committee, Department and Faculty of paramedical sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran- abol711371@gmail.com.
2. Department of Clinical Chemistry, Massoud Medical Laboratory, Tehran, Iran

Background: clinical laboratories have a pivotal role in diagnostic of wide spectrum of diseases and are required to monitor response to treatment. It is critical for medical laboratories to establish an accurate and reliable method for screening of markers, proteins, and other diagnostic molecules and specific cut off values for them. Protein screening in human urine serves as a substantial tool in the diagnosis of renal diseases. Accordingly, there are several methods for measurement of urine protein such as dipstick test, trichloroacetic acid (TCA), sulfosalicylic acid (SSA), and pyrogallol red-molybdate (PRM). Among them, dipstick test is a qualitative assay and turbidimetric methods is based on precipitation of urine proteins. The aim of this study was to examine the correlation of qualitative results with turbidimetric assay (cobas 6000 automated analyzer) in the random urine of persons who referred to Masood medical laboratory.

Methods: Fresh urine specimens of 98 patients collected from the Masood medical laboratory, without preservatives covering a wide range of protein concentrations (urine dipstick: trace, 1+, 2+ and ≥3+) were randomly taken for analysis of total protein. Urine protein was measured by precipitating reagent (turbidimetric assay), with utilizing automated analyzer (cobas 6000).

Results: The turbidimetric assay showed significant linear regression with qualitative method (P value <0.001, r = 0.58). In addition, the negative total protein result in qualitative method (Median (min-max)) measured 10.38 (3.48-54.46) mg/mL in turbidimetric assay.

Conclusion: In this study, the turbidimetric method (cobas 6000 automated analyzer) was compared with dipstick method for the analysis of total proteins in human urine samples. The results showed that turbidimetric method had good integrity with qualitative assay. dipstick test had relative bias compared to turbidimetric assay.

Key words: qualitative method, urine protein, turbidimetric assay, cobas 6000
Comparison of qualitative urine protein dipstick test with Trichloroacetic acid precipitation assay

Seyed mohammad masoodian\textsuperscript{1,2*}, Mehrzad Nahid\textsuperscript{2}, Majid Khoshmirsa\textsuperscript{a}, Mahdi Ebrahimi\textsuperscript{2}, Abolfazl Omidifar\textsuperscript{1}

1. Student Research Committee, Department and Faculty of paramedical sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran - m.masoodian@sbmu.ac.ir
2. Department of Clinical Chemistry, Massoud Medical Laboratory, Tehran, Iran

Introduction: Quantification of urinary protein excretion is important for diagnostic and prognostic purposes and thus crucial to conduct the best treatment. The most commonly used methods to measure urinary protein samples are time-consuming and often imprecise. This study was aimed at comparing the correlation of urinary protein dipstick with Trichloroacetic acid (TCA) precipitation method.

Methods: This study was conducted on 98 samples. After 12-hours fasting, Urine samples were collected. Qualitative urinary protein was measured by dipstick test and quantitative urinary protein was detected by Trichloroacetic acid precipitation assay.

Results: The TCA assay showed significant linear regression with qualitative method (P value <0.001, r = 0.65). In addition, the negative total protein result in qualitative method (Median=34.00 (2-82)) measured 3.4 (0.63-58.1) mg/mL in TCA assay.

Conclusion: we found that determination of urinary protein by TCA method is more reliable and accurate than dipstick test. Although urine dipstick test in comparison with TCA showed more false positive and false negative results, it exhibited correlation with TCA method, in which was significantly associated with TSA outcomes. We also concluded that TCA assay is valid screening method for identification of proteinuria for implementation in medical laboratory.

Keywords: urinary protein, Trichloroacetic acid, dipstick test
Assessment of protein prenylation pathway in multiple sclerosis patients

Mohammadreza Safari¹, Mohammad Taheri²*

¹. Laboratory Medicine Department, Hamadan University of Medical Sciences, Hamadan, Iran.
². Department of Medical Genetics, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Multiple sclerosis (MS) is a chronic inflammatory disorder with several genetic and environmental factors being implicated in its pathogenesis. Protein prenylation as one of the important posttranslational modifications of proteins has crucial role in immune system regulation. In the current case–control study we compared expression of five genes coding for the different subunits of proteins implicated in protein prenylation in 50 Iranian MS patients with those of healthy subjects. No significant difference has been found in FNTA and PGGT1B expressions between cases and controls. Spearman Correlation analysis between FNTA relative expression and disease duration showed significant correlation in male patients (r=-0.671, P=0.024) but not female patients (r=0.253, P=0.12). FNTB expression was significantly higher in MS patients compared with healthy subjects. Spearman Correlation analysis between FNTB relative expression and disease duration showed significant correlation in male patients (r=-0.876, P=0.004) but not female patients (r=0.296, P=0.06). RABGGTA was significantly up-regulated in total MS patients, total male patients, female patients aged between 30 and 40 and male patients aged >40 compared with corresponding control groups. RABGGTB was significantly down-regulated in total MS patients, total female patients and female patients aged >40 compared with corresponding control groups. Totally, we demonstrated dysregulation of protein prenylation pathway in MS patients compared with healthy subjects. Future studies are needed to find the clinical implication of this pathway in MS patients.

Key words: multiple sclerosis, FNTA, FNTB, PGGT1B, RABGGTA, RABGGTB, prenylation
Transdifferentiation of Adipose Tissue-Derived Stem Cells into GABAergic-like neurons using appropriate inducers

Shahram Darabi(Ph.D)1*, Farzad Rajaei(Ph.D)1
1 Cellular and Molecular Research Center, Qazvin University of Medical Science, Qazvin, Iran.

Background: While deficit of inhibitory GABAergic neurons as a part of Central Nervous System (CNS) was reported in neurodegenerative disorders, Adipose derived stem Cells (ADSCs) was shown to be a feasible option for transdifferentiation as a transplant in cell therapy in neuronal disorders. In this article, ADSCs transdifferentiated into GABAergic-like Neurons (GLNs)

Methods: Under sterile conditions ADSCs were obtained from pararenal fat of 2 male adult rats. Following third passages of cell culture, ADSCs were preinduced into Neural-Like Cells (NLCs) using 1mM β-mercaptoethanol (βME) and 10µM retinoic acid (RA), and then NLCs were induced by creatine(Cr) in 1, 5, 10, 20 millimolar for 5 days. In induction stage, the effects of creatine on differentiation were studied by anti Nestin and GABA antibody immunostaining. The role of GABARAP, LC3 and P62 autophagy genes in transdifferentiation were assessed by RT-PCR.

Findings: Immunocytochemical studies on ADSCs using CD49d indicated that cultured cells were ADSCs. Preinduction stage results showed that RA10µM after 2 days, has the best effect on differentiating the ADSCs to NLCs. Immunostaining after induction stage showed high percentage of neural and GABAergic markers (GABA) using 10 mMol creatine after 5 days. ADSCs were expressed P62 but preinduced cells expressed P62, LC3 and GABARAP autophagy genes.

Conclusion: In the present study, we have demonstrated that ADSCs can be efficiently preinduced into NLCs under 1mM βME and 10µM RA conditions. Moreover, these NLCs induced by 10mM creatine for 5 days and differentiated into GLNs that could expressed nestin and GABA neural markers. GABARAP, LC3 and P62Autophagy genes expressed by preinduced cells, indicated autophagy might have a role in the transdifferentiation of ADSCs into NLCs.

Key Words: GABAergic-like cell, Adipose derived stem cells, Creatine, Autophagy.
Effects of Coenzyme Q10 and L-carnitine on biochemical and liver histological parameters of Chickens

Hamed Asadi1,* , Nima Eila1, Ali Asghar Sadeghi2, Mehdi Aminafshar2, Amirhooman Asadi3

1. Department of Animal Science, Faculty of Agriculture, Karaj Branch, Islamic Azad University, Karaj, Iran
2. Department of Animal Science, Faculty of Agriculture, Science and Research Branch, Islamic Azad University, Tehran, Iran
3. Doctorate of Veterinary Medicine, Faculty of Veterinary Medicine, Karaj Branch, Islamic Azad University, Karaj, Iran

*Corresponding Authors Email: hamedasad@yahoo.com

Background: Coenzyme Q10 (the coenzyme for mitochondrial enzymes of oxidative phosphorylation) and L-carnitine (essential for transport of long-chain fatty acids into the mitochondria for β-oxidation) are important factors in metabolic energy enhancement. The aim of this research was to evaluate the effects of the Coenzyme Q10 and L-carnitine, individually and in combination on biochemical parameters and liver histology of Chickens.

Methods: Total of 80 one-day old male chickens were randomly divided to 4 treatment groups. Each group had 4 replicates with 5 birds per each. Two levels of Coenzyme Q10 (0 and 40 mg/kg) and L-carnitine (0 and 200mg/kg) were fed. A completely randomized design with a 2×2 Factorial arrangement was used. Blood samples were collected from the wing vein in test tubes containing sodium citrate at the end of finisher periods (day 42). The serum level of alanine aminotransferase (ALT), aspartate aminotransferase (AST), triglyceride, cholesterol and high density lipoprotein (HDL) were measured by enzyme immunoassay (EIA). From each replicate, one chicken was selected randomly for sampling of right liver lobe for histological study. Sections of liver stained with hematoxylin and eosin.

The statistical analysis was performed with SPSS 20 for windows. Anova GLM (general linear procedure) and Duncan’s Multiple Range test were used.

Results: Level of ALT, AST, triglyceride and cholesterol were not affected by these supplementations (p>0.05). However, level of HDL was significantly higher as a result of L-carnitine usage in comparison with other groups (p<0.05). Also, histological study indicated that L-carnitine and Coenzyme Q10 (individually and in combination) reduced the rate of fatty infiltration in the liver samples considerably compare with control group.

Conclusion: Adding of these feed additives in diets had positive effects on HDL serum level increase and decreased the fat accumulation in liver.

Keywords: Coenzyme Q10, L-carnitine, Biochemical parameters, Liver
Comparison of Biochemical Factors and Liver Enzymes in type 2 Diabetes Patients and Healthy Individuals

Maysam Ebrahimi-Far¹, Manouchehr Mazdapour², Hemen Moradi-Sardareh³,*

1. Department of Toxicology, Islamic Azad University, Isfahan, Iran
2. Department of Biology, Islamic Azad University of Pharmaceutical Science, Tehran, Iran
3. Department of Biochemistry, faculty of medicine, Tehran university of medical science, Tehran, Iran *

Background: Diabetes mellitus is one of the most common global health threats that is considered as one of the five major causes of death in all communities. About 90% of the patients suffer from type 2 diabetes. It has been demonstrated that the serum concentration of Alanine and Aspartate aminotransferase enzymes (ALT, AST) and the triglyceride (TG) and cholesterol (Chol) metabolites are increased in type 2 Diabetes.

Methods: In this research, the population study was selected from 2240 patients who referred to diabetes center (Hamadan, Iran) for checking the hepatic enzymes and biochemical factors. Blood samples under fasting condition were collected. The concentrations of ALT, AST, TG and Chol in serum were measured. Statistical analysis was carried out by SPSS V.13. A P value of <0.05 was used as the criterion for a statistically significant difference.

Results: The results showed that diabetic patients had more increased TG; the increase of TG concentration was higher in the women than men (about 7%). The difference of Chol concentration between diabetic and healthy individuals was not significant. But, the results suggested that the gender of the patients affects the TG and Chol concentration, so that diabetic women showed more amount of TG and cholesterol than the diabetic men. The body mass index (BMI) investigation showed that the diabetic women had more overweighting than the diabetic men. There was direct relation between the BMI and TG density. The hepatic enzymes examination showed that the ALT concentration was significantly higher in both male and female diabetic patients in comparison with healthy individuals.

Conclusion: Final results of the study suggested that we could use the TG and ALT as the markers for type 2 diabetes in human populations.

Keywords: Diabetes mellitus, Triglyceride, AST, ALT, Iran
The study of resveratrol effect on Runt-related transcription factor 2 (RUNX2) expression in cells induced with diabetic pool serum

Aliye Tabatabaee¹, Keihan Ghatreh Samani², Effat Farrokhi³, Narges Jalilian⁴

1. Student’s Research Committee, Shahrekord University of Medical Sciences, Shahrekord, Iran, Department of biochemistry, Faculty of Medicine, Shahrekord University of Medical Sciences
2. Department of Biochemistry, Faculty of Medicine, Shahrekord University of Medical Sciences
3. Cellular and Molecular Research Center, Faculty of Medicine, Shahrekord University of Medical Sciences
4. Department of Biochemistry, Faculty of Medicine, Shahrekord University of Medical Sciences

Background: Diabetes mellitus is one of the most prevalent chronic diseases in the world. Diabetes is one of the reasons for vascular calcification (VC). Patients with type 2 diabetes mellitus develop VC in a greater degree and at an earlier age. VC is a process similar to bone mineralization. RUNX2 is the major transcription factor in the differentiation of osteoblasts and chondrocytes. RUNX2 is responsible for the differentiation of vascular smooth muscle cells (VSMC) to osteoblast-like cells which eventually leads to VC. In this study, the effects of resveratrol on RUNX2 expression is studied.

Methods: This study was an experimental study. VSMCs purchased from Pasteur institute of Iran were induced with diabetic pool serum obtained from volunteer patients, then treated with two concentrations of resveratrol. The cells were collected after 24 and 48 hours of treatment. RUNX2 gene expression was measured in control group, the group induced with diabetic serum and the treated group with Real-Time PCR according to manufacturer’s protocol. The results were analyzed using GraphPad Prism software.

Results: RUNX2 gene expression didn’t show any significant change in 24 hours treatment. However, in 48 hours treatment, its expression was increased in the cell group induced with diabetic serum compared to cell control group (p<0.05). Treatment with resveratrol decreased runx2 expression in cells previously induced by diabetic serum significantly (p<0.05).

Conclusion: VC is one of the complications accompanying diabetes. It is associated with high morbidity and mortality risk. Cells induced by diabetic serum showed a significant increase in RUNX2 expression, which is the pioneer cause of vessels calcifying. Resveratrol has been seen to have beneficial effects in diabetes. Treatment with resveratrol led to decreased expression of Runx2. Therefore, considering other beneficial effects of resveratrol, this could add up to resveratrol importance for future studies.

Keywords: RUNX2, diabetes, VC, resveratrol
The study of curcumin, cuminaldehyde and resveratrol effects on Matrix metalloprotease 9 (MMP9) expression in cells induced with advanced glycation end products (AGE)

Narges Jalilian¹, Keihan Ghatreh Samani², Effat Farrokhi³, Aliye Tabatabaee⁴

Background: Diabetes is an important risk factor for cardiovascular disease (CVD). CVD includes microvasculature and microvasculature complications. Atherosclerosis is the most important macrovasculature disease, which is responsible for more than 50 percent of mortality in the Developed countries. Elevated glucose levels induce non-enzymatic glycation of proteins that leads to AGE formation. These AGE molecules bind to their respective receptors and initiate several aberrant signaling pathways and alter some gene expression. MMP9 is involved in the degradation of the extracellular matrix. Previous studies have shown that high expression of MMP9 observed in diabetes is one of the risk factors leading to cardiovascular diseases. It has been demonstrated that some antioxidants can reduce MMP9 expression.

Method: Vascular smooth muscle cells (VSMC) were exposed to advanced glycation end-products (AGE) and then treated with different concentrations of curcumin, cuminaldehyde and resveratrol. The cells were collected after 24 and 48 hours of incubation. MMP9 gene expression was measured in cell control, cells exposed to AGE and treated group by Real-time PCR according to the manufacturer's protocol. The results were analyzed using GraphPad Prism software.

Result: MMP9 gene expression didn’t show any significant change in 24 hours treatment. In 48 hours treatment, Gene expression levels of MMP9 increased significantly in AGE control compared to cell control. MMP9 expression showed a significant decrease in cells treated with different concentrations of curcumin, cuminaldehyde and resveratrol compared to AGE control. (P < 0.05).

Conclusion: It seems that downregulation of MMP9 expression could be a potential therapeutic target. We found that curcumin, cuminaldehyde and resveratrol can reduce MMP9 expression and therefore they can be an effective co-treatments for atherosclerosis.

Keywords: CVD, AGE, MMP9
Synthesis of Maghemite Nanoparticles Capped with Oleic Acid and their Magnetic Characterization

Aida Gholoobi¹, Khalil Abnous², Mohammad Ramezani², Fatemeh Homaei Shandiz³, Majid Darroudi⁴, Majid Ghayour-Mobarhan⁵, Zahra Meshkat⁶*

¹ Department of Modern Sciences and Technologies, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
² Pharmaceutical Research Center, School of Pharmacy, Mashhad University of Medical Sciences, Mashhad, Iran
³ Cancer Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
⁴ Nuclear Medicine Research Center (NMRC), Mashhad University of Medical Sciences, Mashhad, Iran
⁵ Biochemistry and Nutrition Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
⁶ Women’s Health Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Abstract

Background: In recent years, superparamagnetic iron oxide nanoparticles have attracted a great attention due to their various biomedical applications, such as magnetic resonance imaging, targeted drug delivery, and hyperthermia.

Methods: In this article, γ-Fe₂O₃ magnetic nanoparticles (Maghemite) were prepared in oleic acid media by co-precipitation method. The oleic acid, a monounsaturated fatty acid was used as the capping and stabilizing agent during the synthesis of the magnetic nanoparticles. Characterization of obtained nanoparticles were performed using powder X-ray diffraction (PXRD), field emission scanning electron microscopy (FESEM), Fourier transform infrared spectra (FTIR), and vibrating sample magnetometer (VSM).

Results: The crystallite size of γ-Fe₂O₃ nanoparticles was achieved in the range between 16.2 and 26.8 nm. The FESEM demonstrated the regular spheres of γ-Fe₂O₃ nanoparticles. The obtained nanoparticles were coated with oleic acid indicating by FTIR analysis. The resulted oleic acid-coated nanoparticles were shown superparamagnetic properties (~52 emu/g).

Conclusion: This suggested method is simple and rapid to fabricate superparamagnetic nanoparticles which make them appropriate candidates for theranostic application in future studies.

Keywords Fe₂O₃ nanoparticle Co-precipitation Oleic acid Maghemite Superparamagnetic
Comparison of Loop-Mediated Isothermal Amplification And PCR to detect *Borrelia microti*

Faezeh Houmansadr*, Mohammad Soleimani1,2

1. Tasnim Biotec Technology Research Center (TBRC), Faculty of Medicine, AJA University of medical sciences, Tehran, Iran.
2. Department of Microbiology, Faculty of Medicine, AJA University of medical sciences, Tehran, Iran.

**Introduction:**

Tick Borne Relapsing Fever (TBRF) caused by *Borrelia microti* is transmitted via bites of the soft tick *Ornithodoros erraticus* that primarily inhabits caves and small niches. TBRF is an endemic disease in Iran, with more 100 annual cases.

**Material and Methods:**

To evaluate the usefulness of LAMP for detection *Borrelia microti* (glycerophosphodiester phosphodiesterase (glpQ) gene), we compared the LAMP method with PCR. So we used 30 blood samples containing the spirochete from mice that were previously tested by microscopic inspection.

**Results:**

When microscopic inspection was regarded as standard, the sensitivity of LAMP and PCR were 100% and 66.67% respectively. Also the specificity was 100% and 100%, respectively. Although further improvement is necessary for the wide spread use, the LAMP method might be applicable to detect of TBRF infection.

**Conclusion:**

We have demonstrated that the glpQ-LAMP assay has high sensitivity and specificity for detecting TBRF Borreliae. In contrast to PCR, LAMP has duel advantages of being simple to carry out and cost-effective.

**Key Words:** *Borrelia microti* - TBRF - LAMP– PCR- GlpQ
Generation of insulin producing cells from human adipose derived mesenchymal stem cells using FOXO1-siRNA and Gcg-siRNA in vitro

Seyed Ehsan Enderami¹, Reyhaneh Nasiri Mansour¹, Masoud Soleimani²

¹. Stem Cell Technology Research Center, Tehran, Iran
². Department of hematology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Background: Adipose derived mesenchymal stem cells (ADSCs) are potential multipotent cells derived from adult tissue. So far, growth factors have been used for differentiation of ADSCs to insulin producing cells. In the present study, in the absence of growth factors, siRNA was used to silence targeted genes.

Method: In this experimental study, ADSCs were derived from human adipose tissue. The ADSCs were then cultured in four groups; three test groups (containing culture medium with siRNA) and the control (the same culture medium used in test group without siRNA). After three weeks, differentiated cells were analyzed by using RT-PCR (expression of some pancreas-specific genes), immunocytochemistry (detection of insulin presence in cells) and ELISA (evaluation of the amount of secreted insulin to culture medium).

Results: The RT-PCR analysis of differentiated cells on three test groups showed expression of beta cell specific markers including insulin and Pdx1. The results of immunostaining showed that the insulin protein are expressed in differentiated cell of Foxo1 siRNA group and Foxo1/Gcg-siRNA group with different amounts and finally insulin secretion assay show that differentiated cells on Foxo1 siRNA group secreted more insulin in comparison with the other groups.

Conclusion: Our data indicate that human ADSCs differentiate into insulin producing cell using siRNA, without growth factors. Therefore, siRNA can be used as a novel approach for generating insulin producing cells from ADSCs in vitro.

Key words: Differentiation, Adipose derived mesenchymal stem cells, Insulin producing cells, siRNA
Generation of Insulin Producing Cells from Murine Embryonic Stem Cells using miR-375 and miR-186 in vitro

Reyhaneh Nasiri Mansour¹, Seyed Ehsan Enderami¹, Masoud Soleimani²

¹. Stem Cell Technology Research Center, Tehran, Iran
². Department of hematology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Background: Embryonic stem cells (ESCs) are potential pluripotent cells derived from inner cell mass of embryonic blastocyst stage. So far, growth factors have been used for differentiation of ESCs to insulin producing cells. In the present study, in the absence of growth factors, microRNA (miRNA) was used to silence targeted genes.

Method: In this study, embryoid bodies (EBs) were derived from murine ESCs. The EBs was then cultured in four groups; three test groups (containing culture medium with miRNA) and the control (the same culture medium used in test group without miRNA). After three weeks, differentiated cells were analyzed by using RT-PCR(expression of some pancreas-specific genes), immunocytochemistry (detection of insulin presence in cells) and ELISA (evaluation of the amount of secreted insulin to culture medium).

Results: The RT-PCR analysis of differentiated cells on three test groups showed expression of beta cell specific markers including insulin and Pdx1. The results of immunostaining showed that the insulin protein are expressed in differentiated cell of miR-375 group and miR-375/186 group with different amounts and finally insulin secretion assay show that differentiated cells on miR-375 group secreted more insulin in comparison with the other groups.

Conclusion: Our data indicate that murine ESCs differentiate into insulin producing cell using miR-375, without growth factors. Therefore, miRNA can be used as a novel approach for generating insulin producing cells from ESCs in vitro.

Key words: Differentiation, Embryonic stem cells, Insuline producing cells, miRNA
Generation of insulin-producing cells from human adipose-derived mesenchymal stem cells on polyvinyl alcohol scaffold by differentiation protocol optimized with platelet-rich plasma

Seyed Ehsan Enderami¹, Masoud Soleimani², Yousef Mortazavi³,⁴, Reyhaneh Nassiri Mansour¹, Ali Salimi⁵

¹ Stem Cell Technology Research Center, Tehran, Iran.
² Department of Hematology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.
³ Department of Medical Biotechnology and Nanotechnology, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran.
⁴ Cancer Gene Therapy Research Center, Zanjan University of Medical Sciences, Zanjan, Iran.
⁵ Nanobiotechnology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.

The studies have been done on patient-specific human adipose-derived from mesenchymal stem cells (hADSCs) like a series of autologous growth factors and nanofibrous scaffolds (3D culture); perhaps it will have many benefits for regenerative medicine in type 1 diabetes mellitus (TIDM) patients in the future. For this purpose, we established a polyvinyl alcohol (PVA) scaffold and differentiation protocol by adding platelet-rich plasma (PRP) that induce the hADSCs into insulin-producing cells (IPCs). The Characteristics of derived IPCs in 3D culture were compared with conventional culture (2D) groups that evaluated at the mRNA and protein levels, the viability for inducedpancreatic cells were 14 days. The in vitro studies showed that treatment of hADSCs in the 3D culture resulting in differentiated cells with strong characteristics of IPCs including pancrea-tic-like cells, the expression of the islet-associated genes at the mRNA and protein levels in comparison of 2D culture group. Furthermore, the immunoassay tests showed that these differentiated cells in two groups are functional and secreted C-peptide and insulin in a glucose stimulation challenge. The results of our study for the first time demonstrated that the PVA nanofibrous scaffolds along with the optimized differentiation protocol with PRP can enhance the differentiation of IPCs from hADSCs. In conclusion, this study provides a new approach for future pancreatic tissue engineering and beta cell replacement therapies for T1DM.

Key word: Mesenchymal stem cells, Insulin-Producing Cells, 3D culture, Platelet-rich plasma
Prediction of gene expression with mathematical models

A. Amirahmd\textsuperscript{a}, Shadi Marzooghi\textsuperscript{b}, F. Javani\textsuperscript{c}, J. Zafari\textsuperscript{a*}

\textsuperscript{a}Department of health, Valiasr hospital research center, rescue and treatment of police force, Tehran, Iran

\textsuperscript{b}Department of Biomedical Engineering, Faculty of High Technologies, Tarbiat Modares University, Tehran, Iran

\textsuperscript{c}Department of Bio Physics, Faculty of High Biology, Tarbiat Modares University, Tehran, Iran

\textsuperscript{*}Jaberzafari@yahoo.com

FT-IR spectroscopy is a powerful tool to detect changes in the macromolecular\cite{1}. Also, biostatistics is a use of mathematic to the description of biological experimental data\cite{2}. The aim of this study was the use of mathematic model to predict real-time PCR results based on the data extracted from FTIR spectroscopy in the samples that enforced by BMP4 to differentiate from BMSCs to PGCs. Four different static models were used to specify gene expression using FTIR spectrum of cells. Different well-known regression models including PLSR, RT, BA and GRNN were used to predict the gene expression in selected samples. Five FTIR spectra at different differentiation steps showed a changed pattern of band intensities. The absorption bands at 2920 and 1650 cm\textsuperscript{-1} became further than 2850 and 1540 cm\textsuperscript{-1} with the increase in five steps of differentiation (0, 24, 48, 72 and 96 h) respectively. We used an ensemble of expert methods including RT, BA, and GRNN in which the advantages of each model combined together to reach a better performance. Our findings could be used to distinguish the stepwise differentiation. To confirm this point we estimated the DNA content through some gene expressions of stem cells based on the features extracted from FTIR spectrum using a mixture of expert modeling.

Keywords: FTIR; Gene Expression; Regression models; Differentiation
Generation of insulin-producing cells from human bone marrow-derived mesenchymal stem cells on polyvinyl alcohol scaffold

Reyhaneh Nassiri Mansour1, Masoud Soleimani2, Yousef Mortazavi3,4, Seyed Ehsan Enderami1, Ali Salimi5

1 Stem Cell Technology Research Center, Tehran, Iran.
2 Department of Hematology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.
3 Department of Medical Biotechnology and Nanotechnology, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran.
4 Cancer Gene Therapy Research Center, Zanjan University of Medical Sciences, Zanjan, Iran.
5 Nanobiotechnology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.

The studies have been done on patient-specific human bone marrow-derived from mesenchymal stem cells (hBMSCs) like a series of autologous growth factors and nanofibrous scaffolds (3D culture); perhaps it will have many benefits for regenerative medicine in type 1 diabetes mellitus (TIDM) patients in the future. For this purpose, we established a polyvinyl alcohol (PVA) scaffold and differentiation protocol by adding platelet-rich plasma (PRP) that induce the hBMSCs into insulin-producing cells (IPCs). The Characteristics of derived IPCs in 3D culture were compared with conventional culture (2D) groups that evaluated at the mRNA and protein levels, the viability for induced pancreatic cells were 16 days. The in vitro studies showed that treatment of hBMSCs in the 3D culture resulting in differentiated cells with strong characteristics of IPCs including pancreatic-like cells, the expression of the islet-associated genes at the mRNA and protein levels in comparison of 2D culture group. Furthermore, the immunoassay tests showed that these differentiated cells in two groups are functional and secreted C-peptide and insulin in a glucose stimulation challenge. The results of our study for the first time demonstrated that the PVA nanofibrous scaffolds along with the optimized differentiation protocol with PRP can enhance the differentiation of IPCs from hBMSCs. In conclusion, this study provides a new approach for future pancreatic tissue engineering and beta cell replacement therapies for T1DM.

Key word: Bone marrow-derived from mesenchymal stem cells, Insulin-Producing Cells, 3D culture
PBN-10

**Generation of Insulin Producing Cells from human Embryonic Stem Cells using anti-miR-7 and miR-375 in vitro**

Reyhaneh Nasiri Mansour¹, Seyed Ehsan Enderami¹, Masoud Soleimani²

1. Stem Cell Technology Research Center, Tehran, Iran
2. Department of hematology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

**Background:** Embryonic stem cells (ESCs) are potential pluripotent cells derived from inner cell mass of embryonic blastocyst stage. So far, growth factors have been used for differentiation of ESCs to insulin producing cells. In the present study, in the absence of growth factors, microRNA (miRNA) was used to silence targeted genes.

**Method:** In this study, embryoid bodies (EBs) were derived from human ESCs. The EBs was then cultured in four groups; three test groups (containing culture medium with miRNA) and the control (the same culture medium used in test group without miRNA). After three weeks, differentiated cells were analyzed by using Real Time-PCR(expression of some pancreas-specific genes), immunocytochemistry (detection of insulin presence in cells) and ELISA (evaluation of the amount of secreted insulin to culture medium).

**Results:** The Real Time-PCR analysis of differentiated cells on three test groups showed expression of beta cell specific markers including insulin and Pdx1. The results of immunostaining showed that the insulin protein are expressed in differentiated cell of miR-375 group and anti-miR-7/miR-375 group with different amounts and finally insulin secretion assay show that differentiated cells on miR-375 group secreted more insulin in comparison with the other groups.

**Conclusion:** Our data indicate that human ESCs differentiate into insulin producing cell using miR-375, without growth factors. Therefore, miRNA can be used as a novel approach for generating insulin producing cells from ESCs in vitro.

**Key words:** Differentiation, Human embryonic stem cells, Insulin producing cells, miRNA
Antibacterial effects of silver nanoparticles (AgNPs) on reduction of aerobic pathogens in the nursing Gowns of Sirjan hospitals in 2017

Amin Moazami¹, Masomeh Molabagheri²

1. MSc of Microbiology, Islamic Azad University of Sirjan, Sirjan, Iran
2. Department Of Nursing, Islamic Azad University Of Sirjan, Sirjan, Iran

(Corresponding author) Email: Amin_moazemi@yahoo.com

Background: Research on microbial contamination of individuals clothing has shown a variety of microorganisms. This contamination may cause infection and disease too. The aim of this study was to identify antibacterial effects of silver nanoparticles (AgNPs) on reduction of aerobic pathogens in the nursing Gowns of Sirjan hospitals (Imam Reza and Dr. Gharzai Hospital) in 2017.

Methods: In this study, at first, the fabrics with the technology of nano silver were purchased by Tehran ZARNAKH Company and then 100 nano Gowns were made. The contamination of 100 nurses Gowns was surveyed into two separate level, before using nano Gowns and after using nano Gowns. Wet sterile swabs dipped contacted on various areas of the gowns, including the chest, head sleeves, bottom and around the pockets. All specimens were cultured on two nutrient broth and Sabro dextrose agar (for growth of fungi). The colonies were examined and biochemical tests were used to identify isolated bacteria.

Results: In Imam Reza Hospital and Dr. Gharzai Hospital, the most commonly isolated pathogens were Respectively Staphylococcus Epidermidis (57.83%) and Staphylococcus Epidermidis (51.35%) and the least pathogen respectively Pseudomonas (1.2%) and Escherichia Coli with Pseudomonas (1.35%). In these hospitals, after using nano silver Gowns, the amount of microbial load decreased significantly (eliminating roughly 100%).

Conclusion: In this study, the bacteria of nursing Gowns after contact with silver nanoparticles were eliminated, so the use of metal nanoparticles to cope with cross-infection can be effective.

Key words: Cross-infection, Gown, silver nanoparticle, antibacterialeffects
حسگرهای زیستی مبتنی بر سامانه‌های مغناطیسی جهت شناسایی پاتوجین های عفونی تاثیرگذار بر سلامت جامعه جهانی

ساسان نصیر احمدی، مجتبی سعادتی، سید مسیح اعتماد ایوبی، سید مجتبی آقایی

چکیده

نیمیری هیی مسری موجب مرگ صدهی هزار نفر در سراسر دنیا می‌شوند. وجود نیمیری هی قیمنل در میان همسانی ممکن است نیمیری هی مسکب آن هی همچنین نه‌عنوان ک مسئله مهم نرایند. از این رو اقدامی تحقیقی بر روی جیگز در حال توسعه و کشورهای پیشرفته می‌باشد. از این رو اقدامات تحقیقاتی دقیقی بر روی جایگزینی روش‌های تشخیصی و نظارتی انجام می‌شود. امروزه روش‌های جدید شامل تکنیک‌های جدیدی تشخیص نیمیری هی مورد توجه می‌باشند. در این زمینه می‌توان به یکی از نازخانه‌های مغناطیسی در ایزادرالها حسگرهای ژنتیکی اشاره کرد. تشخیص نمونه‌های پیچیده با نازخانه‌های مغناطیسی می‌تواند به آسانی و بدون طی مراحل تخلیص و پیش آماده سازی صورت پذیرد. نازخانه‌های مغناطیسی دارای جنگه‌های امید باشند. برای تشخیص نشانگرانی های زیستی تهیه‌دست جهانی شامل باشند. نیز نازخانه‌های مسیری مهم جهانی در کشورهای کم درآمد مالاپراکته و ایندز مورد تضمین قرار گیرد.

کلمات کلیدی: نازخانه‌های مغناطیسی، حسگرهای ایمنی، حسگرهای زیستی DNA، پیشگامی و تولید دانش بنیان.
روش‌های نوین برای تشخیص سیاه زخم

سید مسیح اعتماد ایوبی، ساسان نصیر احمدی، سید مجتبی آقایی

1-دانشجوی دکتری نانوبیوتکنولوژی، مرکز علم و فناوری زیست شناسی، دانشگاه جامع امام حسین(ع)، تهران.

2-کارشناس ارشد زیست شناسی، مرکز علم و فناوری زیست شناسی، دانشگاه جامع امام حسین(ع)، تهران.

چکیده

به دنبال ارسال نامه‌ای اسپوره‌ای سیاه زخم و پودره‌ای سفید ناشناخته که ایالات متحده‌ای در وحشت نردی تهدید کرده، تهدید بیوتوریسم توجه عموم و نیز دانشمندان را به خود جلب نمود. بنابراین، توسه روش‌های تشخیصی سریع و حساس و با ظرفیت عملیاتی پالا که قادر به مقابله با حملات بیوتوریسم باشد ضروری است. به علاوه طراحی و ساخت یک دستگاه قابل حمل و کاربرپسند که قابلیت شناسایی همزمان عامل زیستی را دارا باشد بسیار مهم است. در روش‌های متعادلی در دست توسعه قرار دارد، ولی تشخیص اسید نوکلوئیدیک روش استانداردی است که برای شناسایی عوامل بیوتوریسم مورد استفاده قرار می‌گیرد. این روش مبتنی بر آزمایشات PCR از طریق تکنیک های تقویت و تشخیص فلوور‌سنتی می‌باشد. در سوی دیگر، حسگر‌های زیستی الکتروشیمیایی قابلیت‌های زیادی دارند که می‌توانند به تشخیص عوامل میادانی سریع، با حساسیت بالا و گزینش پذیری برای شناخت این عوامل دست یابند.

کلمات کلیدی: بیوتوریسم، سیاه زخم، DNA- حسگر‌های زیستی، الکتروشیمیایی
Expression of Stress Related Genes (SIRT1 and SIRT6) in Non-syndromic Autistic Patients

Elham Rostami1, Khadije Babaei2, Karim Dadashi1, Mehrdad Pedram2

1. Department of Biotechnology, School of medicine, University of Zanjan
2. Department of Genetics, School of medicine, University of Zanjan

Background: Autism is an apervasive developmental disorder, clinically characterized by impairment in social interaction and communication. Oxidative stress is as one of main known factors involved in the pathology of autism. In this study we assessed the expression of SIRT1 gene in non-syndromic drug naïve autistic boys.

Methods: In the present study, a total of 12 autistic boys (age range 4.28 ± 2.46 years), matched with 11 healthy control subjects (boys, age rang 5.06 ± 2.59 years) were studied. Expression of SIRT1 and SIRT6 were analyzed by real-time PCR technique following cDNA synthesis from total RNA extracted from saliva samples.

Results: Our data suggested that SIRT1 and SIRT6 mRNA levels are higher in autistic subjects compared to the healthy controls (0.43 and 0.18 fold, respectively)

Conclusion: Based on the result obtained here, it is possible that SIRT1 and SIRT6 mRNA Expression levels are affected in autistic subject compared to the healthy control and it can play a role in pathology of autism.

Keywords: Autism, Oxidative stress, SIRT1, SIRT6
PBN-16

Blood Group Conversion from A to O Using a Recombinant α-N-Acetylgalactosaminidase

Azam Molafilabi¹, Houshang Rafatpanah², Baratali Mashkani³, Majid Shahabi¹

¹Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine
²Department of Immunology, Faculty of Medicine, Mashhad University of Medical Sciences
³Department of Medical Biochemistry, Faculty of Medicine, Mashhad University of Medical Sciences

Background: Removing antigens of blood groups by the enzymes from blood groups is an effective measure for safe production and use of other blood groups as the initial source of the production of blood group O.

Methods: Protein sequence of the gene α-N-acetylgalactosaminidase was obtained from Elizabethkingia Meningosepticum bacterium from Uniprot Database and was ordered for optimization and synthesis. The synthesized gene in pPICZαA vector and downstream of alcohol oxidase promoter and in the vicinity of α-factor secretion signal was cloned and then was transferred to the competent cells of Pichia pastoris, using electroporation. After expression induction and cells culture, expression of the recombinant protein by SDS-PAGE and Western Blot was analyzed and the enzyme activity was evaluated.

Results: By using restriction enzymes and Colony PCR, the cloning process and entry of synthetic fragment into the expression vector pPICZαA were confirmed. Existence of recombinant protein in the supernatant was verified by SDS-PAGE and Western Blot. The enzyme activity in optimal temperature and pH was confirmed through colorimetric tests. The results of this study indicate that Pichia pastoris is a suitable host for enzyme production. Red blood cells are located in the vicinity of enzyme, then for the presence of A antigen were evaluated by cross-match test. The results of the process confirm remove of A antigen.

Conclusion: The produced enzyme can be applied for removing the antigen of blood group A.

Keywords: α-N-acetylgalactosaminidase, A antigen, Pichia pastoris
Islamic and Ethical aspects of challenges in molecular approach

Amir Hossein Sangi¹, Alireza Rafat²,

1-Student Research committee, Sirjan faculty of Medical sciences, Sirjan, Iran
2-sirjan faculty of medical sciences, sirjan, iran

Presenter Author: amirhossein sangi
E-mail: amirsangi2628@gmail.com

Background: Bioethics is part of applied ethics and usually with medical ethics are Convergent. Bioethics is a branch of ethics, philosophy and social commentary that the biological sciences and the potential effects on society. Therefore, bioethics is not limited only to classical ethics. It also covers political and social policy. Bioethics as close to the widespread moral teachings of Quran and Sunnah of the Prophet (PBUH) is relevant. Bioethics is integral reflection of their religion, the religion of the continuity between body and soul, as well as moral and spiritual spheres of material and moral rights. Quran and Sunnah of the Prophet (PBUH) contains detailed specifications of guiding principles in various medical topics including human fetal development, etc., which clearly shows the importance of bioethics in human life.

Results: These principles can be briefly classified as follows. A) The principle of justice. B) The principle of consent. C) The avoidance of criminal and damage. D) The avoidance of secret research. Therefore, with regard to the issue of bioethics to question the deeper philosophical aspects and more layers are ethical issues, topics such as: the value of life, and the man to whom it applies, and the importance of the dignity of the human person modern science-related field of human medicine. Since modern medical sciences (eg biotechnology) in newly-founded scientific and research centers and programs to specific projects has been limited research, bioethics and the dos and don'ts of the status display. Bioscience ethics is very complex and very few people in the country, according to experts in all aspects of social and religious issues to encompass the legal and scientific. Now, Iranian law is silent on the production and consumption of genetically manipulated so the national program on developing biotech products and equipment are recommended national standards.

Key Words: Bioethics, medical ethics, Biotechnology
Nanotheranostics: novel Strategies for Early Diagnosis and Therapy of Brain Cancer

Miganoosh Simonian¹, Babak Negahdari¹*, Reza Saber²*
¹Department of Medical Biotechnology, School of Advance Science in Medicine, Tehran University of Medical Sciences, Tehran, Iran
²Department of Medical Nanotechnology, School of Advanced Medical Technologies, Tehran University of Medical Sciences (TUMS), Tehran, Iran

Nanotheranostics considered as advanced approaches that can diagnose brain cancer at early stages, begin first-line therapy and monitor it. In brain nanotheranostics, diagnostic as well as therapeutic entities are based on a single nanoplatform, which can be further propagated as a clinical manner for targeting various modes of brain cancer. In the present review, we discussed about theranostic nanosystems set up till now in the research field. These comprise gold nanoparticles, upconversion nanoparticles, carbon nanotubes, mesoporous silica nanoparticles, magnetic nanoparticles quantum dots, polymeric nanoparticles, polymeric micelles, solid lipid nanoparticles and dendrimers for the advanced detection of brain cancer in early stages. Also, we provided information about the role of three-dimensional patterns of the BBB and cancer stem cell notion for the developed characterization of nanotheranostic systems for the integration of diagnosis and treatment of brain cancer.

Keywords; Nanotheranostics, Brain cancer, Diagnosis
The Effect of Different Nanoparticles to Control and Treat Pathogens

Maryam Meskini¹, Davood Esmaeili¹, Azad Khaledi², Helsa Peikani³, Niloufar Safarpour³, Bahar Bashardoust³

¹- Applied Microbiology Research center, and Microbiology Department, Baqiyatallah University Medical of Sciences, Tehran, Iran
²- Dept. of Microbiology Kashan University of Medical Science, Iran
³- Department of Research, Mehraban School, Tehran, Iran

Introduction: Due to the unusual use of antibiotics and increased resistance to bacteria, finding suitable alternatives for antibiotics is essential. So, extensive studies have been done about the potential for using antimicrobial compounds in plants and the use of nanoparticles to control and treat pathogens. Nanotechnology refers to the design, characterization, production, and use of structures and tools with the control of shape and size on a nanometer scale (1-100 nm). The completeness of the reaction, the lack of reaction time, the production of nanoparticles in various shapes and the uniformity of their size are among the other advantages of using plants for the synthesis of nanoparticles. With the increase in nanoscale silver antimicrobial effects, silver nanoparticles can be used to combat various pathogens, so today, with the development of nanotechnology and the production of silver nanoparticles, these nanoparticles are widely used in many sciences such as medicine and pharmacy. And the use of silver and its nanoparticles has been boosted as a powerful bactericidal agent. Recently, however, silver nanoparticles have been used to detect DNA in addition to an antimicrobial agent.

Materials and Methods: Searching process was conducted for introduce nanoparticle as a way to inhibited growth of pathogens. Here was used of Google Scholar, Science Direct, Web of Science, Scopus, Library and other Scientific Information Database. Original literatures are published in English and Persian. The keywords such as Nanoparticles, plants, Pathogens and burn infection have been used for searching process. The same searching was carried out with similar strategies and related Persian keywords amongst Iranian databases. We searched Magiran (www.Magiran.com), and Irandoc (www.irandoc.ac.ir), Scientific Information Database (www.sid.ir), Iranmedex (www.irannamedex.com). Review papers, original articles or systematic reviews, abstract forms of papers, duplicate publication of the same paper.

Results: The results of the reviewed articles are reported as follows: Ramezani et al. showed that silver nanoparticles could be a good candidate for inhibiting the formation of pseudomonas aeruginosa biofilms. In addition, silver nanoparticles in combination with antibiotics such as imipenem can significantly reduce the amount of biofilm of pseudomonas on surfaces. Mirzaei et al. confirmed that the combination of allicin and silver nanoparticles has a synergistic effect on skin infection caused by Pseudomonas aeruginosa. According to Javadi et al., gold nanoparticles increase the accumulation of drugs around them, thereby inducing a better inhibitory effect on biofilm formation than on free drug formulation. In a study by Mirzai et al., The results indicated that MBP-1 plant peptide and silver nanoparticles had antimicrobial activity against Pseudomonas aeruginosa, and also the combination of MBP-1 and silver nanoparticles had a synergistic effect for faster skin infection due to it In the mouse model.

Conclusion: According to the reviewed articles, nanoparticles of different materials have a better bactericidal effect on pathogenic bacteria than with different materials.
PBN-20

The effect of surface modification on a protein immobilization on PCL-GO composite nanofiber

Ghader nworoozi\(^1\), Masoumeh rajabi bazl\(^2\), Meisam omidi\(^3\)

Department of Clinical biochemistry of medicine University of Shahid Beheshti
Department of Clinical biochemistry of medicine University of Shahid Beheshti
Department of nanotechnology School of nanotechnology & tissue engineering University ofShahid Beheshti

**background:** Surface modification PCL-GO nanofiber increase immobilization of biomolecules and specific activity of the enzyme Horseradish peroxidase.

**Method:** Graphene oxide (GO) was synthesized from graphite powders and the morphologies of Graphene oxide was examined with an AFM and TEM operated at 200 kV. than 1% GO with PCL electrorised in 18KV. The surface of nanofiber PCL-GO hydrolyzed with NaOH 5 M and NaOH 0.25 M and chlorine acetic acid 0.125 M and then 200 µg/ml enzyme Horseradish peroxidase immobilized with using of EDC & NHS in a surface of hydrolyzed nanofiber and detected the presence of TMB substrate in 450 nm. FTIR was used to investigate the chemical functional groups for immobilization of BSA protein

**Result:** the morphologies analysis of Graphene oxide indicated reduced GO sheets without obvious agglomeration. In addition, the thickness of the obtained GO nano sheets was found to be 2 nm by AFM the chemical modification of the nanofiber surface resulted in increased protein immobilization. So that immobilization of enzyme Horseradish peroxidase indicated increase specific activity and further stability against the changes in the configuration of the enzyme. the FTIR analysis confirmed the successful immobilization with the method of covalent attachment the biomolecules on the surfaces of the nanostructures.

**Conclusions:** Surface immobilized nanostructures with bioactive molecules have provided great opportunities for developing diagnostic sensors, bio-probes, and biomedical devices. the results indicated that the hydrolyzed surface was modified by further stability against the changes in the configuration and also increase the specific activity of the enzyme and hydrolyzing with NaOH 5 M confirmed the successful immobilization of the biomolecules on the surface of the PCL-GO fibrous scaffolds.

**Keywords:** PCL_GO, enzyme Horseradish peroxidase , surface modification
Design and construction of scaffolding PCL-GO-VEGF to accelerate the healing process of diabetic wound

Ghader nworoozi1*, Masoumeh rajabi bazl2, Meisam omidi3

Department of Clinical biochemistry of medicin University of Shahid Beheshti
Department of Clinical biochemistry of medicin University of Shahid Beheshti
Department of nanothecnology School of nanothecnolog & tissue engineering University of Shahid Beheshti

Background: synergistic effect of GO-VEGF accelerate the healing process of diabetic wounds in the rat

Method:E.coli BL21 cultured in LB agar and lyzed using sonic homogenize, so Recombinant VEGF protein purified with Ni NTA column. for detecting and specificity of a protein, VEGF performed ELISA test. nanofiber of PCL-GO electrorised with 1% GO and SEM test performed. MTT test and DAPI staining were performed on huvec cells cultured on PCL-GO scaffold for viability cells. PCL, PCL-GO-VEGF scaffolds used as wound dress in the day of 1, 4, 8, 12 for healing diabetic ulcer in the rat and Haemotoxylin and Eosin staining of tissue and stereology for analyzed wound healing stage.

Results: Recombinant VEGF protein purified from E.coli PET 32a and was confirmed using SDS-PAGE and specificity confirmed by ELISA.MTT test and DAPI staining were performed on huvec cells cultured on PCL-GO scaffold that indicated the viability of cells increased in PCL-GO-VEGF. The animal study result indicated that synergistic effect of GO-VEGF had been significantly decreasing inflammation during wound healing whereas, the PCL compound had little effect on wound healing. also, and stereology analysis showed increased Angiogenesis and decrees in the number of neutrophils during wound healing.

Conclusion: improvement of chronic diabetic wound treatments has become significant efforts that have been made to develop new drug delivery systems to release active compounds in a controlled manner.so, A controlled-release system such as A Nanocarriers caused protect and sustainably delivery of drugs. in this study, the result indicated that synergistic effect of GO-VEGF had been significantly increasing wound healing and PCL-GO-VEGF led to a decrease in the ratio time of wound healing other than nanofibers.

Keyword: PCL (polycaprolactone), GO (graphene oxide), diabetic wound, VEGF
Loop Mediated Isothermal Amplification (LAMP) For Rapid Detection Of Staphylococcus aureus

Fatemeh Ebrahimi tarki1, Nassim Ghorbanmehr2, Reyhaneh Ramezani3, Ahya Abdi-Ali3, Mahsa Bourbour1

1. Department of Biotechnology, Faculty of Biological science, University of Alzahra University
2. Assistant Professor, Department of Biotechnology, Faculty of Biological science, University of Alzahra University
3. Assistant Professor, Department of biomedical science, Women research center, Alzahra university, Tehran
4. Associate Professor, Department of Microbiology, Faculty of Biological science, University of Alzahra University

Background: Loop-mediated isothermal amplification (LAMP) is a rapid and easy DNA amplification procedure. LAMP reaction can be run at a constant temperature using only one type of enzyme. This technique does not require any sophisticated equipment like thermal cycler. Since LAMP uses four primers that recognize six regions on the target DNA, the specificity of this method is extremely high. This technique is increasingly proposed as culture-independent diagnostic technique. Staphylococcus aureus is a Gram-positive pathogen capable of causing different types of human infections specially skin and soft tissue infections. In some case undetected S. aureus can lead to high probability of mutations that cause antibiotic resistance such as methicillin resistance strains. Therefore early detection of S. aureus infections is very important. In this article we designed LAMP technique for accurate, rapid, easy and inexpensive detecting S. aureus.

Methods: DNA was extracted using phenol-chloroform protocol. Extracted DNA purity was assessed by gel electrophoresis and Nanodrop. Primers have been designed for agr gene and length of amplified sequence was 237 bp. Reaction mixture was contained Bst.2.0 polymerase, extracted DNA and etc. Reaction was incubated in 60°C for 60 minutes. Both PCR and LAMP reaction were done on extracted DNA and boiling colonies. PCR and LAMP amplicons were assessed using both gel electrophoresis and SYBR gold visualization. We did compare results of LAMP and PCR with 3 repeats for each test.

Results: The amplification and detection was observed in all 3 repeats of both PCR and LAMP techniques. In DNA concentrations that we used in our study the sensitivity of both techniques was the same.

Conclusion: Although we observed the same ability of detection for both techniques, in compare with PCR, LAMP did not need special equipment like thermal cycler. In fact there were significant differences in time, temperature and equipment. We conclude that LAMP is one of the most promising systems for detecting S. aureus in clinical samples.

Keywords: Isothermal method, Loop-mediated isothermal amplification (LAMP), S. aureus, agr gene
PBN-23

Rapid and accurate detection of *Escherichia coli* using nucleic acid sequence based amplification (NASBA)

Mahsa Bourbour¹, Nassim Ghorbanmehr², Reyhaneh Ramezani³, Fatemeh Ebrahimi tarki¹

¹. Department of Biotechnology, Faculty of Biological science, University of Alzahra University
². Assistant Professor, Department of Biotechnology, Faculty of Biological science, University of Alzahra University
³. Assistant Professor, Department of biomedical science, Women research center, Alzahra university, Tehran

**Background:** Isothermal amplification techniques are a group of methods that rapidly and efficiently amplify nucleic acid sequences at constant temperature. Recently, study on application of these techniques for detection of pathogenic and non-pathogenic organisms gained increasing attention. Among them, NASBA (Nucleic acid sequence based amplification) is a rapid, specific and sensitive technique for isothermal amplification of RNA. Unlike DNA Based amplification techniques, NASBA has the ability to detect viable bacterial cells. *E. coli* is a Gram-negative bacterium with some pathogenic strains that act on the intestine. Some of these strains are characterized by their production of potent enterotoxins and may cause life-threatening diseases. In this article we developed NASBA platform for detecting *E. coli* (ATCC=25922).

**Methods:** RNA was extracted using RNAxplus solution. RNA purity was assessed by Nanodrop and gel electrophoresis. Primers have been designed for *ffh* gene and forward primer had promoter of T7 RNA polymerase. Length of amplified sequence was 272 bp. Reaction mixtures were incubated at 90 minute and 37 °C. NASBA amplicons has been evaluated by gel electrophoresis. We did compare results of NASBA and RT-PCR with 3 repeats for each test.

**Results:** In our experiment the 272 bp amplicon was observed in all 3 repeats of both techniques, in fact the sensitivity of both techniques was the same.

**Conclusion:** We successfully set up NASBA for rapid detection of *E. coli*. In compare with RT-PCR, NASBA did not need any special equipment like thermocycler and done in only one step. The NASBA technique is one of the most promising systems used for RNA detection of *E. coli* for clinical purposes.

**Keywords:** Isothermal amplification method, NASBA, *E.Coli ffh* gene
Gram Positive bacterial factory for the production of recombinant protein

Sadegh Feizollahzadeh¹, Amir Asghary¹

¹. Medical Laboratory Sciences, Paramedical Faculty, Urmia University of Medical Sciences, Urmia, Iran.

Gram positive (Gr+) bacteria are efficient heterologous protein producing hosts capable of replacing the conventional host *E.coli*. The Gr+ bacteria, such as strains of *Bacillus*, *Lactobacillus* and *Lactococci* are suitable for expression of the heterologous protein. Lipopolysaccharide (Lps) free products, high protein yield, efficient section systems, easy protein extraction and purification and availability to improved vectors rendered Gr+ bacteria as attractive hosts for protein expression. The LPS contamination of *E. coli* derived products is the main disadvantage of this host. The high proteolysis activity is the main disadvantage of heterologous protein expression in Gr+ bacteria. However, improved strains with low extracellular proteolysis activity are developed. By using of *Bacillus subtilis* and *Lactococcus lactis* (*L. lactis*), a 1 g/L and 100 mg/L of the product can be obtained, respectively. Another advantage of *L. lactis* is its safety. *L. lactis* is usually ingested by the human with dairy products and is classified ‘generally recognized as safe’ (GRAS) by the Food and Drug administration (FDA). Therefore, *L. lactis* can be used for protein production in industrial scales and as a live vector for therapeutic protein delivery to the intestinal tract.

**Keywords:** Gram positive bacteria, Protein expression, Recombinant protein
**PBN-25**

**In Vitro Effects of Strontium on Cell Proliferation and Osteoinduction: a Review**

Saeedeh zare jalise\(^1\)*, Sina Habibi\(^2\)

\(^1\) Department of Anatomical sciences, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.

* (corresponding author), E-mail: saeedehzare@hotmail.com

\(^2\) Department of Hematology, Faculty of paramedical Sciences, Bushehr University of medical sciences, Bushehr, Iran.

Bone disorders, which can be caused by trauma or pathology, have been growing upward all around the world. Tissue engineering exploits the knowledge of bioengineering, cell transplantation and materials science to produce biological substitutes. The classic bone tissue engineering paradigm indicates several key players: a biocompatible scaffold that closely mimics the natural bone extracellular matrix niche, osteogenic cells to create the bone tissue matrix and sufficient vascularization to meet the growing tissue nutrient supply and clearance needs.

Importantly, mechanical and osteoinductive properties of the scaffolds can be reinforced via metallic ions replacement. Among various ion replacement, strontium (Sr) was the only one correlated with an increase in bone compaction strength. Stimulatory effect of Sr on osteoblasts and inhibitory effect on osteoclasts have been established. Strontium-containing bone cements have also revealed good bioactivity and possessed good bone binding strength. The favorable effects of Sr on promoting bone formation are closely related to its capability for increasing bone formation and decreasing bone resorption. Molecular factors involved, includes calcium sensing receptor (CaR). This crucial receptor is in the strontium induced reproduction of the osteoblasts and the apoptosis of the osteoclasts. However, the CaR-independent pathway may also be involved in the osteogenic process. The exact role of Sr on osteoblastic differentiation and related molecular mechanisms will support the use of this ion in bone tissue engineering.

Stem cells that feature the osteogenic differentiation potential could also be used in bone tissue engineering. Sr could enhance calcium deposition process and boost bone repair through enhancing the osteogenic differentiation of stem cells. Here, we analyze the effects of Sr incorporation on osteogenic differentiation feature of stem cells and bone remodeling. This review may offer new insight in bone tissue engineering.

**Keywords:** Bone Tissue engineering, Strontium, Differentiation
Development and optimization of the formulation of liposomal nanoparticles containing Achilleamillefolium essential oils

Hamideh Emtiazi 1*, Ali Salari Sharif 1, Behnam Abdizadeh1

1. Faculty of Pharmacy, International Campus Shahid Sadoughi University of Medical sciences, Yazd, Iran

Background: Essential oils like Achilleamillefolium (common yarrow) has been used in many applications such as medicine, veterinary science, and cosmetics [1]. The most of EOs are poorly soluble in water, biologically unstable and they distribute defectively to target sites. Due to a lack of stability of most of the essential oils, new methods have been developed to improve their stability, among these is the encapsulation of the essential oils in liposomes [2]. Liposomes are vesicles composed of concentric phospholipid bilayers [3]. Due to their capability to deliver slow drug release, cutaneous targeting and extended transdermal delivery of drugs, liposomes have been reported to be promising drug carriers for antimicrobial therapy.

Methods: In this study, nanoliposomes containing Achilleamillefolium essential oil were prepared by thin-film hydration method using Soybean phosphatidylcholine and cholesterol and fully characterized for their size, polydispersity index, zeta potential and morphology by different instrumental techniques.

Results: According to FTIR and DSC results, no interaction was observed between encapsulated Essential oils and liposome constituents. The particle size and size distribution were calculated 110–140 nm and 0.21–0.32, respectively. In optimized formulation, the encapsulation efficiency of Achilleamillefolium essential oil was calculated about 60%. The liposomes were tested for their stability after storing them for 2 months at 4 °C by monitoring changes in their mean size, polydispersity index and encapsulation efficiency (EE) values. It was found that liposomes exhibited nanometric oligolamellar and spherical shaped vesicles.

Conclusion: This study concluded that the presence of Achilleamillefolium in liposomes may effectively enhance its stability and the entrapped oil remains stable for an extended period of time. Liposomal gel formulation of essential oils may also lead to improved and better antimicrobial activity.

Keywords: Achilleamillefolium, Essential oils, Encapsulation efficiency
Synergistic effect of GO-VEGF immobilized in PCL nonofiber in signaling pathway vegf signaling pathway

Ghader nworoozi¹, Masoumeh rajabi bazl², Meisam omidi³

Department of Clinical biochemistry of medicine University of Shahid Beheshti
Department of Clinical biochemistry of medicine University of Shahid Beheshti
Department of nanotechnology School of nanotechnology & tissue engineering University ofShahid Beheshti

Background: synergistic effect of GO-VEGF had been significantly increasing expression of eNOS in VEGF signaling pathway

Method: Protein VEGF and graphene oxide with ratio of 1:1 (70 µg/ml) were chemically cross-linked using an EDC in presence of NHS. the huvec cells cultured in DMEM low glucose. Cell viability and doses of GO-VEGF in a concentration of (17, 35, 70,100 and 125 µg/ml ) was determined by using MTT assay. huvec cells were seeded (10 000 cells cm⁻²) on PCL, PCL_ VEGF, PCL_GO, PCL_GO_VEGF and PCL nanofibrous scaffolds in 24-well plates. Scaffolds were then seeded with a cell suspension. After 7 and 14 days of incubation scaffold constructs were extracted RNA for using of RT-PCR.

Results: The successful covalent attachment between GO with VEGF confirmed from the presence of the peak 800, 1500 cm⁻¹ in FTIR spectroscopy. then the amount of 100 µg/ml graphene oxide for electroricy in PCL calculated from MTT assay using one-way ANOVA. huvec cells were seeded PCL scaffold after 7 and 14 days with the running of PCR showed expression of PCL, PCL_ VEGF, PCL_GO, PCL_GO_VEGF and PCL nanofibrous scaffolds in 24-well plates. Scaffolds were then seeded with a cell suspension. After 7 and 14 days of incubation scaffold constructs were extracted RNA for using of RT-PCR.

Conclusions: VEGF is one of the important angiogenic growth factors which stimulates multiple phases of wound healing angiogenesis and graphene oxide is in lower concentration proangiogenic property. Recent studies have demonstrated that eNOS/NO plays an important role in many VEGF-induced actions.so, the synergistic effect of GO-VEGF had been significantly increased expression of eNOS in VEGF signaling pathway.

Keywords: huvec cells, VEGF, eNOS
Susceptibility of *Klebsiella pneumoniae* to a mixture of two bacteriophages isolated from a hospital waste water plant

Mahboubeh Soleimani Sasani¹, Fereshteh Eftekhar²

1. Department of microbiology and microbial biotechnology, faculty of life sciences and biotechnology, Shahid Beheshti University, Tehran, Iran
2. Department of microbiology and microbial biotechnology, faculty of life sciences and biotechnology, Shahid Beheshti University, Tehran, Iran

**Background:** The use of bacterial viruses has become of major interest in treatment of multi drug pathogens such as *Klebsiella pneumoniae*. We studied the susceptibility of *Klebsiella pneumoniae* to a mixture of two lytic bacteriophages isolated from a hospital waste water treatment plant.

**Methods:** Phage isolation was carried out by taking samples from the outlets of three hospital wastewater treatment plants. The samples were filtered using 0.45μm filters after centrifugation at 6,000rpm, 10min. An overnight culture of *Klebsiella pneumoniae* ATCC 10031 (volume 5ml) was mixed with 1ml Volume of the filtered water samples and incubated for 24h at 37°C before centrifugation at 6000Rpm and filtering through a 0.22μm membrane filter. Titration of the lytic phages in the filtrates was examined by the double layer method using 100μl of the diluted virus with 400μl of the ATCC strain (0.5 McFarland) in 5ml of 0.75% molten soft agar before layering the mixture on nutrient agar plates. The plates were incubated at 37°C overnight and the resulting plaque forming units (PFU) were then counted. The phage mixture was then centrifuged at 6000rpm and the pellet was washed using ammonium acetate (0.1 M, pH 7.0). A portion of the resuspended sediment was deposited on formvar carbon coated grid Cu Mesh 300, stained with 2% uranyl acetate and examined in EM10C (Zeiss, Germany) transmission electron microscope at 100kV.

**Results:** Two lytic bacteriophages were isolated which formed 1 and 2 mm plaques when plated against the *Klebsiella pneumoniae* host strain. The TEM results showed that the isolated phases resembled the tailed bacteriophages of Siphoviridae and Myoviridae families.

**Conclusions:** The bacteriophages isolated in this research showed specificity towards *Klebsiella pneumoniae* ATCC host strain. Further research is underway to examine their potential use against multi drug resistant *Klebsiella pneumoniae*.

**Keywords:** *K. pneumoniae*, bacteriophage, lytic
Preparation and nanoencapsulation of l-asparaginase II in chitosan-tripolyphosphate nanoparticles and in vitro release study.

Elham Bahreini1, Khosrow Aghaiypour2

1)Department of Biochemistry, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran.

2)Department of Genomics and Genetic Engineering, Razi Vaccine and Serum Research Institute, Iran

This study describes the production, purification, and immobilization of L-asparaginase II (ASNase II) in chitosan nanoparticles (CSNPs). ASNase II is an effective antineoplastic agent, used in the acute lymphoblastic leukemia chemotherapy. Cloned ASNase II gene (ansB) in pAED4 plasmid was transformed into Escherichia coli BL21pLysS (DE3) competent cells and expressed under optimal conditions. The lyophilized enzyme was loaded into CSNPs by ionotropic gelation method. In order to get optimal entrapment efficiency, CSNP preparation, chitosan/tripolyphosphate (CS/TPP) ratio, and protein loading were investigated. ASNase II loading into CSNPs was confirmed by Fourier transform infrared (FTIR) spectroscopy, and morphological observation was carried out by transmission electron microscopy. Three absolute CS/TPP ratios were studied. Entrapment efficiency and loading capacity increased with increasing CS and TPP concentration. The best ratio was applied for obtaining optimal ASNase II-loaded CSNPs with the highest entrapment efficiency. Size, zeta potential, entrapment efficiency, and loading capacity of the optimal ASNase II-CSNPs were 340 ± 12 nm, 21.2 ± 3 mV, 76.2% and 47.6%, respectively. The immobilized enzyme showed an increased in vitro half-life in comparison with the free enzyme. The pH and thermostability of the immobilized enzyme was comparable with the free enzyme. This study leads to a better understanding of how to prepare CSNPs, how to achieve high encapsulation efficiency for a high molecular weight protein, and how to prolong the release of protein from CSNPs. A conceptual understanding of biological responses to ASNase II-loaded CSNPs is needed for the development of novel methods of drug delivery.

Keywords: Cross-linking; Enzyme immobilization; Half-life; Ionotropic gelation; Nanoparticle; Optimization
Evaluation of umbilical cord blood hematopoietic stem cells expansion and homing on electrospinning bioengineered nanofiber scaffold as co-culture with UC mesenchymal stem cells

Maryam Islami¹, Maryam Drvish²

¹Medical Biotechnology and Nanotechnology Department, Zanjan University of Medical Sciences, Zanjan, Iran
²Department of medical biotechnology, school of medicine, Arak University of Medical Sciences, Arak, Iran

Objective: Hematopoietic stem cells (HSCs) transplantation is an appropriate treatment for many of the hematological abnormalities. Among the sources of HSCs, umbilical cord blood (UCB) is a stem cell-rich source interested for some reason such as availability, lower rate of rejection reactions and so on. However, due to the low volume of UCB, the number of stem cells is low, too. The proper solution is ex vivo expansion of these cells. Since the natural niche of the HSCs is three-dimensional and rich of mesenchymal stem cells (MSCs), we expanded these cells on PLLA biodegradable scaffold as a co-culture with UCB MSCs.

Materials and method: After HSCs isolation, the flowcytometry method was used for HSCs confirmation, and then cells were seeded on the PLLA scaffold as co-culture with UCB MSCs and without MSCs for 7 days. During this time, real-time PCR was used for CXCR4 gene evaluation. The number of total and HSCs cells, MTT assay and CFU assay were evaluated, too.

Results: Flowcytometry data indicated that the purity of HSCs before expansion was proper. After 7 days, there was higher number of HSCs cells on MSCs co-cultured PLLA scaffold compared to other groups. Moreover, results of MTT, colony assays and CXCR4 gene expression showed higher viability, proliferation and homing in this group.

Discussion: MSCs provide natural niche conditions for cell expansion.

Keywords: Hematopoietic Stem Cell Transplantation, Nanofiber, Mesenchymal Stem Cells, Coculture Techniques
The role of miRNAs on bone differentiation

Fatemeh Rostami1, Mehrdad Behmanesh2, 3*

1. Department of Nanobiotechnology, School of Biological Science, University of Tarbiat Modares
2. Department of Genetic, School of Biological Science, University of Tarbiat Modares
3. Department of Nanobiotechnology, School of Biological Science, University of Tarbiat Modares
*Behmanesh@modares.ac.ir

Abstract:
Due to widespread bone damages and an ageing population, restoration of musculoskeletal injuries will be raised as a major challenge in the coming years. Limitations of traditional therapies, today regenerative medicine of bone tissue and use of nanomaterial scaffolds in combination with stem cells has become a new way of replacing and treating tissues such as bone. Osteoblasts play an important role in bone formation. The differentiation of adult osteoblasts from mesenchymal cells is regulated by pathways such as bone formation proteins (BMPs), Notch and Wnt, various transcription factors, and cytokines. On the other hand, evidence suggests the role of some miRNAs in differentiating bone tissue. The mature form of miRNAs (non-coding RNAs present in plants, animal viruses, etc.) is typically 18 to 24 nucleotides long and can regulate the expression of genes for the development and function of bone from the initial responses of the stem cells to metabolic activities and constructed adult tissue. Some miRNAs inhibit and some induce osteogenesis. For example, miR-15b induces bone differentiation of human MSCs by inhibiting BMP inhibitors. miR20a, miR-96, miR-29b, miR-30c, miR-199a also participate in the onset of bone differentiation, while miR-24a, miR-27a, miR-100 and miR-34b / c have a negative effect on osteogenesis. However, treatment with miRNAs is limited due to its low stability, low transfection efficiency of cells and tissues and requires the design of systems to protect these factors, transferring them to specific cells and tissues and efficient release, or in other words, high cell transfusion and target tissue. The present review the design and construction of more efficient systems for transferring miRNAs to bone tissue repair using nanotechnology and tissue engineering scaffolds.

Keywords: Differentiation, Osteogenesis, miRNAs, Stem cell
Investigating the Role of Helicobacter pylori in Infertile Women with Recurrent Abortions

Fariba Safari¹, Mohammad Hassan Shahhosseiny², ³, Gholamrea taheri sangesari ¹

¹ Department of Biology, Islamic Azad University, East Tehran Branch, Tehran, Iran
²Department of Microbiology – shahr-e-Qods Branch – Islamic Azad University –Tehran / Iran
³Iranian Gene Fanavar institute, Tehran, Iran (IGF)

Background: Infertility is one of the major problems of genealogy around the world. Its prevalence emphasizes the importance of further studies on the factors affecting infertility. Infertility can be caused by genetic, environmental or infectious problems. Helicobacter pylori are important for the occurrence of inflammatory responses in the genital tract of women and men. There is a relationship between Helicobacter pylori infection and nausea and vomiting that occurs during pregnancy and also has a negative effect on the hidden infection with Helicobacter pylori, and it can also be dangerous not only for the mother but also for the fetus; and even sometimes Its outcome may appear throughout the person's life. Helicobacter pylori play an important role in pregnancy disorders, including decreasing iron and vitamin B12 levels, developing fetal neural tube and secretion of cytokines. Helicobacter antibodies and localized antigen can interact in the placenta and endothelial cells. Therefore, in this study, the prevalence of Helicobacter pylori infection in vaginal secretions of infertile women with a history of recurrent abortions was investigated by PCR method.

Methods: 100 vaginal discharge samples were collected from women suffering from recurrent abortion in Saram Hospital. DNA extraction was performed using DNG PLUS / boiling method. The specificity and sensitivity of the PCR test of Helicobacter pylori was evaluated by phosphoglucosamine mutase (ure C) gene primers and then the optimal PCR test was performed on the specimens.

Results: As a result of PCR tests, the 294 base pairs of gene were replicated and detected in agarose gel electrophoresis. We observed that there was no similar banding in bacterial, viral, mouse and human species. Also, the sensitivity of this reaction was 10 copies of DNA. 7% of the population was infected with Helicobacter pylori infection.

Conclusion: The 7% prevalence of Helicobacter pylori infection in infertile women with a history of recurrent abortion highlights the importance of this bacterium as an effective microorganism in the development of infectious infertility. Therefore, further studies should be done in this issue. Our results also demonstrated that PCR is a suitable method for detecting Helicobacter pylori in infertile women with a history of recurrent abortions.

Keywords: Helicobacter pylori, PCR, female infertility, recurrent abortion
PBN-35

Poly L-lactic acid (PLLA) Nanoscaffold mimics Umbilical cord blood hematopoietic stem cells niche

M. Islami a, M. Solimani b*, Y. Mortazavi c

a & c Department of Medical Biotechnology and Nanotechnology, Zanjan University of Medical Sciences, Zanjan, Iran.
b Department of Hematology, Tarbiat Modares University, Tehran, Iran.

* e-mail@: mahtabi2234@gmail.com

Abstract:
Background: Due to biocompatibility, injectability, and Biodegradability of PLLA scaffolds, this scaffold is used for Umbilical cord blood (UCB) hematopoietic stem cells (HSCs) expansion because of their low number in one unit of UCB. While, sufficient number of HSCs is used for treatment of patients suffering from hematologic and non-hematologic disorders.

Methods: MACS isolated CD133+ cells purity were evaluated by flowcytometry and then, they were expanded on PLLA scaffold for 7 day. Viability of CD133+ cells, CFC assay and SEM micrographs of scaffold were evaluated before and after of expansion

Results: Our findings demonstrated that 3dimensional (3D) expansion of cells produced more viability compared before expansion. Moreover, total number of colonies in the 3D laminin coated scaffold was higher than those before expansion.

Conclusion: laminated 3D electrospin fabricated nanofibrous PLLA scaffolds can maintain stem cells in a self-renewable state and influence the differentiation of stem cells

Keywords: PLLA, Umbilical cord blood (UCB), hematopoietic stem cells (HSCs)
PC-04

Detection of methylated DNAs as a biomarker suitable for noninvasive diagnosis of colorectal cancer: a simple review

Dehnavi Saeed*, Fathi Fateme, Rezvani Ali

*Student, Student Research Committee, KUMS

Email: saeed.m6841@gmail.com

Objective: Colorectal cancer (CRC) is the fourth leading cause of cancer-related death worldwide. Improved methods for early detection of CRC are essential for increasing survival. Hypermethylated DNA has been proposed as a biomarker for CRC and several hypermethylated genes that are sensitive and specific for CRC have been proposed. Here, we reviewed the articles to provide an overview of a range of DNA methylation studies.

Methods: In this review study, articles published from 2000 to 2016 in databases PubMed, Scopus and Web of Sciences also Google scholar browser were reviewed and keywords were “CRC”, “colorectal cancer”, “methylated”, “hypermethylated”, “noninvasive”, “biomarker” and related words. Non-English articles were excluded and the remaining paper’s titles and abstracts were screened.

Results: We found about 30 articles but 25 papers were related. The most important results in this study were: In blood samples, hypermethylated APC, NEUROG1, RASSF1A, RASSF2A, SDC2, SEPT9, TAC1 and THBD were detected in early stage CRC. In stool samples, hypermethylated GATA4/5, BMP3, PHACTR3, SFRP2, SPG20, TFPI2 and TMEFF2 were associated with early stage CRC. ITGA4 and TFPI2 methylation frequency was high in precancerous and cancerous tissues.

Conclusion: Epigenetic markers are noninvasive and accurate for the screening of CRC. Hypermethylation of the specific genes could be used as a CRC biomarker and provide prognostic information. The methylation markers ITGA4, APC, NEUROG1, RASSF1A, RASSF2A, SDC2, SEPT9, TAC1, THBD, GATA4/5, BMP3, PHACTR3, SFRP2, SPG20, TMEFF2 and TFPI2 seem to be suitable risk markers for noninvasive diagnosis of colorectal cancer.

Keywords: methylation, CRC, colorectal, biomarker, noninvasive
Concentration of CEA, CA-125 and CA19-9 tumor markers in sulfur mustard exposed veterans

Mohammad Rafiee1*, Mohammad Yousef Alikhani2, Naser Shagerdi Esmaeli3, Hassan Rafieemehr1, Yunes Panahi4

1- Department of Medical Laboratory Sciences, School of Para medicine, Hamadan University of Medical Sciences, Hamadan, Iran.
2- Microbiology Department and Research Center for Molecular Medicine, Hamadan University of Medical Sciences, Hamadan, Iran.
3- Department of Hematology and Blood Banking, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
4- Chemical injuries research center, Baqyiatallah University of Medical Sciences, Tehran, Iran.

* Corresponding author
Mohammad Rafiee

Department of Hematology and Blood Banking, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Email: m.rafiee911@gmail.com

Background: Sulfur mustard (SM) is a chemical warfare weapon that leads to alkylation, epigenetic changes, and increased production of oxidants in the cells and also known as a carcinogen. Carcinoembryonic antigen (CEA), cancerantigen125 (CA-125), and cancerantigen19-9 (CA19-9) are tumor markers applicable in diagnosis and follow-up of gastrointestinal, pancreas and lung cancers. Given the carcinogenic effect of SM and the importance of tumor markers, aim of this study is compare of the tumor markers in chemical victims and control group.

Methods: 150 Iranian chemical victims of SM during Iraq-Iran war and 150 healthy controls that had no exposure to SM were studied. Serum concentration of CEA, CA-125, and CA19-9 were measured by ELISA and compared between the two groups.

Results: Mean concentration of tumor markers in chemical victims group compared with control was 2.72 vs 1.88 ng/ml; (p <0.01) for CEA, 9.06 vs 4.44 U/ml; (p <0.01) for CA-125, and 22.35 vs 11.33 U/ml; (p <0.01), for CA19-9. Weakly positive correlation was found between CEA and CA-125 (p: 0.018, r: 0.193), as well as between CEA and CA19-9 (p: 0.047, r: 0.184) in control and chemical victims group, respectively.

Conclusion: Significant increased levels of CEA, CA-125 and CA19-9 in SM victims are consistent with the results of other studies on carcinogenic property of SM. In addition, as weakly positive correlation between CEA and CA19-9 in exposure to SM in this study and confirmation of this association by other researches, more precise experiments are suggested in the future concerning colorectal and pancreatic cancers in SM victims.

Keywords: Sulfur mustard, CEA, CA125, CA19-9, cancer
The cytotoxicity Effects of a novel Cu complex on MCF-7 human breast cancerous cells

Fatemeh Mohammadizadeh1,2, Soudeh Khanamani Falahati-pour2, Azadeh Rezaei1,3, Maryam Mohamadi2, Mohammad Reza Hajizadeh1,3, Mohammad Reza Mirzaei1,3, Alireza Khoshdel1,2, Mohammad Ali Fahmidehkar1,3, Mehdi Mahmoodi1,3, *

1- Department of Clinical Biochemistry, Faculty of Medicine, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
2- Pistachio Safety Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
3- Molecular Medicine Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.

Background: A variety of biological activities, such as anti-microbial and anti-tumor properties was reported for 1,10-phenanthroline and its copper complexes.

Methods: In this study, the anti-proliferative activity of a novel [Cu (L)(phen)] complex was investigated on MCF-7 breast cancer cells using MTT assay. Since chemotherapy is lack of ability to distinguish between normal cells from cancerous cells, therefore we also investigated the effect of [Cu (L)(phen)] complex on normal L929 cells.

Results: The results showed that following 48 h exposure of cells with [Cu(L)(phen)] complex, the IC50 values for MCF-7 were significantly lower than that recorded for L929 and normal cells were less sensitive than cancerous cells to the complex. Additionally, the [Cu(L)(phen)] complex displayed a concentration-dependent cytotoxic response, with MCF-7 and L929 cells. Also flow cytometry findings suggest that [Cu (L)(phen)] complex is capable of decreasing cancer cell viability through apoptosis and did not efficiently activate the necrosis process.

Conclusion Finally, we found that [Cu (L)(phen)] complex possess the potential for development as an anti-cancer drug for human breast cancer

Keywords: Apoptosis, Breast Cancer, [Cu (L)(phen)] complex, Cytotoxicity, MCF-7 cell line
Prevalence of Human Papillomavirus in pap-smear samples from Ahvaz

Raziyeh Kashisaz¹, Mohamad Roayaei ardkani², Seyedeh Elham Reza Tofighi³, Manoochehr Makvandi⁴

¹. Department of Biology Faculty of Science Shahid Chamran University of Ahvaz, IR Iran
². Department of Biology Faculty of Science Shahid Chamran University of Ahvaz, IR Iran
³. Department of Biology Faculty of Science Shahid Chamran University of Ahvaz, IR Iran
⁴. Department of Virology Ahvaz Jundishapur University of Medical Science, Ahvaz, IR Iran

Background: Cervical cancer is the second most common cancer in women from worldwide, especially in developing countries. Nowadays, it has been widely accepted which human papillomavirus (HPV) is one of the causes of this cancer. However, little research has been done about the prevalence of HPV and the frequency of genotypes of this virus among Iranian women. Therefore the aim of this study was to identify human papillomavirus in pap-smear samples in Ahvaz city.

Methods: In this study 150 pap-smear samples were collected from 16-72 old married women who referenced to the specialized women-clinics in year 1396. After examining the cytology of the pap-smear samples, in order to identification of HPV virus, PCR assay was performed on the all samples using GP5+ and GP6+ primers.

Results: Performing PCR in this study showed that among 150 pap-smear samples, the papillomavirus was detected in 23 specimens (%15/33).

Conclusion: Due to high prevalence of HPV in women and the possibility of serious involvement of this virus in cervical cancer, examination of its prevalence in women from different regions of Iran is essential to adoption preventive measures. In this regard, this research aims to investigate the prevalence of this infection in married women in Khuzestan province using molecular biology (PCR) methods (which are high precision and high specificity for detecting HPV infection). On the other hand, in order to the prevention of this infection and to adopt the necessary decisions, this study will provide important information for the responsible authorities. It is obvious that these measures will reduce the incidence of cervical cancer in the community.

Keywords: Papilloma virus, cervical cancer, PCR
Investigation of anti-tumor and anti-inflammatory effects of *Nigella sativa* on 4T1 and CT26 cell lines

Fatemeh Hosseini¹, Hadi Hassannia², Bahman Rahimi²

¹. Department of Immunology, School of Medicine, Semnan University of Medical Sciences
². Department of Immunology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

**Introduction:** Cancer is the second leading cause of death globally and cancer-related inflammation plays an important role in malignant progression of several cancer types. Current therapeutic approaches for cancer therapy are not completely effective and are associated with high side effects. In recent years, there has been growing interest in the application of medicinal herbs, since they have fewer side effects than chemical drugs. Therefore, the present study aimed to investigate of anti-tumor and anti-inflammatory effects of *Nigella sativa* in vitro conditions.

**Methods and Materials:** In this study, 4T1 and CT26 cell lines were treated with different concentrations of hydro alcoholic extracts of *Nigella sativa* (50, 250, 500, 1000 μg/mL). After 48h, the effects of the extract on tumor growth and COX-2 gene expression were analyzed by XTT and Real time PCR, respectively.

**Results:** The results revealed that 4T1 and CT26 cell lines growth significantly decreased in a dose dependent manner compared to the control (p < 0.05). Also, Real time PCR results showed that the expression of COX-2 significantly decreased in a dose dependent manner even at the low concentration of extract compared to the control (p < 0.05).

**Conclusion:** Based on these results, *Nigella sativa* extract not only suppressed the growth of cancer cell lines but also significantly reduced cancer-related inflammation. Therefore, it may be utilized as a novel therapeutic against in several types of cancer. However, this claim needs further investigations.

**Keywords:** Nigella sativa, Cancer, Inflammation, COX-2
The study of HIF-1 alpha gene expression level with burst cancer stages

Reyhaneh nassiri mansour¹, Seyed ehsan enderami²

¹MS.c student of clinical biochemistry_zanjan university of medical sciences_Zanjan_Iran
²Ph.D student of medical biotechnology_zanjan university of medical sciences_Zanjan_Iran

Background: Burst is the fourth most prevalent cancer in world wide. Several factors have roles in cancer establishment. One of the most important factors is hypoxia that induces Hypoxia Inducible Factor-1 (HIF-1). This protein consisted HIF-1alpha and HIF-1 beta. The HIF-1alpha over expressed in hypoxia conditions and plays a pivotal role in carcinogenesis features. In this study we aimed to examine the efficiency of HIF-1alpha gene expression at mRNA and protein’s level for burst cancer diagnosing and staging.

Materials and methods: in this study the subjects included in to 75 cancer specimen in different stages (Group2=stage 1, Group3=stage 2 and Group4=stage 3, 4) and 10 normalspacimen as control (Group1). RT-Real Time PCR and immunehistochemistry were performed for measuring gene expression at RNA and protein’s level, respectively. Raw data was analyzed in SPSS.20 software.

Results: HIF-1alpha gene expression rate($2^{-\Delta\Delta CT}$) and $\Delta CT$ values were significantly high increased in group4, in compare with control($p<0.001$). Other cancer groups (2 and 3) had greater $\Delta CT$ values than control but it wasn’t statistically significant. And the rate of HIF-1alpha gene expression ($2^{-\Delta CT}$) was increased with cancer stages. According to the immunohistochemistry results, there was a positive relationship between burst cancer stages and HIF-1alpha protein expression ($p<0.05$).

Conclusion: in conclusion, HIF-1alpha gene expression increased in earlier up to metastasis stages of burst cancer, but HIF-1alpha gene doesn’t play important roles in diagnosis of cancer in early stages and classification of carcinoma. Because the increasing of HIF-1alpha gene expression isn’t significant in early cancer stages.

Key words: HIF-1\(\alpha\), burst cancer, expression level
Evaluation of oral administration of omega fatty acids on lipid peroxidation and oxidative stress enzymes activity in patients with gastric adenocarcinoma before and after chemotherapy

mohammad-Sadra Ra\textsuperscript{1}, Homayun Dolatkhah\textsuperscript{2}, Ali Rezazadeh\textsuperscript{*3}

1. MSc in Biochemistry, Faculty of Basic Sciences, Bonab Branch of Islamic Azad University, Bonab, I. R. IRAN, Email: rasooli_97@yahoo.com.
2. Assistant Prof. in Clinical Biochemistry, Dept. of Clinical Biochemistry and Laboratories Medicine, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, I. R. IRAN. Email: dolatkhahh@gmail.com.
3. *Corresponding Author, MSc Student in Biochemistry, Dept. of Biochemistry, High Educational Institute of Rab-Rashidi, East-Azarbaijan, Tabriz, I. R. IRAN. Email: ali.rezazadeh876@gmail.com.

Introduction: Very studies show that the relative resistance to chemotropic in gastric cancer cells can be seen. The purpose of this study, the effect of oral administration of omega fatty acids (PUFAs) on lipid peroxidation and oxidative stress gastric cancer in patients with gastric cancer before and after chemotherapy.

Materials and Methods: This study was a double-blind clinical trials that target group of patients with gastric cancer who underwent chemotherapy were identified for the first time. Thirty-three patients were selected and randomly divided into two groups. The case group included patients who \textit{cis}-platin with drug capsule of omega fatty acid supplement of 3600 mg per day, and within three courses. In control group \textit{cis}-platin with placebo was administered for course. Samples of tumor patients before and after chemotherapy was performed. In gastric cancer tissue superoxide dismutase and glutathione peroxides activity were measured by Randox kit. Malone di-aldehyde (MDA) in gastric cancer biopsy was determined by thiobarbitoric acid colorimetric methods.

Results: In the case group, MDA the significant increase compared with control group. (p<0.0001). Also a significant decrease in the superoxide dismutase and glutathione peroxidase activities in case group compared to control group (In both case p<0.001)

Conclusion: The results of this study show that the use of PUFAs as a supplement with \textit{cis}-platin for stomach cancer control can be useful. Because we showed that there is a significant increase in the oxidative stress and lipid peroxidation of the gastric cancer mucosa in the case group compared to the control group.

Key Words: Stomach Cancer, Poly Unsaturated Fatty Acids (PUFAs), Oxidative Stress.
Determination Frequency of Malignant Lesions in Skin biopsy Samples

Seyedehsara Bayesh*, Seyedsina Bayesh2, Minoo Saatiyan3, Reza Najibpour4

1. Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran
2. Islamic Azad University, North Tehran Branch, Tehran, Iran
3. Department of Surgery, Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran
4. Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran

*Corresponding author and presenter: Seyedehsara Bayesh, Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran

Backgrounds and Aims: Skin cancer due to the abnormal cells development is one of the most common malignancies in the world and according to Iranian Hygiene Ministry Reports in (2004-2005) is the most common cancer in Iran. Early diagnosis and treatment can increase the survival rate. As diagnosis of pigmented lesions is challenging yet, we aimed to investigate frequency of malignant lesion in skin biopsy samples.

Materials and Methods: This cross-sectional retrospective study was done on 532 Skin biopsy Samples including 499 malignant lesions and 33 premalignant lesions of 4306 Patients referred to pathological ward in Buali hospital in Tehran during the 10 years (1385-1395). Data were analyzed by SPSS13.0 statistical software. In descriptive analysis, statistical indicator such as mean, absolute frequency and relative frequency were used. In analytic section, independent-sample T test and chi-square test were used to assess any association between the variables. P value less than 0.5 was considered significant.

Findings: 11.6% of total Skin biopsy was determined as malignant Lesion. The mean age of malignant lesions was 61.8±13.26. Overall the highest prevalence of age frequency was found in 7th decade of life. Prevalence of skin malignancy with 62.5% is more common in men. The most common type of malignancy in both sexes was Basal-cell carcinoma (BCC) with 86% frequency, then squamous cell carcinoma (SCC) and melanoma placed in second and third stage with 10% and 2.2% frequency respectively. Significant relationship between initial and clinical diagnosis of BCC and SCC pathological lesions were observed (p<0.001).

Conclusions: Considering high prevalence of BCC in comparison to SCC and melanoma are in both sexes, early diagnosis and treatment can play an important role in determining the prognosis of disease.

Keywords: BCC, SCC, Lesion, Malignant
Assessment of promoter methylation of MiR-424 in the colorectal cancer cells

Zahra nouri ghonbalani\textsuperscript{a}, Shiva shahmohammadnejad\textsuperscript{a}, Ehsan khalili\textsuperscript{a}

\textsuperscript{a}Department of Clinical Biochemistry, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

Correspondence to Ehsan Khalili, Department of Clinical Biochemistry, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
e-mail:Ehsankhalili1@gmail.com

Introduction: In advanced countries colorectal cancer (CRC) is the third leading cause of death from cancer in adults. Recent advances have shown that cancer cells can have a number of epigenetic changes that are involved in all stages of the cancer. Methylation of DNA is a common epigenetic phenomenon that is consistently done by DNA methyl transferase. Since miRNAs act as gene expression regulators in many biological processes, they can be an oncogene or suppressor of the tumor depending on their purpose. Molecular research has shown that methylation in the CpG islands of the promoter region causes suppresses or reduces expression of miRNAs. Several studies have shown that Mir-424 reduces expression in colorectal cancer. For this purpose, the study of methylation of CpG islands of the promoter region of this microRNA, which are involved in the process of inhibiting tumor angiogenesis, is the main objective of this scheme.

Material and method: All fresh frozen 50 samples including 25 colorectal cancer samples and 25 normal samples of these patients were collected from the Imam hospital, Tehran, Iran. Genomic DNA was extracted from the samples with the EpiTect Lyse All Lysis Kit (QIAGEN) and the extracted DNA was treated with sodium bisulfite with the EpiTect Fast DNA Bisulfite Kit (QIAGEN). The promoter methylation status of the mir-424 was assessed using a methylation-specific polymerase chain reaction (MSP).

Results: The miR-424 is markedly downregulated in human colorectal cancer (CRC) compared with healthy colon cells. In order to determine the existence of an association between DNA methylation and miR-424 expression in CRC cells it was identified that miR-424 promoter hypermethylation is upregulated in CRC tissues.

Conclusion: miR-424 is down-regulated or undetectable in many human cancers such as colorectal cancer. Promoter hypermethylation is an important mechanism involved in colorectal cancer. In conclusion, our data presented here clearly demonstrate that hypermethylation of miR-424 promoter CpG island is an important reason that miRNA-424 expression can be downregulated, although it is not the only reason of miRNA-424 regulation.

Keywords: Methylation Specific PCR, Colorectal Cancer, miRNA, miRNA-424, CpG islands, promoter methylation
Binding site proposition of an anti cancer peptide on Frizzled receptor

N. Dehghan Banadaki\textsuperscript{a}, M. Taghdir \textsuperscript{b}\textsuperscript{*}

\textsuperscript{a}Department of biophysics, University of Tarbiat Modares, Tehran, Postal code: 14115154, Iran
\textsuperscript{b}Department of biophysics, University of Tarbiat Modares, Tehran, Postal code: 14115154, Iran
\textsuperscript{*}taghdir@modares.ac.ir

Abstract: Frizzled receptors family have a high importance in Wnt/beta catenin signaling, a conserved pathway which is aberrantly activated in lots of cancers including breast, prostate and clone. Overexpression of frizzled family different members is reported in lots of studies and frizzled 7 is introduced as a probable Achill heel for treatment of cancer. So inhibition of this Wnt/beta catenin upstream receptor is at the focus of researches. Different strategies used to fire at this attractive therapeutic target such as small molecules, peptides, Si-RNAs and mono clonal anti-bodies. Amongst important inhibitory bio-drugs function through frizzled receptors, arterial neoteric peptide (ANP) has a special position. the peptide which known as a cardio hormone at first, have anti-cancer effects on different type of cancers including those with Wnt/beta catenin signaling activation. It is possible that this peptide has a competitive inhibitory behavior with Wnt ligand to bind to frizzled. Here, using bioinformatics analysis and molecular docking procedure, we recommend a binding mode for Wnt ligand, also ANP peptide to Frizzled. Our result confirms existence of an overlapping interacting region on frizzled. More studies are required to understand the exact interacting mode of action of this anticancer peptide on frizzled.

Keywords: Wnt; cancer; peptide; bioinformatics
The effect of 17-AAG alone and in triple combination with capecitabine and irinotecan on HT-29 colorectal cancer cell line

Fatemeh kheradmand, Shima Zeynali Moghaddam, Anahita Fathi Azarbayjani, Sina Abroon, Mahshid Mohammadian, Omid Esnaashari

1 Department of Biochemistry, Cellular Molecular and Solid Tumor Research Center, Urmia University of Medical Science, Urmia, Iran
2 Department of Clinical Biochemistry, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran (corresponding author)
3 Department of Pharmacology, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran
4 Department of Clinical Biochemistry, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran
5 Radiotherapy Center of the Omid Hospital, Urmia, Iran

Background: Colorectal cancer (CRC) is one of the leading causes of cancer-related death worldwide. After surgical resection, chemotherapy administration by oncology professionals for patients, can control cancer metastasis and invasion to other tissues. In this study we combined 17-allylamino-17-demethoxygeldanamycin (17-AAG), a new HSP-90 inhibitor, with capecitabine and irinotecan (standard chemotherapy agents).

Methods: Cells were treated with IC50 dose of every single drug (which was calculated in our previous study) and triple combination of them (0.5×IC50 and 0.25×IC50). The inhibitory effect of triple combination was evaluated by WST-1 Cell Proliferation Assay. In order to investigate anti-metastatic and anti-angiogenic effect of these agents, real-time PCR was performed to detect MMP-9 (matrix metalloproteinase-9) and VEGF (vascular endothelial growth factor) gene expression.

Results: Herein, we demonstrated that triple treatment had no significant differences in cell growth inhibition comparison to single treatments. Besides we observed that triple combination group had antagonistic effect (Combination index>1). 17-AAG/irinotecan/capecitabine triple combination significantly decreased VEGF mRNA expression but this combination had no significant effect on MMP-9 mRNA expression.

Conclusion: Our findings provide evidence suggesting that 17-AAG in triple combination with capecitabine and irinotecan may not effectively inhibit colorectal cancer growth but this combination may be effective in angiogenesis prevention.

Keywords: 17-AAG, standard chemotherapy, metastasis, angiogenesis, HT-29
PC-23

The study of HIF-1 alpha gene expression level with prostate cancer stages

Reyhaneh nassiri mansour¹, Mojtaba Fathi¹, Seyed ehsan enderami²

1. Department of clinical biochemistry, Zanjan University of Medical Sciences, Zanjan, Iran
2. Department of of medical biotechnology, Zanjan University of Medical Sciences, Zanjan, Iran

Background: Prostate is the fourth most prevalent cancer in worldwide. Several factors have roles in cancer establishment. One of the most important factors is hypoxia that induces Hypoxia Inducible Factor-1 (HIF-1). This protein consisted HIF-1alpha and HIF-1 beta. The HIF-1alpha over expressed in hypoxia conditions and plays a pivotal role in carcinogenesis features. In this study we aimed to examine the efficiency of HIF-1alpha gene expression at mRNA and protein’s level for prostate cancer diagnosing and staging.

Materials and methods: in this study the subjects included in to 65 cancer specimen in different stages (Group2=stage 1, Group3=stage 2 and Group4=stage 3, 4) and 7 normals specimen as control (Group1). RT-Real Time PCR and immunohistochemistry were performed for measuring gene expression at RNA and protein’s level, respectively. Raw data was analyzed in SPSS.20 software.

Results: HIF-1alpha gene expression rate($2^{\Delta\Delta CT}$) and $\Delta CT$ values were significantly high increased in group3, in compare with control (p<0.001). Other cancer groups (2 and 4) had greater $\Delta CT$ values than control but it wasn’t statistically significant. And the rate of HIF-1alpha gene expression ($2^{\Delta\Delta CT}$) was increased with cancer stages. According to the immunohistochemistry results, there was a positive relationship between burst cancer stages and HIF-1alpha protein expression (p<0.05).

Conclusion: in conclusion, HIF-1alpha gene expression increased in earlier up to metastasis stages of prostate cancer, but HIF-1alpha gene doesn’t play important roles in diagnosis of cancer in early stages and classification of carcinoma. Because the increasing of HIF-1alpha gene expression isn’t significant in early cancer stages.

Key words: HIF-1α, prostate cancer, expression level
Cytocidal effect of *Bacillus thuringiensis* parasporin on human breast cancer cell line in *in vitro* condition

Rezaei R. M.Sc., Moazamian E. PhD.

1. *Department of Microbiology, College of Science, Agriculture and modern Technology, Shiraz Branch, Islamic Azad University, Shiraz, Iran*

Email corresponding author: rezaei678@gmail.com

**Background**

*Bacillus thuringiensis* is a Gram-positive bacterium that produces crystalline parasporal inclusions during sporulation. These inclusions are made of proteins, the δ-endotoxins. They are classified into two families, the crystal (Cry) and the cytolytic (Cyt) proteins encoded by the cry and sit genes, respectively. Parasporin (PS) is a collection of genealogically heterogeneous Cry proteins synthesized in *Bacillus thuringiensis*. A prominent feature commonly associated with PS proteins is the strong cytocidal activity preferential for human cancer cells of various origins. The aim of this study was to detection of parasporin-4 protein isolated from a *B. thuringiensis* strain E8 isolate, was specifically cytotoxic on breast cancer cell line in *in vitro* condition.

**Methods**

*Bacillus thuringiensis* strain E8 was cultivated on nutrient agar plates, incubated for 4 days at 30°C until cell lysis. The cells were harvested from the plates and washed twice with sterile distilled water. The pellet containing the spores-crystal proteins- was solubilized in 500μL of solubilisation buffer containing 56mM Na2CO3 (pH:11.4) and 11mM dithiothreitol (DTT) for 1 h at 37°C. Insoluble materials was pelleted by centrifugation at 13 200 rpm for 2 minutes and the supernatant was passed through a 0.22μm membrane filter. 250μL of the filtrate was transferred to a sterile 1.5mL centrifuge tube and the pH adjusted to 8 with 1M Tris-HCl (pH 4.98). The solubilized proteins were digested with either proteinase K (final concentration at 185μg/mL) or trypsin (final concentration at 300μg/mL) for 1 h at 37°C. Phenylmethylsulfonyl fluoride (PMSF) was added (final concentration 1 mM) to stop proteolytic processing. Purification of *B. thuringiensis* E8 PS was done. Parasporin was activated by Proteinase K digestion. Breast cancer cells line MCF7 was treated with activated PS. Cytopathic effects were photographed by invert microscope. Size of PS was identified by using SDS-PAGE.

**Results:** Parasporin of *B. thuringiensis* E8 isolate shown 88% cytotoxicity effect on MCF7 cell line. In addition, parasporin-4 was identified by using SDS-PAGE methods. Parasporin-4 disintegrated MCF7 cell line and it has cytolysin effects.

**Conclusion:** Data suggest that, PS is cytolysin protein and this crystal protein can induce apoptosis in breast cancer cell line. Thus, parasporin-4 is a novel cytotoxic protein to human cancer cells produced by *B. thuringiensis*, and may be useful as a tool to recognize and destroy specific cancer cells.

**Key words:** *Bacillus thuringiensis*, Parasporin, Breast cancer cell line, Cytotoxicity activity
**PC-25**

**Inhibitory Effects of *Bifidobacterium* on Human Colon Cancer Cell line**

*Maryam soraya¹, Elham moazamian¹*  

¹Department of Microbiology, College of Science, Agriculture and Modern Technology, Shiraz branch, Islamic Azad University, Shiraz, Iran.  

*Email: elhammoazamian@gmail.com.*

---

**Introduction and objectives:** Colorectal cancer represents the most common malignancy of the gastrointestinal tract. Probiotics and prebiotics act to alter the intestinal microflora by increasing concentrations of beneficial bacteria such as lactobacillus and bifidobacteria, and reducing the levels of pathogenic microorganisms. Probiotics have the potential to impact significantly on the development, progression, and treatment of colorectal cancer and may have a valuable role in cancer prevention. A probiotic bacterium, *Bifidobacterium*, has been clinically used for a variety of gastrointestinal disorders. *Bifidobacterium* is a beneficial probiotic organism that contributes to improved nutrition, microbial balance, and immune-enhancement of the intestinal tract, as well as anti-tumor activity. The aim of this study was to isolation and identification *Bifidobacterium* strains and the effects of their secondary metabolites and sediment bacteria on colon cancer cell line.

**Material and Methods:** In this study the inhibitory effect of metabolites produced by *Bifidobacterium* (probiotic bacteria) on the growth of human colon cancer cell line CacoII was examined. First 25 dairy products was collected and cultured on BFM media for isolation of *Bifidobacterium* strains. Isolated *Bifidobacterium* was identified via Gram stain, biochemical and PCR method. Then, different concentration of the supernatant and sediment of the probiotic bacteria were applied in to the 96 well microplates each containing 10000 cells of CacoII after neutralization of the pH with 1N NaOH. *Bifidobacterium* were treated on cacoII cell line and Cytotoxicity was assessed by usina MTT method.

**Results:** In this study 20 isolates of *Bifidobacterium* was isolated. After effects of metabolites and sediment bacterial on colon cancer cell line, 2 isolates *B. bifidium* and *B. animalis* were identified, they had the most ability in inhibition growth of human colon cancer cell line. The percentage of cancer cells inhibition observed ranged from 55% to 90% which obtained from several sample of supernatant and sediment respectively.

**Conclusion:** During this study, the produced metabolites could inhibit growth of cancer cell line, so it can be concluded that probiotics have a good potential to be introduced as a new approach to cancer treatment.

**Key Words:** *Bifidobacterium*, Dairy products, Colon Cancer, Metabolites
ژن درمانی سرطان
کدی مرادیان، فاطمه رهبری زاده
گروه پیشگیری و درمانی پزشکی، دانشگاه علوم پزشکی، دانشگاه تربیت مدرس، تهران، ایران

چکیده
اسیس ژن درمانی تغییر نیافته در زنده با معنی دارد که به مانند درمان تکراری از یک موردی است. ژن درمانی روش طولانی برای درمان سرطان است. با استفاده از این روش می‌توان سلول‌های سرطان را به صورت هدف‌نگهداری کرد بدون اینکه سلول‌های سالم بایستی بر طرف شوند. روش‌های زن درمانی سرطان را می‌توان به دو دسته کلی تقسیم کرد: روشن که سلول‌های سالم را هدف قرار می‌دهد و آنها را در مقایسه با سلول‌های سرطانی افزایش دهد و روشن‌سپر که سلول‌های سرطان را هدف قرار می‌دهد. هدف از این روش گردیدن به این مقاله تکنیک‌های زن درمانی سرطان شرح داده می‌شود. این روش برای: 1. روشن که در آن زن جهش‌پذیره ای ای را که باعث سرطان شده است با زن سالم جابه‌جا می‌کند. 2. روشن که با بهره‌گیری از تکنولوژی زن درمانی، توانایی طبیعی و در حمله به سلول‌های سرطانی را تحریک می‌کند. 3. زن‌های انتخابی را به سلول‌های سرطانی معرفی می‌کند، سپس داروهای سی این‌ران جمعبانده و به‌دست‌آمده در انتخابی پروتئینی است که با ایجاد تغییر در ساختار و همگام شدن با داروی سی این‌ران جمعبانده، آن را فعال می‌کند و در حمله به سلول‌های سرطانی را تحریک می‌کند. 4. استفاده از تکنیک‌های زن درمانی حساس‌سازی سلول‌های سرطانی را تسهیل بروز حمله به سلول‌های سرطانی. 5. سلول‌های بین‌ساین سازنده خون را را وسیع بین‌ساین خارج می‌کنند و با وارد کردن بروزه‌ای زن‌ها را نسبت به آنها در زمان کشش دو برابر می‌کنند. 6. زن توکسین‌ها به دست دهنده سلول‌های سرطانی منبع‌پذیر می‌شود و سپس این را به دست بین‌ساین بار در می‌آورد. تکنیک‌های این روش باعث کشش شدن سلول مزیزان می‌شود. یک درمان سرطان آرامش‌بخش است.

کلمات کلیدی: ژن درمانی، سرطان، زن انتخابی، زن توکسین
PC-27

Growth Inhibition and apoptotic effects of Epigallocatechin-3-gallate (EGCG) on T47D cell line

Saeedeh Erfanian¹, Mohsen Farhang Zargar²*, Bahareh Razeghi Haghighi³, Salar Maani², Maliheh Moradzadeh³

1. Department of Advanced Medical Sciences and Technologies, School of Medicine, Jahrom University of Medical Sciences (JUMS), Jahrom, Iran
2. Student of laboratory sciences, Student Research committee, Jahrom University of Medical Sciences, Jahrom, Iran
3. Golestan Rheumatology Research Center, Golestan University of Medical Sciences, Gorgan, Iran

Introduction: Breast cancer after lung cancer is the second cause of cancer death in women, and is the most common cancer in women after non-melanoma skin cancer. Green tea has antioxidant, anti-tumor, anti-bacterial properties that may regulate endocrine glands. Epigallocatechin-3-gallate (EGCG) in green tea has been shown to induce apoptosis and cell death in cancer cells but not on normal cells. However, due to problems in the treatment of this disease, this study is designed to investigate the anticancer effect of EGCG on cell lysis and genes expression involved in cell growth and apoptosis in breast cancer cell line T47D.

Material and method: The breast cancer cell lines purchased from the cell bank of Iran Pasteur Institute were cultured in DMEM and then incubated with different concentrations of EGCG (50-80 µg/ml). Cell survival (Viability) was measured by MTT assay. Real time PCR method was used for the study of apoptotic gene expression and apoptotic mechanism. The data collected were analyzed using the software SPSS ver18.

Results: Results showed all concentrations of EGCG in terms of morphology caused increase the Mortality and MTT assay in all experiments showed a significant decrease compared to the basic case (P<0.05). EGCG significantly reduced BCL-2 anti-apoptotic gene expression (P<0.05) and increased Proapaptitic gene P53 and Bax (stop the cell cycle) Proapaptitic gene expression (P>0.05).

Conclusion: In general, According to the changes in the expression genes of these study and compliance with the findings of previous studies, can be argued that the effect of EGCG on human breast cancer cells are undeniable. Although we recommend further studies on these compounds to identify more precise mechanisms.

Key words: Breast Cancer, green tea, epigallocatechin-3-gallate, gene expression
انحراف الگوی مetylاسیون زن EDNRB به عنوان یک بیومارکر بلقوه تشخیصی در سرطان کولون و راست روده ی
پزرگ، درحالیکه KISS1 بحث برانگیر است!

مقدمه:
سرطان کولون و راست روده (CRC) به عنوان یک بیومارکر تشخیصی حساسیت و سرعتی دارد. الگوی انحراف مetylاسیون Zن EDNRB به عنوان یک بیومارکر تشخیصی در مواردی مانند کاربردی برای تشخیص به موقع ارائه شود و متعاقبا این مطالعه نخست کاربردی از این نتایج نمایان کرده بوده که الگوی انحراف EDNRB و KISS1 ممکن است به عنوان یک بیومارکر تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylасیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون ها به عنوان مدل CRC تشخیصی می تواند در مراحل ابتدایی تومور را اتفاق می افتند. اشاره شده است که مدل CRC آناتومی می تواند نشان دهد که مدل CRC و تغییرات مetylاسیون Hن EDNRB طور کلی، این قابل استنباط است که انحراف الگوی مetylاسیون Zن EDNRB به عنوان یک بیومارکر تشخیصی می تواند نشان دهد که KISS1 بحث برانگیر است و تیزامند به مطالعه بیشتر است.
Molecular aspects of Triple Negative Breast Cancer

Roshanak Sajadi, M.Sc. student¹, Dr Mehrdad zeinalian²

1. Department of Genetics and Molecular Biology, School of medicine, Isfahan University of Medical Sciences, Isfahan, Iran
2. Department of Genetics and Molecular Biology, School of medicine, Isfahan University of Medical Sciences, Isfahan, Iran

Breast cancer (BC) is the main cause of death by cancer among women. A woman living in the United States has a 1 in every 8 risk of being diagnosed with breast cancer. Based on standard IHC that shows cellular markers, breast cancer can be classified into three main groups: (a) hormone sensitive (ER or PR positive), (b) HER2 positive, sensitive to trastuzumab or (c) triple negative breast cancer (TNBC), defined by the absence of ER, PR and HER2 amplification as prognostic and predictive biomarkers.

TNBC is the most aggressive type of BC and it is linked to the highest mortality and high recurrence rate and short survival. No targeted treatment is available for this type of cancer and chemotherapy remains the best therapeutic option. Therefore, over the past decade, our understanding and treatment of breast cancer has shifted from a generally homogeneous approach to a more sophisticated view as guided by gene expression analysis.

TNBC subtypes were identified using 21 public breast cancer mRNA expression datasets and cluster analysis. Then performed gene set enrichment analysis to determine the top canonical pathways associated with each TNBC subtype. Though treatment according to these molecularly defined subtypes has not yet been directly evaluated in the clinical setting, there are examples of the potential for use in the clinic.

The most developed biomarker in this group is that of BRCA mutation as a predictor for response to therapy with PARP inhibitors. PARP inhibitors have been evaluated as targeted therapy in these cancers, with striking results in both preclinical and early-phase clinical trials. The utility of such biomarkers is limited to a small proportion of TNBC patients. To facilitate the development of other predictive biomarkers for others, important changes must be made in this field. Evaluation of genomic aberrations in other subtypes of TNBC that may serve as biomarkers for novel targeted agents is gaining interest.
Determination Frequency of Malignant Lesions in Skin biopsy Samples
Seyedehsara Bayesh*¹, Seyedsina Bayesh², Minoo Saatiyan³, Reza Najibpour⁴

1. Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran
2. Islamic Azad University, North Tehran Branch, Tehran, Iran
3. Department of Surgery, Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran
4. Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran

*Corresponding author and presenter: Seyedehsara Bayesh, Islamic Azad University, Tehran Medical Sciences Branch, Tehran, Iran

Background: Skin cancer due to the abnormal cells development is one of the most common malignancies in the world and according to Iranian Hygiene Ministry Reports in (2004-2005) is the most common cancer in Iran. Early diagnosis and treatment can increase the survival rate. As diagnosis of pigmented lesions is challenging yet, we aimed to investigate frequency of malignant lesion in skin biopsy samples.

Methods: This cross-sectional retrospective study was done on 532 Skin biopsy Samples including 499 malignant lesions and 33 premalignant lesions of 4306 Patients referred to pathological ward in Buali hospital in Tehran during the 10 years (1385-1395). Data were analyzed by SPSS13.0 statistical software. In descriptive analysis, statistical indicator such as mean, absolute frequency and relative frequency were used. In analytic section, independent-sample T test and chi-square test were used to assess any association between the variables. P value less than 0.5 was considered significant.

Results: 11.6% of total Skin biopsy was determined as malignant Lesion. The mean age of malignant lesions was 61.8%±13.26. Overall the highest prevalence of age frequency was found in 7th decade of life. Prevalence of skin malignancy with 62.5% is more common in men. The most common type of malignancy in both sexes was Basal-cell carcinoma (BCC) with 86% frequency, then squamous cell carcinoma (SCC) and melanoma placed in second and third stage with 10% and 2.2% frequency respectively. Significant relationship between initial and clinical diagnosis of BCC and SCC pathological lesions were observed (p<0.001).

Conclusion: Considering high prevalence of BCC in comparison to SCC and melanoma are in both sexes, early diagnosis and treatment can play an important role in determining the prognosis of disease.

Keywords: BCC, SCC, Lesion, Malignant
تاثیر انکولیایتیک رنوویروس علیه سلول‌های سرطانی سینه انسان

نایهی نیکنیام

کارشناسی زنانه سلولی و مولکولی - دانشگاه آزاد اسلامی واحد تهران‌شهر - مازندران

بیماری سرطان سینه در حال افزایش است. با گذشت از سال ۱۹۹۰، در حالی که در کمی این کاهش به عنوان سرطان انکسکس استفاده از ماموگرافی است. رنوویروس انسانی قادر به وادار کردن سلول تومور برای لیزندن در فردیان نوع سرطان با فعال سازی یک سه‌تایی RAS SIGNALING ویروس راه‌اندازی کننده سلول‌های سرطانی سینه و توضیح دادن رابطه ی بین مستعد بودن به رنوویروس و حالت RAS SIGNALING (۳) هستند. نیز رده بندی سلول‌های سینه انسان و کاهش سلول‌های آبی‌لی بهنری در مطالعه استفاده شد. تغییرات در سلول‌های سینه در مطالعه HER2 mRNA از گیرنده‌های HER2، پروتئین میزان میزان mRNA HER2 و جایگزین شدن در Western blot و پروتئینهای پایلی RAS با بررسی این سلول‌های سرطانی مشاهده شد. در مطالعه حاصله HER2-RT-PCR از تاثیرات سایتپاتیکه بر روی ویروس تاثیر قرار گرفت. رنوویروس همه ی شش LINE سلول‌های سرطانی کورنی مایا، راکتوانده و دندان‌های Alu زمان خود را در زمان‌های ۵۰٪ هزار شد. در این روز بعد از آن، رنوویروس به ترتیب در حالت RAS SIGNALING در رنگ‌رباری و در تعداد فعالیت در سلول‌های سرطانی مشاهده شد. در مطالعه HER2 را رشته دادن بار و میزان بیان RAS در سلول‌های سرطانی در غنیه HSV-1 CELLLINE اندازه‌گیری کننده P53 را با P53-RAS گرایشی بر جسته در همه سلول‌های سرطانی CELLLINE مشاهده شد. در مطالعه HER2 RAS SIGNALING در سلول‌های سرطانی انسانی HER2 جایگزین شد. در مطالعه HER2_۱_۲ RAS RAS SIGNALING در سلول‌های سرطانی در مقایسه با مقایسه با

کلمات کلیدی: انکولیایتیک رنوویروس

MDA-MB231, HER2 - ۱۹۹۰
A review of some of the novel biomarkers in gastric cancer

Mojtaba Moradi¹, Shadi Dodangeh²

¹. Bachelor of Laboratory Science, Faculty of Paramedicine, Zanjan University of Medical Sciences, Zanjan, Iran.
². Bachelor of Laboratory Science Student, Faculty of Paramedicine, Zanjan University of Medical Sciences, Zanjan, Iran.

Background: Gastric cancer is the second cause of death among people with cancer in the world. The heterogeneity of this disorder has led to a lack of reliable biomarkers for its diagnosis; existing biomarkers have relatively low sensitivity and specificity. Therefore, research into some novel existing biomarkers helps to improve diagnosis and treatments. So the purpose of this study is to provide some of the novel biomarkers with an appropriate and higher diagnostic potential than common biomarkers.

Methods: This article is prepared to summarize articles published between 2005 and December 2017 in the Google Scholar, PubMed, Scopus, and Science Direct search engines using 4 keywords.

Results: Markers such as CEA, which are commonly used today, are low-cost and available, but of limited sensitivity and specificity, and usually detect the disease in its final stages, which limits the medical and therapeutic interventions and subsequently increases the deaths from the disease. Considering the achievements of other cancers, such as breast cancer, in early diagnosis and the positive outcomes in treating the disease, gastric cancer can be better achieved if treatments are taken early. A lot of research has been done to find new biomarkers in the early stages of gastric cancer, among these miRNAs and circRNAs have been more widely studied as new biomarkers.

Conclusion: Among these new biomarkers some of them like article hsa-circ-0001017, hsa-circ-0061267, hsa-miR-196a, hsa-miR-148a, miR-106a and miR-9 have a higher sensitivity and specificity of common marker like CEA and can be evaluated in earlier stages. Also, the combined use of these biomarkers show a more favorable result, thus we suggest replacing common biomarkers with new ones to enhance diagnosis, prognosis and therapeutic features.

Keywords: Gastric cancer, new biomarkers, microRNAs, circular RNAs
Oxidative stress and its role in cancer and aging
Mozhdeh Haddadi*
Tarbiat Modares Univrsity
m.haddadi@modares.ac.ir

Oxidative stress redirects andisbalance among the systemic appearance of responsive oxygen species and a biological organization's capability to freely detoxify the responsive intermediates or to mending the resulting harm. Turbulences in the normal redox state of cells can reason toxic impactsvia the manufacture of peroxides and free radicals that harm totally components of the cell, containing proteins, lipids, and DNA. Oxidative stress from oxidative metabolism reasons base injury, also strand breaks in DNA. Base injury is typically indirect and affected by reactive oxygen species (ROS) created, e.g. O2− (superoxide radical), (OH) hydroxyl radical and (H2O2) hydrogen peroxide.Supplementary, several reactive oxidative species performance as cellular messengers in redox signaling. Accordingly, oxidative stress can reason interruptions in normal mechanisms of cellular signaling.In people, oxidative stress is supposed to be complicated in the improvement of Asperger syndrome, cancer, Parkinson's illness, Alzheimer's illness, atherosclerosis, heart failure, myocardial infarction, fragile X syndrome, lichen planus, vitiligo, autism, infection, Chronic fatigue syndrome, and dejection. Nevertheless, reactive oxygen species can be helpful, as they are used by the immune system as a way to occurrence and kill pathogens. Short-term oxidative stress may likewise be significant in inhibition of aging by induction of a progression called mitohormesis.

Keywords: Oxidative stress, Aging, Cancer, Alzheimer's, Parkinson's
Frequency of K-ras mutations in patients with colorectal cancer referring to Kerman medical centers

Fatemeh Moein Addini 1, Alireza Rafati 1,2, Fatemeh Mohammadi Fard1, Kimia Mirshekari1, Amir Hossein Sangi Nasab1
1-Student Research committee, Sirjan faculty of Medical sciences, Sirjan, Iran
2- Sirjan faculty of Medical sciences, Sirjan, Iran
Presenter Author: Fatemeh Moein Addini
E-mail: fmoein.1995@yahoo.com

Abstract

Colorectal cancer is the leading cause of mortality and morbidity due to cancer worldwide. One of the most important mutations in this type of cancer is in the k-ras (Kirstein rat sarcoma) gene. K-ras gene which is located on chromosome 12. K-ras is one of the components of Ras family. Most k-ras mutations occur in exon 2 so Identify mutations in this gene region is important. Study areas that have mutations were performed in than 90% of cases are seen in codons 12 and 13. fifteen samples of patients affected with CRC were taken from Kerman Hospitals. DNA of these samples was extracted and thereafter. PCR was performed on for the second exon of the k-ras gene on DNA extracted from these patients. Then the PCR products were sequenced with Sanger procedure. Surprisingly in 6 patients out of 15 patients, GGC codon in the second exon had changed to GCC. Actually, the intensity of mutant codon in each sample was different. The first case was a 67-year-old man with colon cancer while the second case was a 60-year-old man affected by sigmoid cancer and the third one was a 50 years old woman who suffered from colorectal cancer. The fourth and fifth case of 61 and 58 years old women with colorectal cancer, finally this mutation was detected in 34% of patients. the frequency of this mutation was much higher than what was reported in the literature. As a result, Iranian patients may be susceptible to the presence the 15 codon mutation in the k-ras gene which should be studied in more patients. Further studies in this field improve the prognostic information and they will help to the control of new therapeutic interventions.

Keywords: k-ras, colorectal, exon 2, codon 15
PC-35

Epigenetic drifts in the pathogenesis of Acute myeloid leukemia (AML)

Ali Maleki
Ph.D. in Laboratory Hematology & Transfusion Sciences, Allied Medical Sciences, Kermanshah University of Medical Sciences, Kermanshah, Iran.
Maleki.hem@gmail.com

Background: Acute myeloid leukemia (AML) is a heterogeneous clonal disorder of hematopoietic system. AML development is based on many genetic and epigenetic changes. Epigenetics refers to clonally inherited changes in gene expression without accompanying genetic changes. Epigenetic processes are very important in the development of AML. There are 3 epigenetic mechanisms for control/alter gene expression (DNA methylation, histone modifications and non-coding RNAs inference). All the various cellular pathways contributing to the neoplastic phenotype are affected by epigenetic genes in malignancy. These pathways can be explored as biomarkers in clinical use for early detection of disease, malignancy classification and response to treatment with classical chemotherapy agents and epigenetic drugs.

Materials and Method: A literature review was performed using PUBMED from 1985 to 2017. Cross referencing of discovered articles was also reviewed.

Results: In AML, aberrant DNA methylation has been observed in multiple functionally relevant genes, and leads to gene silencing. Many of these genes have tumor suppressor (TSG) phenotypes. In addition, abnormal activities of histone tail-modifying enzymes have also been seen in patients with AML (frequently as a result of chromosomal translocations).

Conclusion: Epigenetic alteration play a significant role in development and progression of AML. DNA methylation and histone modification are potentially reversible by pharmacological inhibition, therefore constitute important novel therapeutic targets in AML.

Keywords: AML, Epigenetic, methylation, histone modification
The relationship between rs1801133SNP marker in MTHFR gene in high-risk women with breast cancer in patients referring to Kerman medical centers

Background: Breast cancer is cancer that develops from breast tissue. Risk factors for developing breast cancer include being female, obesity, lack of physical exercise, drinking alcohol, hormone replacement therapy during menopause, ionizing radiation, early age at first menstruation, having children late or not at all, older age, and family history. The human Methylenetetrahydrofolate reductase (MTHFR) gene plays an essential role in folate metabolism. This gene located on chromosome 1 (1p36.3) with 12 exons. The C677T (rs1801133) polymorphism lead to decreased enzyme activity and DNA hypo-methylation.

Methods: In this study, 100 blood samples including: 50 healthy control and 50 breast cancer patients collected from Kerman medical centers during 2014 to 2016. Total genomic DNA isolated by DNA extraction kit from white peripheral blood. The 233-bp fragment amplified by specific primers. The C677T genotyping performed with Hinfl restriction enzyme by utilizing the PCR-RFLP method. The genotype of samples was detected by PAGE and AgNO3 staining.

Result: Our data revealed that a significant association between the allele T and breast cancer risk (OR: 1.8945, 87% CI; 1.0054 - 2.1808, p=0.0124). Hence C677T (rs1801133) SNP marker could be a non-invasive biomarker for breast cancer.

Key words: Breast cancer, MTHFR gene, C677T polymorphism, PCR-RFLP.
Circulating Tumor Cells as a Liquid Biopsy for Early Cancer Diagnosis Using Nanotechnology-Based Strategies
Miganooosh Simonian1, Babak Negahdari1*, Reza Saber2*

1Department of Medical Biotechnology, School of Advance Science in Medicine, Tehran University of Medical Sciences, Tehran, Iran
2Department of Medical Nanotechnology, School of Advanced Medical Technologies, Tehran University of Medical Sciences (TUMS), Tehran, Iran
*co-corresponding author

Circulating tumor cells (CTCs) CTCs are assumed as a form of noninvasive “liquid biopsy” and are considered to replace surgical tumor biopsy in the monitoring of treatment response and defining the prognosis of cancerous patients. However, there are major technological challenges in isolation and characterization of these cells due to extremely low abundance of CTCs in the peripheral blood and the heterogeneity of CTCs. Recently, nanotechnologies as the most promising strategy for achieving an ideal CTC capture method have been developed for better cell and molecular characterization and provide a wide range of clinical applications, containing ntative nanomaterials (such as magnetic nanoparticles, gold nanoparticles, silicon nanopillars, nanowires, nanopillars, carbon nanotubes, dendrimers, quantum dots, and graphene oxide) and microfluidic chip technologies that combine nanoroughtened surfaces and present their key challenges and perspectives in CTCdownstream analyses, such as protein expression and genetic changes that may represent tumor progression and patient outcome.

Keywords: Circulating tumor cells, nanotechnology, cancer diagnosis
PC-38

The efforts and scientific achievements for the diagnosis and treatment of chronic lymphocytic leukemia with targeting ROR1

Leili Aghebati-Maleki¹², Ali Aghebati-Maleki¹³, Jafar Majidi¹², Mehdi Yousefi¹²

1. Immunology research center, Tabriz University of Medical Sciences, Tabriz, Iran
2. Department of Immunology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran
3. Department of Genetics and Molecular Medicine, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran

Identification and targeting molecules that are overexpressed uniquely in malignant but not normal cells are critical points for the success of cancer therapy. In recent years, growing interest has been towards the application of tumor-associated antigens (TAAs) and tumor-specific antigens (TSAs) as therapeutic, diagnostic and screening targets for cancers. Tyrosine kinases (TKs) are considered a group of protein kinases and a class of TAAs which contribute to the most central cellular processes such as cell cycle, migration, metabolism, accumulation, survival and differentiation. Therefore, the activity of tyrosine kinases must be under strict control. Among TKs, receptor tyrosine kinases (RTKs) are structurally transmembrane proteins with an intracellular kinase domain. The aberrant regulation of RTKs has been observed in a variety of cancer cells in the form of overexpression, abnormal expression, mutations and translocations which lead to constant kinase activity independent of ligand binding. Chronic lymphocytic leukemia (CLL) is characterized by reposition of malignant B cells in the blood, bone marrow, spleen and lymph nodes. New treatment approaches, based on unique targets and novel drugs, are highly desired for CLL therapy. The identification and subsequent targeting of molecules that are overexpressed uniquely in malignant cells not normal ones play critical roles in the success of anticancer therapeutic strategies. In this regard, ROR family proteins are known as a subgroup of protein kinases which have gained huge popularity in the scientific community for the diagnosis and treatment of different cancer types. ROR1 as an antigen exclusively expressed on the surface of tumor cells can be a target for immunotherapy. ROR1 targeting using different approaches such as siRNA, tyrosine kinase inhibitors, cell therapy and antibody induces tumor growth suppression in cancer cells.

Keywords: CLL, ROR1, Tyrosine kinase, cancer therapy
Folate can inhibit carcinogenesis through epigenetic modifications

Maryam Akbarzadeh, Akbar Hasani

Background: Folate is a water-soluble B vitamin that is involved in 1-carbon metabolism, DNA synthesis, and DNA methylation. Folate deficiency can mediate carcinogenesis through DNA damage, aberrant global or promoter methylation. Extensive evidence suggests that folate can affect gene expression through epigenetic mechanisms. Epigenetic modifications are heritable and potentially reversible changes in gene expression that do not require changes in the DNA sequence. The main mechanisms of epigenetic control in mammals are DNA methylation, histone modifications and RNA silencing. The vitamin folate is a key source of the one carbon group used to methylate DNA and can influence histone methylation in cancer.

Methods: For this review-based article, several journals, books and articles related to Epigenetic impact of folate in cancer prevention had been evaluate with considering these keywords: folate, Epigenetic, Apoptosis, cancer.

Results: This study shows that folate has an important role in cancer prevention through epigenetic mechanisms. Folate may affect DNA methylation, histone modifications and miRNA expression in cancer. Folate deficiency plays a significant role in the development of multiple cancers. Elucidating the impact of folate on epigenetic mechanisms may serve as a tool to predict an individuals’ susceptibility to cancer, provide dietary recommendations, or provide therapeutic applications of natural compounds against cancer. A diet low in folate leads to changes in H4 methylation and H3 acetylation, as observed during hepatocarcinogenesis. In addition folate deficiency induces downregulation or upregulation in miRNA expression which are involved in the regulation of apoptosis and cell proliferation.

Conclusions: Epigenetic modifications that induced by folate could mediate environmental signals and provide a link between susceptibility genes and environmental factors in the etiology of cancer.

keywords: folate, Epigenetic, Apoptosis, cancer.
Diallyl disulfide (DADS) induces apoptosis through increasing the Bax/Bcl-2 ratio in human breast cancer cells

Maryam Akbarzadeh1, Hamed Hajipour2, Akbar Hasani*2

1. Women's Reproductive Health Research Center, Alzahra Hospital, Tabriz University of Medical Sciences, Tabriz, Iran

2. Department of Biochemistry, Faculty of Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran

* Corresponding author: Akbar Hasani, E-mail: Bioakbarhasani@gmail.com

Background: Diallyl disulfide (DADS) is the major metabolites found in garlic and other allium vegetables which its antitumor effects on many type of cancers have been reported but molecular mechanism by which DADS induced apoptosis remain unknown. The aim of present study was to investigate anti-proliferative properties and apoptotic signaling pathway of DADS in MDA-MB-231 human breast cancer cells.

Methods: In order to investigate the cytotoxicity of DADS on breast cancer cell line (MDA-MB-231) MTT assay was done. Nucleus condensation or chromatin fragmentation was evaluated by DAPI staining. Quantitative Real-time PCR was performed to determine expression level of Bcl-2-associated X protein (Bax) and B-cell lymphoma 2 (Bcl-2), two important regulators of apoptosis.

Results: Cytotoxicity assessments confirmed that DADS prevented breast cancer cells growth in a time and dose depended manner but the effect of treatment duration is more significant than the effect of concentration. DAPI stained imaging showed that cell growth inhibition by DADS, accompanied by nucleus condensation or chromatin fragmentation which are signs of apoptosis. Finally, Real-time PCR results demonstrated that DADS causes down-regulation of Bcl-2 as an anti-apoptotic protein and up-regulation of Bax as a pro-apoptotic protein, thus increasing the Bax/Bcl-2 ratio in favor of apoptosis.

Conclusions: Results of this study confirmed that increase in the ratio of Bax/Bcl-2, is the probable molecular mechanisms by which DADS induces apoptosis in MDA-MB-231 cells. Therefore consumption of natural compounds such as DADS could be an effective strategy to inhibit breast cancer.

Keywords: Apoptosis, Bax, Bcl-2, DADS, breast cancer
Innate lymphoid cells in cancer: a missing link in cancer immunity

Amirhossein Jahangiri², Hamid Chegni¹, Zuhair M. Hassan¹*

¹. Department of Immunology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, I. R. Iran.

Background: Innate lymphoid cells (ILCs) are newly describing members of the lymphoid lineage that in spite of having specific responses play a key role in cancer immunity and inflammation.

Methods: Related articles were searched by search engines in NCBI database. Then the original and review articles were retrieved from the Science Direct, Nature, and Springer databases.

Results: These cells rapidly respond to the environmental stimulus by their PAMPs and DAMPs. With this feature ILCs can shifted to adaptive immune response and induce diverse type of T-cell subset.

Conclusion: ILCs gained enormous attraction for use them as immunotherapy, because they made tumor growth and development or eradication of malignancy by secreting many cytokines. The functions of three ILCs type in immune response and their role in pathology of tumor will guide us to the new successful immunotherapies.

Keywords: Innate lymphocyte cells¹, cancer immunotherapy², cytokines³, tumor microenvironment⁴.
Study of some compounds associated with the accumulation of shikonin in Onosma plant under silicone treatment

Koolabadi Z1, Bagherieh-Najjar MB2*, Abdolzadeh A
1. Department of Biology, Faculty of Science, Golestan University, Gorgan, Iran
2. Department of Biology, Faculty of Science, Golestan University, Gorgan, Iran

* Correspondence: Mohammad B. Bagherieh-Najjar, Department of Biology, Faculty of Science, Golestan University, Gorgan, Iran

** Author for correspondence

Background: Shikonin and its derivatives are the naphthoquinone red pigments accumulated in the roots of the Boraginaceous plants. This secondary metabolite has many medical properties such as anti-tumor, anti-oxidant and anti-atherosclerosis activities. Shikonin was reported as having prooxidative and proapoptotic effects on various cancer cell lines.

Methods: Plants were treated for 30 days at four different levels of silicon: control, 0/25, 0/5, 0/75 mM. The lignin content was assayed as described by Zimmer at 488 nm. The activity of polyphenol oxidase enzyme was determined according to the method Mehraban et al and at 420 nm. Shikonin was extracted as described by Hussain and its absorbance was read at 620 nm. Data analyzed by Excel and SAS softwares. The statistical significance of differences between mean data was assessed by the Anova and Duncan tests.

Results: Si application significantly increased the lignin content of roots. Also, Si increased the polyphenol oxidase activity in the roots. The shikonin content increased significantly in roots by Si nutrition.

Conclusion: Shikonin is known to accumulate only in the cork layers of the roots and this placement suggests that its synthesis may be induced under conditions associated with the formation of cork cells. Indeed, Si due to deposition to the cell wall and its relationship with cell wall components, such as lignin and cellulose. On the other hand, phenylalanine ammonia-lyase, one of the important enzymes in the shikonin synthesis pathway, catalyzes the first specialized reaction in the biosynthesis of the poly-phenol compounds and lignin.

Keywords: Shikonin, Silicon, Lignin, polyphenol oxidase enzyme.
CD133 accounts as a circulating and local CSC marker in patients with benign and malignant bone tumor

Narges Khademian¹, Alireza Mirzaei², Khodamorad Jamshidi², Masoumeh Tavakoli-Yaraki¹

¹- Department of Biochemistry, School of Medicine, Iran University of Medical Sciences, Tehran, Iran.
²- Bone and Joint Reconstruction Research Center, Shafa Orthopedic Hospital, Iran University of Medical Sciences, Tehran, Iran.

Background and aim: Cancer stem cells are rare immortal cells within a tumour that can both self-renew by dividing and give rise to many cell types that constitute the tumour, and can therefore form tumours. Such cells have been found in various types of human tumours and might be attractive targets for cancer treatment. CD133 a pentaspan membrane glycoprotein, has been used as a stem cell biomarker for isolation of stem-like cells from a variety of normal and pathological tissues. The aim of the present study was to investigate the expression level of local and circulating level of CD133 (a CSC marker) in peripheral blood mononuclear cells and tumor tissue of patients with benign and malignant bone tumor comparing to normal bone tissue.

Materials and Methods: 50 patients of Shafa Orthopedic Hospital in Tehran with benign and malignant bone tumor have participated in this case-control study. The peripheral blood mononuclear cells of the subjects and tumor tissues were used for mRNA extraction and cDNA construction, and to determine the expression level of CD133 gene, a Real-Time PCR-based Cyber Green method was used and data were analyzed using ΔΔCT method. Finally, statistical analysis was performed using Graph Pad Prism software version 5 and independent t-test.

Results: Measurement of CD133 expression level in mononuclear blood cells extracted from the peripheral blood and also Tumor tissues of patients with bone tumor revealed that the level of this gene was significantly increased in patients comparing to healthy subjects and normal tissues. Also, the increased level of CD133 was associated with elevated level of tumor grade and stage (p <0.05).

Conclusion: The results of the current study have shown that the CD133 can account as a circulating also local CSC marker in patients with bone tumor due to the significant differences of the CD133 level in patients comparing to controls, it can be noticed as a possible biomarker for controlling disease.

Key Words: CSC, CD133, gene expression, Bone Tumor.
The Increased level of Osteopontin and its receptor in patients with benign and malignant bone tumor

Ameinh Hosseini1, Alireza Mirzaei2, Khodamorad Jamshidi2, Masoumeh Tavakoli-Yaraki1

1- Department of Biochemistry, School of Medicine, Iran University of Medical Sciences, Tehran, Iran.
2- Bone and Joint Reconstruction Research Center, Shafa Orthopedic Hospital, Iran University of Medical Sciences, Tehran, Iran.

Background and aim: Osteopontin has emerged as an active player in many physiological and pathological processes, including biomineralization, tissue remodeling and inflammation. As an extracellular matrix protein and proinflammatory cytokine osteopontin is thought to facilitate the recruitment of monocytes/macrophages and to mediate cytokine secretion in leukocytes. Because OPN acts through several receptor mechanisms including both integrins and CD44, targeting these receptor ligand interactions as already under investigation in cancer therapy. The aim of the present study was to investigate the expression level of OPN and CD44 in tumor tissue of patients with benign and malignant bone tumor comparing to normal bone tissue.

Materials and Methods: 50 patients of Shafa Orthopedic Hospital in Tehran with benign and malignant bone tumor have participated in this case-control study. The tumor tissues and margins were used for mRNA extraction and cDNA construction, and to determine the expression level of CD44 gene, a Real-Time PCR-based Cyber Green method was used and data were analyzed using ΔΔCT method. The level of circulating OPN was determined using ELISA. Finally, statistical analysis was performed using Graph Pad Prism software version 5 and independent t-test.

Results: Measurement of CD44 expression level in tumor tissues of patients with bone tumor revealed that the level of this gene was significantly increased in patients comparing to healthy subjects and normal tissues. Also, the increased level of CD44 was associated with elevated level of tumor grade and stage (p <0.05). The plasma level of OPN was increased in patients with bone tumor comparing to healthy controls which was correlated with severity of disease.

Conclusion: The results of the current study have shown that the OPN and its receptor (CD44) can account as a circulating also local bio marker in patients with bone tumor due to the significant differences of the CD44 and OPN level in patients comparing to controls, it can be noticed as a possible biomarker for controlling disease.

Key Words: OPN, CD44, gene expression, Bone Tumor.
Berberine induced apoptosis of HT-29 cells through mediating of miR-21

Sara Tutunchi¹, Roghayeh Tofigh², Mina Zare³, Ghodratollah panahi⁴

¹: Department of Medical Genetics, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
²: Department of animal biology, Tabriz University, Tabriz, Iran
³: Department of clinical biochemistry, Shiraz University of Medical Sciences, Shiraz, Iran
⁴: Department of clinical biochemistry, Tehran University of Medical Sciences, Tehran, Iran

Introduction: Berberine is an isoquinoline that can be extracted from many medicinal herbs. microRNAs (miRNAs) are small non-coding RNAs that through post transcriptionally control gene expression. Cumulating data suggest that miRNAs have role in many diseases, including cancer. oncogenic function of miR-21 has a widely described in regulating cancer cell apoptosis. In this study, we investigate the mechanisms by which berberine suppressed the proliferation of HT-29 cells.

Methods & materials: The effect of berberine (0, 0.01, 0.1, 1, 10, 50, 100, 200, and 500µM) on cell viability was assessed by MTT. miRNA and total RNA were extracted from HT-29 cells using the miRNeasy Kit (QIAGEN). cDNA synthesis was performed using miScript II RT Kit (QIAGEN) and Real Time-PCR was performed using RealQ miScript SYBR Green PCR Kit (QIAGEN).

Results: 50 µmol/L berberine for 24 h was unaffected cell proliferation of HT-29 cells but, after treatment with a high concentration of berberine (≥50 µmol/L) the viability of HT-29 cells was significantly reduced compared to the control cells (P<0.05). (figure 1). Berberine (100µm) after 24 h significantly increases caspase-8, bcl-2 and BAX expression in HT-29 cells (p < 0.001). (figure 2). also our data suggested that miR-21 was significantly downregulated (p < 0.001) after treatment with berberine (100µm) for 24 h (Figure 3A).

Discussion: The result of present study demonstrated that berberine inhibits the proliferation of HT-29 cells and increasing expression of BCL-2, BAX and CASPAS-8. Also, our study suggests that berberine could activate apoptosis in HT-29 cells. berberin-induced apoptosis is mediated through the downregulating of MiR-21.

Keywords: colorectal cancer, apoptosis, miR-21, BCL-2, caspase 8, BAX
PC-46

Berberine induced cell death of human colon cancer HT-29 through mediating of PARP

Roghaye Tofigh1, Sara Tutunchi 2, Mina Zare 3, Ghodratollah panahi 4

1: Department of animal biology, Tabriz University, Tabriz, Iran
2: Department of Medical Genetics, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
3: Department of clinical biochemistry, Shiraz University of Medical Sciences, Shiraz, Iran
4: Department of clinical biochemistry, Tehran University of Medical Sciences, Tehran, Iran

Introduction:
Colorectal cancer is one of the most important malignancies worldwide and despite considerable medical developments has remained one of the most important cancers. Natural compounds are common source of drugs for treatment of various diseases including cancers. Berberine is an isoquinoline which has many various pharmacological activities, including anticancer activities. Poly (ADP-ribose) polymerase (PARP) is an enzyme that catalyzes post-translational modification which IS important in a variety of biological processes including chromatin structural regulation, transcription, DNA repair, DNA replication, telomere homeostasis, cell division, cell proliferation, cell death and other physiological and pathological functions. The aim of this study was to investigate the effects of berberin on HT-29 cells and explore the possible role of PARP in inducing cell death in this human cancer cells.

Methods & materials
Human colon cancer HT-29, obtained from Iranian Biological Research Center (IBRC). These cells were cultured in DMEM (Gibco, USA) and supplemented with 10% heat-inactivated fetal bovine serum (FBS) (Gibco, USA) and antibiotics (100 mg/ml streptomycin and 100 unit’s/ml penicillin) (Gibco BRL), and maintained at 37 °C in a humidified atmosphere of 95% air and 5% CO2. The effect of berberin on viability of HT-29 cells were determined by MTT assay. The effect of berberin on caspase 3 expression was determined using real time-PCR. PARP concentration of the control and treated HT-29 cells with 100 µM berberin was identified according to the manufacturer’s instruction of PARP ELISA kit (Biocompare Company, USA).

Results:
The viability of HT-29 cells was significantly reduced with berberin more than 100 µM compared to the control cells (P<0.05) (figure1). Analysis for apoptosis revealed that berberin 100µM increased caspase-3 expression (P<0.001) compared with control cells. (figure2). To determine whether alteration of PARP levels involved in berberin-induced decreasing of cell viability, the PARP level of exposed HT-29 cells to berberin 100 µM was examined by ELISA assay. As shown in figure 3, the PARP level of HT-29 cells was significantly reduced in the presence of berberin 100µM (P<0.001)

Discussion:
Our results showed that the viability reduction of treated cells with berberin is related to decreasing in PARP concentration. Overexpression of PAPR-1 has been identified in a variety of tumor cell lines, which is related to malignant progression. The result of present study demonstrated that berberine increasing expression of CASPAS-3 and inducing apoptosis. This data suggests that berberine could activate apoptosis in HT-29 cells through the downregulating of PARP.

Keywords: Cancer, HT-29, caspase-3, PARP
PC-47

High molecular weight Adiponectin status in medullary thyroid carcinoma

Shadi Fathi¹, Sara sheikholeslami², Marjan Zarif Yeganeh², Mehdi Hedaytai²*¹

¹ Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran.
² Cellular and Molecular Endocrine Research center, Research Institute for Endocrine Sciences, Shahid Beheshti University of Medical sciences, Tehran, Iran.

Introduction: Thyroid carcinoma is the most important endocrine malignancy in endocrine and it’s incidence has increased over the last decades. Medullary thyroid carcinoma (MTC), accounts for 5-8% of all thyroid cancers. Meta-analysis were revealed a positive association of BMI and obesity with thyroid cancer. The adipokines are polypeptide cytokines which produced by white adipose tissue. Adiponectin is one of the adipokines, which it seems play a protective roles in tumourgenesis and angiogenesis. The high molecular weight (HMW) is the major active form. So, the aim of the study was to test the hypothesis that the plasma level of HMW adiponectin would be different MTC patients in comparison with control group.

Methods: The study carried out on patients with medullary thyroid cancer. The mentioned persons on the basis of the existence of the mutation in RET proto-oncogene, were divided into two groups, case (45 people with a mutation in Exon 10) and control (45 people without mutations in Exon 45) group. The two groups were matched by sex. Serum Adiponectin was measured using ELISA method. The difference in the mean of the Adiponectin was assessed by the independent T-test analysis.

Results: The evaluating of plasma levels of HMW adiponectin has been shown no significant difference between cases (9.6 ± 4.5 ng/ml) and controls (10.9 ± 4.1 ng/ml) however it is slightly low in case group compare to control. Moreover, there was no significant difference in HMW adiponectin between male and female, separately in each case and control groups.

Conclusion: Due to the lack of statistical significant differences, serum concentrations of Adiponectin with HMW for the introduction of this hormone in serum as a marker suitable for genetic evaluation replacement, requires research and further studies in other populations.

Key words: Adipokine; HMWAdiponectin; Medullary Thyroid carcinoma
PC-48

The effects of deuterium depleted water on antioxidant system of MCF-7 cancer cell line

Kamal Yavari¹*, leila kooshesh²

¹Nuclear Science and Technology Research Institute, P.O. Box: 14395–836, Tehran, Iran

²Department of Biology, Tehran North Branch, Islamic Azad University, Tehran, Iran

Background:

A role for oxidative stress was postulated in many conditions including aging, inflammatory conditions, and cancer. Many researchers studied the beneficial effects of many natural antioxidants and a great importance was revealed to deuterium content in water. In the present study we studied the changes in some MCF-7 cancer cell antioxidant enzymes which are involved in the organism’s antioxidant system after administration of deuterium depleted water (DDW) in cancer cell culture medium.

Methods:

In the present study, the effect of deuterium depleted water investigated at 48 hours on MCF-7 cell line. MCF7 cells were cultured in RPMI containing different concentrations of DDW (30, 50, 75, 100, 125 and 150ppm). In order to measure SOD and catalase antioxidant enzymes quantitative luminescence methods was used.

Results:

Deuterium depleted water concentrations have different effects on the activity of the antioxidant system of MCF7 cells. The results showed that in the cells treated with low concentrations of DDW (30-100 ppm), the increase antioxidant activity of the cells were more than ones treated with urban water (150ppm).

Conclusion:

By considering all this, it can be concluded the entire antioxidant system was influenced by the deuterium depleted water.

Key Words:

Deuterium depleted water, MCF-7 cancer cell line, Antioxidant Activity
In vitro effect of somatic antigen of *Marshallagiamarshalli* on growth of tumor cell of K562

Reihane Raisnia¹, Hassan Borji², Hadi Mohebian

1. School of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran
2. Department of Pathobiology, School of Veterinary Medicine, Ferdowsi University of Mashhad, Mashhad, Iran

**Background:** It has been shown that some parasitic infections induce antitumor activity against certain types of cancers. Chronic myeloid leukemia (CML) is categorized as a blood cells cancer and the most common type of leukemia. So the aim of this study was to evaluate in vitro effect of somatic antigens of *Marshallia marshalla* nematode on K562 cells.

**Methods:** Different concentrations of extract of *Marshallagiamarshalli* were prepared and added to culture medium of cells. Following 24, 48 and 72 hours incubation, anti tumoric properties of them were examined by MTT technique. Repeated measurement Anova test used for statistical analysis.

**Results:** Results showed somatic antigen of *Marshallagiamarshalli* has anti tumoric property related in dosage and time and cytotoxicity significantly increased with increasing dose and time.

**Conclusion:** *Marshallagiamarshalli* may have anticancer activity and many more experiments would be performed to understand the mechanisms of action.

**Keywords:** *Marshallagiamarshalli*, K562, MTT test
Study of the effect of extracting metabolite from native strain of *Pseudomonas uw4* on P53 gene expression of breast cancer cell line of MCF-7

Seyed Hossein Hejazi¹, Noosha Zia Jahromi², Fateme Bardal³, Fatemeh Namdar¹

¹. Skin Diseases and Leishmaniasis Research Center, Department of Parasitology and Mycology, School Of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.

². Faculty of Basic Sciences, Islamic Azad University of Shahrekord Branch, Shahrekord, Iran.

³. Faculty of Basic Sciences, Department of Biology, Payame Noor University, Taft, Iran

Background: Cancer is a genetic disease caused by a series of successive mutations in human genes. Among women breast is the most common organ which involved in cancer. *P53* gene mutation is seen in more than 60% of cancer cells. The metabolites of some bacteria show anticancer effects by themselves. One of these bacteria is *Pseudomonas* genus from family of Pseudomonadaceae. The species of *P. aeruginosa* is the third leading cause of nosocomial infections and resistant to penicillin and most β-lactam antibiotics.

Methods: MCF-7 cancer cell line was purchased from cell reference of Pasture institute of Tehran, Iran. The cells were sub cultured and multiplied through several passages using RPMI 1640 medium supplemented with 10% FBS, penicillin 100 unit and streptomycin 100 µg per ml. Triplicate series of proliferated tumor cells with dual concentrations of 10 and 30 mg / ml pre-prepared bacterial *pseudomonasuw4* strain metabolites were treated at 24, 48 and 72 h intervals. After this period, the cells were harvested, washed and their RNA was extracted using Biazol RNA kit. Termo Science kit was used to synthesize cDNA. Then, *p53* gene expression was evaluated qualitatively by RT-PCR technique using gene specific primers.

Result: Data showed that *p53* gene expression affected by prepared metabolites on MCF-7 cells in concentrations of 10 and 30 mgs/ml within 24, 48 and 72-hour time periods. The highest *p53* gene expression was observed at concentration of 30 in a 48-hour time period. The results indicate that the metabolite produced by strain *Pseudomonas uw4* has an increasing effect on expression of *p53* gene expression and increase of cell apoptosis.

Conclusion: The study showed *p53* gene expression increases under the influence of microbial metabolite.

Key words: Breast cancer, *Pseudomonas*, *p53* gene
Prevalence of Helicobacter pylori in patients with gastric cancer presenting to hospitals and health centers: systematic review

Yaghoob Madmoli1*, Mostafa Madmoli2, Parvin Ghezelbash3, Amirhossein Kohantorabi1

1. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran*
2. Dezful University of Medical Sciences, Dezful, Iran
3. Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background: The International Agency for Research on Cancer, sponsored by the World Health Organization, has classified Helicobacter pylori infection as a class I carcinogen and a definitive cause of human stomach cancer. This decision is mainly based on epidemiological evidence of infection with H. pylori due to gastric cancer and stomach lymphoma. Therefore, this systematic review was conducted to evaluate the role of Helicobacter pylori in gastric cancer patients referred to treatment centers.

Methods: This study is a systematic review was conducted by searching on Google scholar, magiran, Sid, PubMed, iranmedex and elmnet with keywords Cancer, Gastric cancer, prevalence and Helicobacter pylori during 1990-2018.In this study, descriptive and analytical articles have been used.

Results: The research showed that the most common type of ulcerative lesion was up to 55% and the most common pathology of adenocarcinoma was up to 93%. Also, up to 58 patients were positive for Helicobacter pylori, which was more positive in Antrum and in infiltrating type than in other sites and other pathologies. There was a reverse and significant correlation with the combined score of the gastric antrum area. This relationship in cardia was more positive. Despite the various ways to treat gastric cancer, surgery is still used as one of the most basic ways. In most studies, there is a significant relationship between expression of variables V10, V9, V8 and Helicobacter pylori infection. In a study, helicobacter pylori positive risk was 57% when P53 mutation was present.

Conclusions: Helicobacter pylori is the main cause of gastritis activity in all areas of the stomach, particularly the antrum, and plays an important role in gastric cancer. Preventing these cancers will save significantly on the rate of disease, mortality and health care resources.

Keywords: Cancer, Gastric cancer, prevalence, Helicobacter pylori
The role of Helicobacter pylori in patients with gastric cancer referring to treatment centers: systematic review

Yaghoob Madmoli1*, Mostafa Madmoli2, Parvin Ghezelbash3, Amirhossein Kohantorabi1

1. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Dezful University of Medical Sciences, Dezful, Iran
3. Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background: Gastric cancer is one of the most common malignancies and is one of the major causes of cancer deaths. Helicobacter pylori infection is associated with chronic gastritis and is a risk factor for this cancer. Helicobacter pylori infection, which is often associated with inflammation, is associated with increased CD44 expression in gastric cancer. Therefore, this systematic review was conducted to evaluate the role of Helicobacter pylori in gastric cancer patients referred to treatment centers.

Methods: This study is a systematic review was conducted by searching on Google scholar, magiran, Sid, PubMed, iranmedex and elmnet with keywords Cancer, Gastric cancer and Helicobacter pylori during 1990-2018. In this study, descriptive and analytical articles have been used.

Results: The research showed that based on histological criteria, between 80% and 86% of the patients were positive for H. pylori. Studies in Helicobacter pylori patients and the presence of the iceA gene showed that this gene was associated with patients with ulcer. The average activity scoring outside Zone 5 in all areas was higher in individuals with Helicobacter Pylori than in non-infected individuals. The mean scores of combined inflammation in all areas were higher in infected individuals than in non-infected individuals. Between 20% and 29% of the control group and up to 100% of the gastric cancer patients had a positive anti-Helicobacter pylori antibody. In the study, Chi-square test showed a significant correlation between gastric cancer and positive antibody test.

Conclusions: In almost all studies, the significance of Helicobacter pylori infection as a risk factor for gastric cancer, especially Antrum and Cardia is highlighted. The chronic inflammation of the cardiac mucosa appears to be the cause of the onset of cardiac gastric cancer in this area.

Keywords: Cancer, Gastric cancer, Helicobacter pylori
PC-53

Evaluation of Prostate-Specific Antigen (PSA) levels in Referred individualsto Shafazand Medical Diagnostic Laboratory, Sirjan from March to November 2017

Sheibanian S 1, Shafazand M 2, Razeghi MS 3

1. Student Research Committee, Sirjan Faculty of Medical Sciences, Kerman University of Medical Sciences, Kerman, Iran
2. Management at Medical Diagnostic Laboratory, Sirjan Faculty of Medical Sciences, Kerman University of Medical Sciences, Kerman, Iran
3. Department of Laboratory Sciences, Sirjan Faculty of Medical Sciences, Kerman University of Medical Sciences, Kerman, Iran

Background:
Prostate cancer is the second most frequently diagnosed form of cancer in the world and the sixth most deadly form of male cancer. The PSA (Prostate-Specific Antigen) test has been widely used as a diagnostic, screening, and monitoring tool for the early detection of prostate cancer. The aim of this study was to determine serum levels of PSA as epidemiological data in Sirjan city.

Methods:
This retrospective cross sectional study was conducted on serum samples of individuals who were referred to Shafazand Medical Diagnostic Laboratory from 21 March 2017 until 22 September 2017. 612 of the men referred in three age groups 30-49 years (n=159), 50-69 years (n=227), 70-90 years (n=176) and were divided. PSA was measured using ELISA method in the serum samples of these people. Data were analyzed using SPSS version 19 statistical package.

Results:
According to the studies accomplished from 612 samples, 72 of the participants had PSA higher than normal range with a prevalence of 11.437%. Among the ages 30-49, 50-69, 70-89, the number of people with PSA higher than normal range was 7, 45, and 18, respectively. The highest range of people with +PSA was observed in participants between 50-69. Therefore, as the age increases, the possibility of having positive PSA increases as well.

Conclusion:
The result of the present study showed that the level of PCA increases with increasing age. The PSA test can be used efficiently as a first and/or repeat test for Prostate cancer screening of Iranian males and at any age it can be used as a measure to screen for prostate cancer.

Keywords:
Prostate Cancer, PSA, ELISA, Sirjan
Investigating the Effect of Different Factors in Breast Cancer: A Systematic Review

Mahtab.samsamipour¹, reza ghafari pour², mehrshad akhlaghi¹

1-medical laboratory student, university of sciences research committee dezful, dezful, iran
2-Medical mycology m.sc, department of medical laboratory sciences, paramedics facutly, dezful university of medical sciences, Dezful, Iran

Introduction: Cancer is one of the chronic and non-chronic diseases that includes a wide range of diseases that are highly heterogeneous. It is the most common and most severe malignancy in women. It is one of the most important causes of women’s health. The aim of this study was to investigate breast cancer factors

Methods: Articles related to the topic were selected in the Google Scholar, Pubmed, MagIran, SID, and Medlibe databases from 2002 to 2017 with keyword cancer, breast cancer, carcinogenic factors, in which 35 full-text clinical trials were studied. And 25 were selected. And were studied.

Conclusion: Some studies have been made Family history of breast cancer, vaginal menstruation, benign breast disease such as cysts, fibrocysts, etc., irregular physical activity, the use of cosmetics due to cadmium and life stress such as death Wife, financial problems, family disputes, ... increase the chances of developing breast cancer Also, alcohol and smoking are associated with increased levels of estrogen and endogenous, eating red meat more than eight times a week due to maturation and early menstruation, long-term hormone replacement therapy, taking oral contraceptives, especially at low and pre-pregnancy levels, Increases the risk of cancer. Other studies showed Women who have first giving birth after thirty years of age, their first menstruation before the age of 12 and menopause after age 55 is more likely to develop breast cancer And no significant relationship was found between low-fat diet, ectopic pregnancy and breast cancer

Results: With regard to breast cancer, attempts have to be made to identify factors that exacerbate the cancer and try to solve these problems.

Key words: cancer, breast cancer, carcinogenic factors
Mechanisms and biomarkers to detect chemotherapy-induced cardiotoxicity

*Correspondence to: Zeinab Deris Zayeri, Golestan Hospital Clinical Research Development Unit, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran. TEL: 0613161159, Email: zeinabderisgenetice@gmail.com

Objectives: Cardiotoxicity is a considerable event for cardiologists and oncologists during and after chemotherapy.

Method: We searched Google using the terms: cardiotoxicity, Cancer, Chemotherapy from 2000 to 2017.

Discussion: The use of certain chemotherapy agents such as Trastuzumab, PD-1 inhibitors, and Doxorubicin increased in cancer therapy; however, these agents associate with an increase in mortality and cardiotoxicity. Detecting cardiotoxicity is based on patient’s medical history and physical examination since there is no exact biomarker or polymorphism for its early diagnosis. Therefore, we still need potential biomarkers for cardiotoxicity risk. Treatment of several cancers is manageable while preventing cardiotoxicity, as chemotherapy side effect, is essential since it might be a greater risk than the malignancy if not detected at early stages. Early detection of cardiotoxicity, during and after chemotherapy, is crucial to decrease permanent and devastating cardiac damages.

Conclusion: Recently, troponin but also atrial-type and brain-type natriuretic peptides (ANP and BNP) were reported as good diagnostic biomarkers for cardiotoxicity. Micro-RNAs and inflammatory mediators are candidates as prognostic biomarkers. Genetic biomarkers such as C282Y allele of hemochromatosis gene makes the patients more susceptible to cardiotoxicity, therefore, genome studies are valuable in predicting chemotherapy results. In this review, we present the mechanisms of developing chemotherapy-induced cardiotoxicity and biomarkers for its detection in patients. Echocardiographic techniques are very strong techniques which could be used along with biomarkers for more reliable and quicker diagnosis.

Keywords: Cardiotoxicity; Chemotherapy; Reactive oxygen species; Biomarkers; Cancer.
Cowden Syndrome and Breast cancer
Abolfazl Nesaei 1, Arash Salmaninejad 2, Alireza Pasdar 2

• Department of Genetics, Islamic Azad University of Damghan, Damghan, Iran.

• Medical Genetics Research Center, Student Research Committee, Department of Medical Genetics, Faculty of Medicine, Mashhad University of Medical Science, Mashhad, Iran.

Neurofibromatosis type 1 (NF1) or Von Recklinghausen disease is an autosomal dominant disorder with a high penetrance and wide variability in disease expression. It has an incidence of 1:3000–4000. NF-1 is a neurocutaneous syndrome with autosomal dominant mode of inheritance and has a high propensity to develop benign and malignant nervous system tumors. The characteristic common clinical features are subcutaneous nodules (neurofibromas), café-au-lait spots, axillary, inguinal freckling, and Lisch nodules with uncommon features being pseudoarthrosis, scoliosis, and parathyroid hyperplasia. Patients can develop other benign and malignant tumors such as neurofibrosarcoma, optic gliomas, malignant schwannoma, pheochromocytoma, myelogenous leukemia, and rhabdomyosarcoma. Few case reports describe the association of breast carcinoma with NF1. Although uncommon, case reports describing the association of NF-1 and breast cancer are available in the literature. Since patients with NF-1 are at an increased risk of developing breast cancer, we recommend strict adherence to careful clinical breast examination and annual screening mammographic examination starting at 40 years of age in all patients of NF-1. The age-specific excess risk of breast cancer, comparing the NF1 cohort with the control cohort, was elevated 6.5-fold (95% confidence interval 2.6–13.5) in women aged 30–39 years. There was a 4.4 (2.5–7.0) times higher risk among women aged 40–49.

Keywords : Cowden Syndrome, Breast cancer
PC-57

Evaluation of curcumin on enzyme activity of fatty acid synthase in breast cancer cell line skbr-3

Hajar Badri, Kobra Rostamizadeh, Nasrin Vafaenejad, Mojtaba Fathi

1. Department of Clinical Biochemistry, School of Medicine, Zanjan University of medical sciences.
2. Department of Pharmaceutical Chemistry, School of Pharmacy, Zanjan University of medical sciences.

Corresponding author: m_fathi@zums.ac.ir (Mojtaba Fathi)

Background:

One of the aspects of metabolic changes in cancer cells is alteration in lipid metabolism. De novo biosynthesis occurs in cancer cells for bilayer membrane synthesis demand, whereas normal cells acquire their needs from dietary lipids. An essential enzyme responsible for de novo synthesis of fatty acids is fatty acid synthase (FAS). Previous studies indicate that FAS overexpression in cancer cells could lead to malignancy phenotypes like angiogenesis.

Anticancer effects of curcumin have been demonstrated previously. But its effect on FAS expression has not been so far investigated. In this study, the effect of curcumin on FAS activity has been studied.

Material and methods:

SKBR-3 breast cancer cell line cultured within humidified incubator with 5% CO2 and treated with different concentrations of curcumin for 72 hours. FAS activity in cells was assessed through pelleting the cells and suspending in cold assay buffer. Then disrupted with sonicator for lysing the cells. Supernatant add to reaction solution consist of Mal-coA, Ac-coA, NADPH, DTT. The total content protein in supernatant was assayed using Bradford assay. The results expressed as the specific activity of FAS.

Results:

MTT assay showed that viability of cancer cells significantly reduced by increasing curcumin concentrations and FAS enzymatic activity reduced significantly following curcumin treatment (P<0.001).

Conclusion:

These results showed that curcumin could be able to decrease the FAS enzymatic activity which resulted in prevention of proliferation of breast cancer cells.

Keywords:

SKBR-3, Breast cancer, curcumin, Fatty acid synthase
PC-58

Immunohistochemical Study of the Small Heterodimer Partner (SHP) Expression in Prostate cancer Tissues in Comparison with Benign Prostatic Hypertrophy (BPH) Tissues

Maryam Khorasani1, 2, Mojgan Asgari3, 4, Maryam Abolhasani3, 4, Hossein Shahrokh5, Amir Peymani6*, Shirin shahbazi7, Reza Mahdian2, 5*

1. Department of Molecular Medicine, School of Medicine, Qazvin University of Medical Sciences, Qazvin, Iran.
2. Molecular Medicine Department, Pasteur Institute of Iran, Tehran, Iran.
3. Oncopathology Research Center, Iran University of Medical Sciences, Tehran, Iran.
4. Department of Pathology, Hasheminejad Kidney Center, Iran University of Medical Sciences, Tehran, Iran.
5. Department of Uro-oncology, Hasheminejad Kidney Center, Iran University of Medical Sciences, Tehran, Iran.
6. Medical Microbiology Research Center, Qazvin University of Medical Sciences, Qazvin, Iran.
7. Department of Medical Genetics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.

*Corresponding authors:
Reza Mahdian, MD., PhD., E-mail: dr.reza.mahdian@gmail.com
Amir Peymani, PhD., Email:a.peymani@gmail.com

Background: Prostate cancer (PCa) is one of the most common malignant tumors in the world among men. Commonly used diagnostic tests for PCa, do not have enough specificity and sensitivity. Currently, with a better understanding of the role of signaling pathways in the molecular pathogenesis of PCa, numerous biomarkers at the level of RNA or protein have been proposed for early diagnosis or prognostic evaluation. Small heterodimer partner (SHP) as a co-repressor regulates the androgen receptor signaling. Aberrant expression of SHP was
reported in various cancers. In this study, we aimed to investigate the expression level of SHP protein in PCa tissues compared to BPH samples.

**Methods:** Twenty Paraffin-embedded tissue blocks, including 10 PCa and 10 BPH tissues were examined in this study. The immunohistochemistry (IHC) tests, according to the stain intensity and percentage of stained cells were evaluated by pathologists based on the H-Score method. Also, for validity of SHP protein expression discrimination for PCa and BPH samples, the results were evaluated using the ROC curve for sensitivity and specificity.

**Results:** The results of IHC staining showed that SHP expression in tumor tissue samples was down regulated from BPH specimens. Quantitative IHC scores for SHP protein expression analysis were 91.25±26.21 and 165±12.31 (Mean±SEM) in PCa and BPH groups, respectively (p= 0.02). Roc curve analysis demonstrated that the sensitivity and specificity of the assay are within desirable ranges (Sensitivity 62.5%, specificity 100%, P=0.04, AUC=0.77, Std. Error=0.135, 95% CI=0.476 to 0.946), which suggests that the assessment of SHP expression may be used in combination with other diagnostic tests for the detection of PCa.

**Conclusion:** According to the our results, reduced SHP protein expression can indicate that SHP is involved in pathogenesis of PCa and differential expression SHP can be used in combination of diagnostic tests for PCa detection.

**Keywords:** SHP protein, Prostate cancer, Immunohistochemistry
Investigation of microRNAs involved in the EGFR molecular pathway as a biomarker in early detection of colorectal cancer

Binazir khanabadi (B.Sc)\(^1\&2\), Amir Sadeghi (M.D) \(^2\), Mohammad Amin Mahmanzar (B.Sc)\(^1\&2\), Ali Tafti Ehsan Nazemalhosseini-Mojarad (ph.D)\(^2\), Hamid Asadzadeh Aghdaei (M.D) \(^2\), Mohammad Reza Zali(M.D)\(^3\)

1. **Department of Cellular and Molecular Biology, Tehran Medical Sciences Branch, Islamic Azad University**
2. **Basic and Molecular Epidemiology of Gastrointestinal Disorders Research Center, Research Institute for Gastroenterology and Liver Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran**
3. **Gastroenterology and Liver Diseases Research Center, Research Institute for Gastroenterology and Liver Diseases, Shahid Beheshti University of Medical Sciences, Tehran, Iran**

**Background:** Colorectal cancer (CRC) is one of the most common cancers in the world. The highest incidence of CRC in Europe, North America and Oceania, and by contrast, is the lowest in Africa, South America and Asia. Among the Iranians, CRC also ranked third and fourth among the most common types of cancer in men and women. Colorectal cancer is a multistep process affecting several signaling pathways including EGFR (epidermal growth factor receptor), a therapeutic target for metastatic disease. Therefore, it is important to investigate and identify the mechanisms of biomarkers involved in this molecular pathway.

**materialsandmethods:** In this systematic review study According to Keywords: CRC, signaling pathways, biomarker and microRNAs that utilized the valid databases, such as: NCBI and Elsevier. The papers collected and then was ranking based on appropriate criteria.

**Results and findings:** 50 papers were selected based on keywords in the molecular pathways involved in colorectal cancer. Upon completion of the final analysis, 20 studies from other papers pointed to the mechanism of microRNAs involved in the EGFR molecular pathway.

**Conclusion:** These results suggest that EphA2 / Efnb1 / Egfr genes that are potentially related to miR-200a, miR-26b etc in the EGFR molecular pathway can be presented as novel CRC prognostic biomarkers.
Diagnostic value of RASSF1A gene hypermethylation in differential diagnosis of benign and malignant thyroid tumors
Gholamabbas Dinarvand
Faculty Member Abadan School of Medical Sciences, Abadan, Iran. ab55di@gmail.com

Introduction: Fine Needle Aspiration (FNA) is the best method for diagnosis of thyroid tumors, but it is used only for about 20% of cases, and the test results are reported as suspicious or intermediate. The aim of this study was to evaluate the RASSF1A gene hypermethylation as a sensitive and specific molecular test in differential diagnosis between malignant and benign thyroid tumors.

Method: To investigate hypermethylation of DNA after bisulfite treatment and PCR, enzyme digestion products are placed under. The measured concentration band in polyacrylamide gel (using software ImageJ) calculation of the quantity of methylation abnormalities. Further, the statistical analysis was used to determine the sensitivity and specificity of this test.

Results: Quantitative evaluation of the RASSF1A gene hypermethylation 8 out of 25 samples malignant tumors from benign distinguish.

Conclusion: The RASSF1A gene promoter hypermethylation has 92% sensitivity 100% specificity.

Keywords: tumor marker · RASSF1A gene hypermethylation · papillary thyroid carcinoma
PC-61

The prevalence of sexually transmitted infections inparaffin-embedded prostate cancer detected by RT PCR

Prostate cancer (PCa) is the most common cancer diagnosed among the male population in the world (1). Prostatic inflammation has been linked to bacterial and viral infections and a number of studies have focused on possible relationships between sexually transmitted infections (STIs) and PC (2). The aim of our study was the shown association between the presence of *Atopodium vaginae* (*A. vaginae*), *Nisseria gonorrhoeae* (*N. gonorrhoeae*), *Cytomegalovirus* (*CMV*), *Gardnerella vaginalis* (*G. vaginalis*), Herpes simplex Type 2 (*HSV2*) and *Trichomonas vaginalis* (*T. vaginalis*) in PCa.

In this study, Samples included 180 formalin-fixed paraffin-embedded prostate tissues, surgically obtained from patients. DNA was extracted using the Takara DNA Extraction from formalin fixed Paraffin-embedded Tissue Kit. Real time-PCR was tested for all DNA samples using with specific primers for all agents.

From the 180 PCa tissue samples 10 (5.55%) of *A. vaginae*, 6(3.3%) of *T. vaginalis*, 2(%1.1) of *CMV*, 2(%1.1) of *N. gonorrhoeae*, 2(%1.1) of *HSV2* and 2(%1.1) of *G. vaginalis* were positive with RT-PCR. Our result shown it can be linked between *A. vaginae* and *T. vaginalis* whit PCa,

More specific studies are needed to investigate the effects of other STI agents on prostate cancer.

**Key words:** Prostate cancer, RT-PCR, sexually transmitted infections
The prognostic importance of chemokines in metastasis of cancer cells towards the organs of the body

Hadi.rezaeeyan¹, Najmaldin saki¹*

1. Research Center of Thalassemia & Hemoglobinopathy, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

2. Research Center of Thalassemia & Hemoglobinopathy, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Objective: Chemokines are cytokines that play essential role in leukocytes mobility and stimulate immune responses. Recent studiesinvestigate that chemokines can appropriate a proper area for proliferation and metastasis in the targeted organs.

Methods: Relevant literature was identified by a PubMed search (2005-2017) of English language papers using the terms “chemokine”, “metastasis niche” and “organotropism”.

Result: It was determined chemokines are secreted by cancer cells in response to inflammation which occur before cancer cells enter to the target organ through a pre-metastatic niche which prepare the proper conditions for cancer cells presence in the region and provides growth and metastasis opportunity for cancer cells. Additionally it has been shown that various chemokines expression in different organs induce different signaling pathways.

Conclusion: Finally, targeting chemokines on the surface of cancer cells can prevent the metastatic of cancer cells toward different organs.

Keywords: Chemokine, Metastasis niche, Organotropism.
The important and prognosis of Natural killer cells in Acute myeloid leukemia treatment

Hadi.rezaeeyan¹, Najmaldin saki²

1. Research Center of Thalassemia & Hemoglobinopathy, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

2. Research Center of Thalassemia & Hemoglobinopathy, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Background: Natural killer cells (NKs) are lymphocytes and they play essential roles in role in defending the body against tumor cells and intracellular germs. Recent studies investigate that resuscitation of NK cells in cancer patients can be a good strategy in cancer treatment.

Methods: Relevant articles from 1997 up to date, published in Pubmed, were studied and compiled. The articles all contained the keywords: Natural killer cell, acute myeloid leukemia, Treatment.

Result: It has been shown that resuscitation of NK cells in comparison with bone marrow transplants can prevent not only immune transplant reactivation against host, but also treat the patient with blast cells by using stimulatory cytokines. The inactive form was stimulated in the murine and prevented the recurrence of the disease due to Minimal Residual Disease (MRD).

Conclusion: Targeting NK inhibitory receptors and using IL-2 and IL-15 cytokine therapy can upregulate NK activating receptors which decrease the relapse rate and improve the survival of patients with AML.

Keywords: Natural killer cell, Acute myeloid leukemia, Treatment
نقشZNKX2.5 در پیماری مادرزادی قلب: فراواتن، پراکنش و بررسی بیوانفورماتیک جهش ها

سرود قاسمی۱، اسماعیل سلحشور فر۱، مجید ملکی۲، نجات مهدیه۲∗

۱- گروه زیست شناسی، دانشکده علوم پایه، واحد علوم و تحقیقات تهران، دانشگاه آزاد اسلامی، تهران، ایران
۲- آزمایشگاه کاردیوژنتیک، مرکز آموزشی تحقیقاتی و درمانی قلب و عروق شهید رجایی، تهران، ایران

چکیده
نقایص مادرزادی قلب، مهم‌الزمان در نقایص مادرزادی و همچنین مرگ در اوایل تولد دارند. در این بین اختلالات کروموزومی و تک ژنی باعث بروز ۸۰٪ از نقایص مادرزادی قلب می‌شود. یکی از ژن‌های اصلی که جهش در آن نقش ویژه ای در بروز نقایص قلبی به عهده دارد ژن NNX2-5 است. در این تحقیق، نقش این ژن و جهش‌های آن در جمعیت‌های مختلف دنیا مورد بررسی قرار گرفت. چنین پژوهشی در این زمینه جهش‌های رایج در ناحیه NNX2-5 جهش‌های مورد بازیابی در google scholar, SID, HGMD, PubMed, CHD و جهش‌های مورد بازیابی در CHD را جستجو کرد. جهش‌های سریع پراکنش در سیس، فراواتن قلب ها در کشور های مختلف، نوع پیماری مرتب با هر جهش و آنانی جهش ها با استفاده از نرم افزارهای موجود در زمینه بیوانفورماتیک انجام شد. در نهایت، انجام ساختار توسط نرم‌افزارهای I-TASSER استفاده از نرم افزار آنلاین، نتایج ۱۰۵ ژهش پراکنشی را که در کشورهای آمریکا و ژاپن و بریتانیا شناخته شده است، نشان داد. در نهایت، با بررسی ۱۰۵ ژهش پراکنشی در جهان، نوع جهش های NNX2-5 در پاسخ ارتباط و درک دوران آلابل ژهش PRAKNDG در نظر گرفته شده است. کلمات کلیدی: نقایص مادرزادی قلب، بررسی بیوانفورماتیک، NNX2-5

*Corresponding Author
Evaluation of Sal-like 4 siRNA on proliferation and apoptosis on sw742

AmirReza Hesari1*, Faezeh Ghasemi1#

1- Molecular and Medicine Research Center, Department of Biotechnology, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran

# Corresponding Author:

Faezeh ghasemi: Department of Biotechnology, Faculty of Medicine, Arak University of Medical Sciences, Arak, Iran.

Email: ghasemi_808@yahoo.com

Introduction: Colorectal cancer is the third most common cancer in men and women, and is the second leading cause of cancer deaths in many countries. Spalt like transcription factor 4 is a transcription factor that plays a major role in the proliferation of cancerous cells. SiRNA is a short-chain molecule of 20 to 25 nucleotides that protrude on two sides of the 3', two nucleotides. In this study, using a specific sequence of SiRNA against the sequence of this gene, its activity is investigated in the cell line of colorectal cancer (sw742).

Method: The colorectal cancer cells (sw742) were cultured and then, using a specific anti-SALL4 SiRNA, their toxic doses were determined. Then, the gene is transfected into the cell. Proliferation and expression of the SALL4 and Bcl-2 gene are measured using the Real Time-PCR method. Cell death was evaluated by PI staining and FACS analysis.

Conclusion: The specific concentration of SiRNA of the SALL 4 gene was 62.5 nmole. Gene expression of SALL4 and Bcl-2 results showed that expression of Bcl-2 gene in the siRNA group was significantly reduced. Cell cycle results in the group treated with SiRNA and the cell control group showed that the treated group had a higher percentage of SubG1 (23.08%) compared with the control group of cells (0.66%). SubG1 percent represents apoptosis in the cell (P <0.05).

Discussion: SiRNA can increase the apoptosis of colorectal cancer cells by reducing the gene expression of SALL4 gene and Bcl-2; it can be used as a novel targeted therapy. This strategy, in addition to increasing the specificity of drug, also reduces the side effects when compared to conventional chemotherapy in in vivo models.

Keywords: Colorectal cancer, SALL4, siRNA, Bcl-2
Association study of rs763780T>C IL-17F gene polymorphism with breast cancer risk in East Azerbaijan-Iran

Elnaz Aghaei¹, Nazila Moghtaran Bonab¹*, Zahra Hojjati Bonab¹

¹. Department of Molecular Biology, Bonab Branch, Islamic Azad University, Bonab, Iran

Corresponding Address: Nazila Moghtaran Bonab, Department of Molecular Biology, Bonab Branch, Islamic Azad University, Bonab, Iran

Email: geneticbau@gmail.com

Background: Breast cancer (BC) is the most common malignancy in the women and is the second cause of mortality among patients with different types of cancer. Interleukin 17 (IL-17) is the main cytokine secreted by Th17 cells. This cytokine promotes a localized tissue inflammation by releasing proinflammatory cytokines and chemokines. The aim of this study was to investigate the association between rs763780T>C IL-17F gene polymorphism and breast cancer risk in East Azerbaijan.

Methods: This case-control study consisted of 40 women with breast cancer and the control group comprised of 40 healthy women. Genomic DNA was extracted from blood with soulting out method, genotyping was performed by polymerase chain reaction (PCR) followed by restriction fragment length polymorphism (RFLP). The statistical analysis was performed by SPSS software package.

Results: The results indicated that there is no significant difference in the frequency of genotypes and alleles at position rs763780T>C IL-17F in patients with breast cancer and the control group (P>0.05). Also, we found no significant correlation between the frequency of genotypes and alleles with the demographic variables in the patients.

Conclusion: It seems that polymorphism in rs763780T>C IL-17F gene don’t have important role in increasing the susceptibility of women to breast cancer in the population of East Azerbaijan-Iran.

Keywords: IL-17F, Polymorphism, Breast Cancer
PG-04

Association study of rs2275913G>A IL-17A gene polymorphism with breast cancer risk in East Azerbaijan-Iran

Elnaz Aghaei¹, Nazila Moghtaran Bonab*¹, Zahra Hojjati Bonab¹

¹. Department of Molecular Biology, Bonab Branch, Islamic Azad University, Bonab, Iran

Correspondence to: Nazila Moghtaran Bonab, Department of Molecular Biology, Bonab Branch, Islamic Azad University, Bonab, Iran

Email: geneticbau@gmail.com

Background: Breast cancer (BC) is the most common malignancy in women and is the second cause of mortality among patients with different types of cancer. Interleukin 17 (IL-17) producing CD4+ T helper (Th17) cells that are known by producing IL-17 have recently been defined as a unique subset of pro-inflammatory helper cells. IL-17 is an inflammatory cytokine with robust effect on many cells and it can play important roles in pathogenesis of diverse groups of cancer. The objective of this study was to investigate the association between breast cancer and rs2275913G>A IL-17A gene polymorphism in Iranian East Azerbaijan women.

Methods: Blood samples were collected from 40 patients with breast cancer and 40 healthy individuals with no history of malignancies. Genomic DNA and genotyping was performed by polymerase chain reaction (PCR) followed by restriction fragment length polymorphism (RFLP). The statistical analysis was performed by SPSS software package.

Results: No significant association was indicated between rs2275913G>A IL-17A gene polymorphism and breast cancer in case and control groups (P>0.05). Also, we found no significant association between the demographic variables in the patients and healthy groups.

Conclusion: Our results suggest that rs2275913G>A polymorphism in the IL-17A gene is not directly assumed as a genetic risk factor in the predisposition to breast cancer.

Keywords: IL-17A, Polymorphism, Breast Cancer
Polymorphisms in HOTAIR lncRNA and Susceptibility to the Acute Myeloid Leukemia in Iranian Patients
Maziar Ganji, Mohammad Taheri, Arezou Sayad*

Department of Medical Genetics, School of Medicine, Shahid Beheshti University of Medical sciences, Tehran, Iran

*Correspondence should be addressed to Arezou Sayad, ar.sayad@yahoo.com

Background: One of the recent aspects in the cancer research is about the investigation of the etiological role of long noncoding RNAs as a new regulator for the expression of proto-oncogenes or tumor suppressor genes in cancer. Among them HOX transcript antisense RNA (HOTAIR) is increasingly indicated to be deregulated in different cancers such as AML. According to the important regulatory role of the gene in the developing and prognosis of the hematological malignancies, we investigate whether there is an association between 3 common polymorphisms of the gene with AML patients.

Methods: In this case/control study 602 Iranian individuals were involved (202 de novo AML patients and 400 controls). All case samples were obtained from medical oncology department of Besat Hospital, Hamadan, Iran. The patients were diagnosed with AML according to the French-American-British (FAB) classification. 5 ml peripheral blood samples were collected from each individual. DNA was extracted using the standard salting out method. Genotyping for 3 polymorphisms rs12826786, rs1899663, and rs4759314 was conducted by means of tetra-primer amplification refractory mutation system PCR (Tetra-ARMS-PCR). The association of genotype and allele distribution was evaluated using Pearson Chi-square test by means of SPSS 18.0. The haplotype frequencies and their possible association with the disease were calculated using SNPStats online software.

Results: The results have shown no relation between any of the analyzed Single Nucleotide Polymorphisms and AML either in genotypic frequencies or in haplotype analysis.

Conclusion: The data derived from the present study suggested that pathogenic role of the HOTAIR to increase the susceptibility of AML should be considered from other aspects and further analysis is needed to explore the exact mechanisms underlying the pathogenesis.

Key words: Acute Myeloid Leukemia, long non-coding RNA, HOTAIR, Polymorphism
The study of proteomics from excretory cercariae of aquatic snails in rural region of Mazandaran province

Author: mahdavi Seif Ali

Mazandaran University of Medical Sciences, Amol Faculty of Paramedical Sciences, Sari, Iran

Email : sa.mahdavi@mazaums.ac.ir

Introduction

The proteome represents the array of proteins that are expressed in a biological compartment (cell, tissue, or organ) at a particular time, under a particular set of conditions. Large-scale, comparative analysis of proteins is the objective of proteome science (proteomics). Aquatic Snails are the intermediate hosts of several parasitic diseases agents, including Schistosoma. This study leads to assess the somatic and secretory protein bands of excreted cercariae from bird Schistosoma and other excreted cercariae from snails that were collected from rural areas of Mazandaran province.

Methods

In order to prepare excretory-secretory substances of cercariae, the fluid of a test tube including specific cercariae got centrifuged for three times (1500rpm for 3min). To prepare E.S (excretory-secretory), cercariae are cultured in distilled water for at least 4 hours. Then after another centrifuge ES got prepared.

To prepare EX, after homogenization, it centrifuged for 30min in a refrigerated centrifuge at 1000g. Then the protein content got assessed employing Bradford technique. Eventually, ES and EX proteins have been specified and extracted using SDS-PAGE with 10% gel.

Results

In electrophoresis 14.2, 24, 29, 36, 45, 55, 66, 97, 116kDa protein bands were seen. Within the excretory-secretory substances the related line of cercariae, xiphidia the delicate bond was seen in 97-116kDa.

Conclusion

By examining the protein bands of cercariae body extract of strigidea, xiphidia and Echinostoma, it has shown that they are similar in the lighter proteins (14.2 – 29kDa). Xiphidia has shown more distinct bands in comparison to the other two. Moreover, extra bonds observation in the excretory-secretory line, around 66kDa strigidea can be considered as secretory proteins. Because this band hasn’t been observed, therefore this protein band can be investigated further in future studies.

Key words:

proteomics; Cercariae; Aquatic snails, mazandaran
Study of Serum miRNA21 Level in Acute Myocardial Infarction

Jila Allazadeh Dizaji, Mohammad Nouri, Soltanali Mahboob, Naser Safaie

1. Department of Biochemistry, Higher Education Institute of Rabe-Rashid, Tabriz, Iran.
2. Department of Medical Biochemistry, Tabriz University of Medical Sciences, Tabriz, Iran.
3. Department of Biochemistry, Higher Education Institute of Rabe-Rashid, Tabriz, Iran.
4. Department of Heart Surgery, Shahid Madani Medical Research and Training Hospital, Tabriz, Iran.

Background: Acute Myocardial infarction is the most common type of cardiovascular disease and the main cause of global mortality. Although biomarkers such as CK-MB, myoglobin and cTnI are widely used in diagnosis of AMI, the need for biomarkers with high sensitivity and specificity is still felt. Previous studies have shown the role of miR-21 in the pathogenesis of myocardial infarction and cardiac fibrosis. The aim of this study was to investigate the potential role of miR-21 in the diagnosis of AMI.

Methods: From 73 patients with AMI, blood samples were taken to evaluate the biochemical markers and miR-21 plasma levels and Lifestyle and Nutrition Questionnaires were completed. Then miR-21 expression was analyzed by Real Time PCR.

Results: Of the 73 patients studied, 59 were men and 14 were women. The mean age was 59.6 ± 9.6 years. The weight and height of the patients indicated a high BMI and a risk of obesity. Plasma levels of biochemical markers were high in patients. The expression of miR-21 in subjects with BMI <30, were 20.3 ± 0.9 and subjects with BMI> 30, were 19.6 ± 0.3 and in healthy subjects were 7.7 ± 0.3 (p<0.05). The consumption of cereals, red meat, salt, oil, and high-fat dairy products were high in patients due to the standard values and less consumption of fruits and vegetables were seen among patients. They also had little physical activity.

Conclusion: Due to the high expression of miR-21 in patients, miR-21 can be proposed as a new biomarker and a candidate for diagnosis of myocardial infarction (AMI).

Keywords: miR-21, Acute myocardial infarction (AMI), lifestyle, Real Time-PCR
Biological and Molecular Diversity in Telomerase: Characteristics of hTERT in Human, Vertebrates and Yeast

hTERT (human telomerase reverse transcriptase) is the catalytic subunit of telomerase enzyme, and is essential for its functions. The aim of this review was to compare the TERT in human and other species including microorganism, vertebrates and mammals, in terms of its functions and regulation. According to literature, the catalytic subunit of telomerase in animals contains many conserved domains and residues, which have crucial roles in its functions. Moreover, the structure and biology of human telomerase seem to be more similar to that of dog compared other animals. Thus interestingly, unlike the mouse that is seemingly not a proper model for evaluation of telomerase activity and its regulation, dog may be an appropriate model for the experimental investigations of telomerase function and therapeutic strategies in cancer studies.

Keywords: Telomerase; hTERT; Human; Vertebrate; Yeast
An exceptionally long CA-repeat in the core promoter of SCGB2B2 links with the evolution of apes and Old World monkeys

Molood Nikkhah

We have recently reported a genome-scale catalog of human protein-coding genes that contain "exceptionally long" STRs (≥6-repeats) in their core promoter, which may be of selective advantage in this species. At the top of that list, SCGB2B2 (also known as SCGBL), contains one of the longest CA-repeat STRs identified in a human gene core promoter, at 25-repeats. In the study reported here, we analyzed the conservation status of this CA-STR across evolution. The functional implication of this STR to alter gene expression activity was also analyzed in the HEK-293 cell line. We report that the SCGB2B2 core promoter CA-repeat reaches exceptional lengths, ranging from 9- to 25-repeats, across Apes (Hominoids) and the Old World monkeys (CA>2-repeats were not detected in any other species). The longest CA-repeats and highest identity in the SCGB2B2 protein sequence were observed between human and bonobo. A trend for increased gene expression activity was observed from the shorter to the longer CA-repeats (p<0.009), and the CA-repeat increased gene expression activity, per se (p<0.02). We propose that the SCGB2B2 gene core promoter CA-repeat functions as an expression code for the evolution of Apes and the Old World monkeys.

KEYWORDS:
Ape; CA-repeat; Evolution; Old World monkey; SCGB2B2
بررسی استفاده از ساولن در استخراج DNA زنومی از باکتری Escherichia coli

نویسنده‌گان: فائزه صالحی، سعیده السادات حسینی محمد‌آبادی، آزو احمدی سیاها بومی، دکتر هنگیمه زندی، دکتر گیلدا آنیاندی

اسلامی، گیلدا

مقدمه:
روش‌های مختلف برای استخراج DNA وجود دارد که هر یک از روش‌های موجود دارای نقیطی ضعف و قوت همانند هزینه بالا، سمی بودن و نیاز به زمان جهت بهبود محلول‌های مورد نظر استخراج را می‌باشد. لذا طراحی روش‌های مقرر به صرفه از نظر هزینه و زمان، که دارای کیفیت مشابه روش استخراج با استانداردهای بین‌المللی را باشد بسیار ضروری به نظر می‌رسد. لذا هدف این مطالعه، استفاده از ساولن جهت استخراج DNA باکتری Escherichia coli است.

روش بررسی:
در این مطالعه آزمایش‌گاهی از ساولن جهت استخراج DNA باکتری E.coli در کنار روش salting out بعنوان کنترل بررسی قرار گرفت. پس از استخراج، نیکردن الکتروفورز و آگارز زل از همبستگی و گرافتر مورد بررسی قرار گرفتند.

نتایج:
های استخراج DNA از ساولن دارای کیفیت مشابه با نمونه کنترل استخراج شده با روش salting out. میانگین غلظت DNA در طی ساولن 1.8 ng/µl بود. میانگین غلظت DNA در طی ساولن 1.8 ng/µl بود.

نتیجه گیری:
تحقیق حاضر نشان داد که استخراج DNA با استفاده از ساولن به عنوان یکی از روش‌های موجود که هزینه دارای نقاط ضعفي می‌باشد می‌تواند مطرح شود.

کلید واژه‌ها: ساولن، استخراج DNA، باکتری Escherichia coli
Polymorphisms of an Immunoregulatory Gene and Risk of Inhibitor Development in Iranian Hemophilia A Patients

Niloofar Naderi¹, Azam Bolhassani ¹, ²*, Ali Namvar ¹, Mohammad Jazebi ¹, Seyyedeh Somayeh Moazezi Nekooi Asl¹

¹ Iranian Comprehensive Hemophilia Care Center, Tehran, Iran
² Department of Hepatitis and AIDS, Pasteur Institute of Iran, Tehran, Iran
*Corresponding Author: Azam Bolhassani
E-mail: A_bolhasani@pasteur.ac.ir
Tel: 66953311-2234

Background: Hemophilia A is a hereditary bleeding disorder caused by the deficiency or abnormality of factor VIII (FVIII) coagulant activity. Antibodies that neutralize the procoagulant function of FVIII, known as inhibitors, remain perhaps the most serious complication of coagulation factor replacement therapy in hemophilia A and leads to increased bleeding, morbidity and mortality. Aside from the underlying SNPs that cause hemophilia A, inhibitor risk appears to be modified by polymorphisms in various immunoregulatory genes such as CD44.

Aim: The main objective of this study was the analysis of CD44 gene polymorphisms associated with the development of FVIII inhibitors in Iranian hemophilia A patients.

Materials and Methods: 40 inhibitor positive and 30 inhibitor negative HA patients were enrolled. After extraction of genomic DNAs, tetra primer ARMS PCR analysis and direct sequencing were performed to identify polymorphisms in CD44 gene. A conventional chi squared test was used for statistical analysis. A \( p < 0.05 \) was statistically considered significance.

Results: The analysis of polymorphisms in the CD44 gene identified no association between the AA and AT genotypes and the formation of inhibitors (\( p = 0.859, OR = 0.900 \) and CI = 0.280-2.888 and \( p = 0.465, OR = 0.710 \) and CI = 0.283-1.782, respectively). Also, no statistically significant difference with regard to the allele analysis for the polymorphisms of CD44 gene was found between the groups of inhibitor and non-inhibitor patients. Indeed, comparison of allele frequencies of CD44 gene (rs927335) between two groups showed no significant differences associated with the development of FVIII inhibitors.

Conclusion: Polymorphisms in CD44 gene (rs927335) donot play a protective role against inhibitor development in Iranian HA patients.

Keywords: Inhibitor, Factor VIII, immune regulatory genes, CD44
PG-14

Generation of insulin-producing cells from human induced pluripotent stem cells on polyvinyl alcohol scaffold

Reyhaneh Nassiri Mansour¹, Masoud Soleimani², Yousef Mortazavi³, Seyed Ehsan Enderami¹,³

¹ Stem Cell Technology Research Center, Tehran, Iran.
² Department of Hematology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.
³ Department of Medical Biotechnology and Nanotechnology, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran.
⁴ Cancer Gene Therapy Research Center, Zanjan University of Medical Sciences, Zanjan, Iran.

The studies have been done on patient-specific human induced pluripotent stem cells (hiPSCs) like a series of autologous growth factors and nanofibrous scaffolds (3D culture); perhaps it will have many benefits for regenerative medicine in type 1 diabetes mellitus (TIDM) patients in the future. For this purpose, we established a polyvinyl alcohol (PVA) scaffold and differentiation protocol that induce the hiPSCs into insulin-producing cells (IPCs). The Characteristics of derived IPCs in 3D culture were compared with conventional culture (2D) groups that evaluated at the mRNA and protein levels, the viability for induced pancreatic cells were 21 days. The in vitro studies showed that treatment of hiPSCs in the 3D culture resulting in differentiated cells with strong characteristics of IPCs including pancreatic-like cells, the expression of the islet-associated genes at the mRNA and protein levels in comparison of 2D culture group. Furthermore, the immunoassay tests showed that these differentiated cells in two groups are functional and secreted C-peptide and insulin in a glucose stimulation challenge. The results of our study for the first time demonstrated that the PVA nanofibrous scaffolds along with the optimized differentiation protocol can enhance the differentiation of IPCs from hiPSCs. In conclusion, this study provides a new approach for future pancreatic tissue engineering and beta cell replacement therapies for T1DM.

Key words: human induced pluripotent stem cells, Insulin-Producing Cells, PVA
Analysis of sFLT01 over expression on proliferation and migration of DU145 prostate cancer cell line

Sepideh Taghizadeh¹, Zahra-Soheila Soheili¹, Ehsan Ranaei Pirmardan¹, Shahram Samie²

¹. National Institute of Genetic Engineering and Biotechnology, Tehran, Iran
Email:sepideh.taghizadeh2016@gmail.com

Prostate cancer is the most common cancer in men all over the world. Angiogenesis plays an important role in prostate cancer progression. Cancerous cells that express vascular endothelial growth factor (VEGF) are therefore able to grow and metastasize to other organs. Since cancer growth is stimulated by VEGF, researchers targeted to decrease its expression and prevent angiogenesis and tumor growth. sFLT01 is an engineered chimeric secretory protein with the inhibitory effect on VEGF and placental growth factor (PLGF). Aim of this study is to evaluate the effect of sFLT01 over expression on proliferation and migration of DU145 prostate cancer cell line.

pAAV–sFLT01-GFP vector was transfected to DU145 cell line through lipofection and extracted mRNA was analyzed by RT-PCR. Protein secretion into condition medium of transfected cells proved by western blotting. DU145 cell proliferation and migration were evaluated by MTT and scratch assay. and the invasion assay showed that sFLT01 over expression reduce metastasis of DU145 cancer cells.

RT-PCR results showed significant over expression of sFLT01 in treated DU145 cells. Western blot proved sFLT01 protein secretion in conditioned media. MTT and migration assay demonstrated that over expression of sFLT01 reduced the proliferation and migration of the cells.

This study confirmed that sFLT01 could successfully reduce proliferation and migration and metastasis of DU-145 prostate cancer cells.

Key words: Prostate Cancer, sFLT01, DU145
Tumor necrosis factor-α -308G/A and interleukin 6 -174G/C gene polymorphisms in patients with acne vulgaris

Zahra Heidari¹, Zohreh Rahimi²

¹. Department of Clinical Biochemistry, Medical school, Kermanshah university of Medical Sciences
². Department of Clinical Biochemistry, Medical school, Kermanshah university of Medical Sciences

Background: The pathogenesis of acne vulgaris as a skin disease is complex. Recent studies are focused on investigating the influence of inflammatory cytokines on the disease. Cytokines play an important role in the pathogenesis of acne vulgaris together with other genetic and environmental factors. Several single nucleotide polymorphisms (SNPs) of the tumour necrosis factor-α (TNF-α) gene have been studied with regard to the pathogenesis of acne vulgaris, but the results have been inconclusive. This case-control study aimed to investigate the association between the tumour necrosis factor-α -308 G/A and interleukin 6 -174 G/C polymorphism with acne vulgaris risk in Iranian population. Methods: Study subjects included 161 patients with acne vulgaris (25 males, 136 females) and 152 controls (34 males, 118 females). Cases were sub-grouped according to the severity of acne into mild, moderate and severe groups. Polymorphisms were determined by PCR and restriction fragment length polymorphism analysis. Results: The frequency of TNFα -308 AA genotype in patients and controls was 6% and 7%, respectively. Also, the frequency of IL6 -174 CC genotype was found in 3% of patients compared to 2.6% in controls. No statistical significance was observed regarding the frequencies of genotypic variants related to the both TNFα -308 (P=0.916) and IL-6 174(P=0.776) polymorphisms. Conclusion: The present data suggest that SNP -308 of the promoter region of the TNF-α gene and the polymorphism in promoter region of the IL6 gene does not play a role in acne vulgaris pathogenesis.

Keywords: TNF-α, IL6, Acne vulgaris, Polymorphism
Prevalence of β-thalassemia mutations in Kerman province- Iran

Alireza Rafati1, Amir Hossein Sangi2, Nastaran Aslani2, Mahboube Riyahi2, Maryam Beygi2

1. Sirjan faculty of Medical sciences, Sirjan, Iran  
2. Student Research committee, Sirjan faculty of Medical sciences, Sirjan, Iran

Background: Thalassemia syndromes are a group of inherited disorders in which the synthesis of at least one of the globin chains in the hemoglobin molecule is inadequate. Thalassemia is divided into three categories: minor, intermediate, and major, based on clinical symptoms. It should be noted that β-thalassemia is the most common monogenic disease in Iran. The southern of Iran like the province of Kerman for this disease is endemic region.

Methods: More than 90% of β-thalassemia mutations in the Kerman province are IVSI-5 (G>C). And, of course, the presence of other mutations, such as IVSII-1 and Fr 8-9, should also not be ignored. In the province of near Kerman like Sistan and Baluchestan, the mutations of IVS-II-I (G-A) and IVS-II-I (G-A) and IVS-I-110 (G-A) are abundant. Also In the province of Hormozgan, the directions for Codons 36/37 and IVSII.1 (G-A) and IVS I.5 (G-C) are very high.

Results and Conclusion: For this reason, due to the high prevalence of this mutation in different provinces, it is necessary to make effective and effective use of these mutations. This is not possible except with the cooperation of various medical groups and patients, for prenatal preventive measures and screening of high-risk individuals in these provinces, which should be the first priority of the country, therefore, with the actions of these measures Concerning beta-thalassemia, the likelihood of a shortage of this disease in the coming years in these provinces is very significant.

Keywords: β-thalassemia, Mutation, Hemoglobin
DFNB28 microsatellite markers genotyping in Iran

Elham Davoudi-Dehaghani1, Sirous Zeinali1,2

1Department of Molecular Medicine, Biotechnology Research Center, Pasteur Institute of Iran, Tehran, Iran
2Medical Genetics Lab, Kawsar Human Genetics Research Center, Tehran, Iran.

The role of DFNB28 gene (TRIOBP) in the hearing was first identified in 2006 by studying families with the autosomal recessive hearing loss. Disease-causing sequence variants in the TRIOBP gene accounted for 0.5-5% of cases with the non-syndromic hereditary hearing loss.

Given the importance of microsatellite markers in prenatal diagnosis (PND) and preimplantation genetic diagnosis (PGD) for hearing loss a multiplex PCR for amplification of four microsatellite markers linked to DFNB28 has been designed in this study.

Mapviewer, Sequence-based Estimation of Repeat Variability (SERV) and Tandem Repeat Finder (TRF) were used for selection of microsatellite markers. Primer3, primer BLAST, and Gene Runner were also used for a multiplex PCR primer designing. Amplification of microsatellitemarkers was performed using fluorescently labeled primers and fragment analysis was done on an ABI 3130 Genetic Analyzer (LT).

Two novel tetranucleotide microsatellite markers and two reported markers were selected in this study. The markers were amplified in a multiplex PCR. Observed heterozygosity was more than 60% for three of these markers. More than 10 different alleles were identified for one of the markers.

Designing a multiplex PCR for amplification of several markers can save time and costs of indirect confirming methods for the PND and PGD. More studies are needed to determine the exact characteristics of these markers.

Keywords: microsatellite markers, DFNB28, Iran
Emerging role of circulating microRNAs as novel biomarkers in diagnosis Endometriosis

Sakine Arabfiroozjaei 1, Mehrdad Nurozinia2*
1 Department of Medical Genetics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
2 Department of Medical Genetics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
*Corresponding Author:
Department of Medical Genetics, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
Email: s.arabfiroozjaei@modares.com

Objective: To investigate serum microRNAs (miRNAs) in women with endometriosis.

Introduction: Endometriosis is a benign, estrogen-dependent disorder associated with pelvic pain and infertility and is characterized by the ectopic distribution of endometrial tissue. A simple blood test for endometriosis-specific biomarkers would offer a more timely accurate diagnosis of the disease and could lead to earlier treatment intervention.

Material & method: This study is a review article, after searching in databases such as Scopus, Science Direct, PubMed, google scholar with keywords as microRNA; biomarker; endometriosis, 20 articles published full textBetween 2005 and 2016.

Result: Wang et al. first performed a circulating miRNA array profiling in two pools of sera from 10 patients with endometriosis and 10 control women. After validation of results, the authors found that miR-199a and miR-122 levels were upregulated and miR-145 *, miR-141 *, miR-542-3p, and miR-9 * downregulated in samples from patients in comparison to control women and could therefore serve as biomarkers of the disease.

Another study in plasma was conducted by Jia et al. 23 women with endometriosis and 23 endometriosis-free controls were enrolled in the study and a miRNA microarray profiling was performed. Three out of the six miRNAs selected for validation by qRT-PCR (miR-17-5p, miR-20a, and miR-22) were proven to be significantly downregulated in patients In 2015, extending the evidence of miRNAs as putative biomarkers of endometriosis in non-invasive biofluids. In the first case, levels of previously endometriosis-associated miRNAs, miR-135a,b and let-7a-f, were quantified in sera of 24 endometriosis patients and 24 control women. By means of a logistic regression approach, researchers found that combining levels of let-7b, let-7d, and let-7f in the proliferative phase obtained the highest area under the curve value in order to discriminate patients with endometriosis from control women.

Discussion: miRNAs raise as potent regulators of gene expression in the most important systems involved in the pathogenesis of endometriosis. circulating miRNAs have emerged as attractive molecules to be considered as biomarkers.
Evolution and their expression of rs738409 in patients with non-alcoholic fatty liver disease (NAFLD)

Amir hossein Sangi1, Alireza Rafati2, fatemeh moeinaddini 1, fatemeh mohammadi fard 1, kimia mirshekari 1

1-Student Research committee, Sirjan faculty of Medical sciences, Sirjan, Iran
2-sirjan faculty of medical sciences, sirjan, iran

Presenter Author: amirhossein sangi
E-mail: amirsangi2628@gmail.com

Background: Fatty liver (hepatosteatosis) is the earliest abnormality in the pathogenesis of non-alcoholic fatty liver disease (NAFLD) and alcoholic fatty liver disease (AFLD). In fact, the liver has a little fat always, but if it becomes over 10 percent of liver volume AFLD and NAFLD could be caused. Nonalcoholic fatty liver disease (NAFLD) is a lot more common than you think. There is no single reason or cause as to why so many suffer from this disease. Most often is a mix of different causes. is exposed in the presence of other risk factors, such as severe obesity, visceral adiposity, increased intake of sugars or omega-6 poly-unsaturated fatty acids, and other genetic factors. This study aimed to investigate the relationship single polymorphism PNPLA3I148M in patients with NAFLD and compared the results with those reported in other parts of the world sets.

Method: DNA was extracted from the peripheral blood of 85 patients with non-alcoholic fatty liver disease and 120 normal persons. 356 bp gene fragment was amplified by the polymerase chain reaction (PCR). subsequently, the mutation was screened for random fragment length polymorphism analysis (RFLP).

Results: Statistical analysis showed that the risk allele (G-allele) frequency of rs738409 was 40.07 % in the control subjects and 80.12 % in patients with NAFLD; this shows a strong association PNPLA3I148M polymorphism with the non-alcoholic fatty liver disease in our population (P-value <0.001 OR = 3.651, CI: 2.123 - 4.471).

Key words: Nonalcoholic fatty liver, NAFLD, RFLP PCR, polymorphism
Analysis of glucocerebrosidase gene mutations in Iranian patients with Gaucher disease:
Identification of 6 novel mutations

Hadi Mozafari1, Mohammad Taghikhani2, Shohreh Khatami3, Mohammad Reza Alaei4

1Department of Clinical Biochemistry, Medical School, Kermanshah University of Medical Sciences, Kermanshah, Iran
2Department of Clinical Biochemistry, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
3Department of Biochemistry, Pasteur Institute of Iran, Tehran, Iran
4Department of Pediatric, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Gaucher disease (GD) is the most frequent autosomal recessive disorder of glycolipid storage. GD results from mutations in the glucocerebrosidase (GBA) gene leads to GBA deficiency.

We investigated the spectrum of mutations in GBA gene in 26 unrelated gaucher patients from different Iranian populations and 15 health controls by DNA sequencing, PCR-RFLP, and ARMS methods. The in silico analysis was performed for novel mutations. We identified six new mutations. New detected mutations that theoretically might be harmful were I161T (c.599T>C), H273D (c.934C>G), L286S (c.974T>C), L354V (c.1177C>G), S400G (c.1315A>G) and M416R (c.1365G>A). In addition, we identified L444P, N370S, W381X, E340K, R359Q, N188S, R163Q and D409H mutations in our studied patients. Further, the present study detected two new complex alleles consisted of S400G/S400G+E340K/- and R163Q/R163Q+N188S/N188S.

The most common GBA mutation in our population was the L444P with an allele frequency of 32.7%. The second frequent mutation was N370S (19.2%). The present study detected six new mutations of GBA gene among GD patients presence of two prevalent mutations of L444P and N370S among Iranians that could be useful in screening programs and understanding of the molecular basis of GD.

Keywords: Gaucher Disease . Mutation . GBA . Iranian population. Sequencing.
Role of IFNG-AS1 Long Noncoding RNA and IFNG Gene in Multiple Sclerosis: Are There Any Epigenetic Clues?

Maziar Ganji¹, Mohammad Taheri¹,², Mir Davood Omrani¹,², Arezou Sayad*¹

¹. Department of Medical Genetics, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
². Urogenital Stem Cell Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
*Corresponding Author. Email: ar.sayad@sbmu.ac.ir

Background: Multiple Sclerosis (MS) is a disabling chronic disease of the nervous system in which the myelin system of the central nervous system is deteriorated. Also, long non-coding RNAs (lncRNAs) play essential roles in gene expression regulation by various mechanisms. Given that epigenetic pathways are important in MS pathophysiology, here we aimed to examine the expressions of IFNG-AS1 lncRNA and its target gene, IFNG, in MS patients and healthy subjects.

Methods: In this case-control study, the expression levels of IFNG-AS1 lncRNA and IFNG gene in the blood of 50 relapsing-remitting MS (RR-MS) patients and 50 healthy subjects were measured by SYBR Green Quantitative Real-Time PCR.

Results: IFNG-AS1 was significantly down-regulated (P=0.013) in MS patients, compared with that of controls. On the other hand, IFNG showed increased expression level in MS group; however, this elevation did not reach statistical significance in our analysis (P=0.52). Moreover, the Spearman correlation analysis between IFNG-AS1 and IFNG revealed significant correlation (r=0.475, P<0.0001).

Conclusion: IFNG-AS1 is known to interact with WDR5 complex which finally brings H3K4Me epigenetics marks to the IFNG locus. Consequently, IFNG over-expression could negatively feedback the expression of IFNG-AS1, as suggested by our data. More investigations are needed to uncover the role of lncRNAs in epigenetic details of MS disorder.

Keywords: Long Noncoding RNA, IFNG-AS1, IFNG, Multiple Sclerosis, Gene Expression.
PG-31

VDR Gene Polymorphisms in Susceptibility to Pulmonary Tuberculosis among the Lur Population of Lorestan Province of Iran

Farhad Shahsavar¹, Ali Amiri², Toomaj Sabooteh³*, Mehrad Hadilou⁴, Alireza Azargoon²

1. Department of Immunology, Lorestan University of Medical Sciences, Khorramabad, Iran.
2. Department of Internal Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
3. Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
4. Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran.

Background: The vitamin D receptor (VDR) mediates the immunological function of vitamin D3, which activates macrophages has been associated to tuberculosis risk. The aim of this study was to determine whether vitamin D receptor (VDR) FokI, TaqI, BsmI, and ApaI polymorphisms are associated with the susceptibility to pulmonary tuberculosis (TB) in the Lur population of Iran.

Methods: This case-control study included 100 patients with pulmonary tuberculosis age and sex matched and 100 healthy controls in a Lur population living in Lorestan province. Polymorphisms of VDR were analyzed by using polymerase chain reaction-restriction fragment length (PCR-RFLP) technique. Association analyses were performed with the SPSS 21 statistical software.

Results: The distribution of BsmI (Bb) genotype polymorphism were significantly higher frequency in TB patients compared to controls (61% vs. 45%, P=0.0336, OR=1.912, %95 CI=1.089–3.356). However, the allelic and genotypic frequencies of FokI, TaqI and ApaI polymorphisms were not significantly different between the patients and the controls.

Conclusion: Our findings demonstrated that BsmI (Bb) polymorphism may increase the susceptibility to pulmonary TB in the Lur population of Iran. We suggest that genotypes of many polymorphic genes are associated with TB, it is necessary to further more studies with larger sample size and explore the mechanism of genotypes in susceptibility to tuberculosis.

Keywords: VDR, Pulmonary Tuberculosis, Lur population.
MBL Gene Polymorphisms in Susceptibility to Pulmonary Tuberculosis Among the Lur Population of Lorestan Province of Iran

Toomaj Sabooteh¹, Ali Amiri², Farhad Shahsavar³*, Khatereh Anbari⁴, Flora Pouremadi⁵

1. Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
2. Department of Internal Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
3. Department of Immunology, Lorestan University of Medical Sciences, Khorramabad, Iran.
4. Social Determinants of Health Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran.
5. Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran.

Background: Tuberculosis (TB) is caused by infection of Mycobacterium tuberculosis. Host genetic variability is an important determinant of the risk of developing TB in humans. Although the association between MBL polymorphisms and TB has been studied in various populations, the results are controversial. The aim of this study was to investigate mannose-binding lectin (MBL) gene polymorphisms with susceptibility to pulmonary tuberculosis (PTB) in a Lur population of Iran.

Methods: In this case-control study, four functional MBL gene polymorphisms (HL, XY, PQ and AB) were genotyped by using PCR Single Strand Conformation Polymorphism (SSCP) technique in a Lur population living in Lorestan province, consisting of 100 patients with pulmonary tuberculosis (PTB) age and sex matched 100 healthy controls (HCs). Association analyses were performed with the SPSS 21 statistical software.

Results: We found that MBL (HH) genotype polymorphism significantly was associated with increased susceptibility to TB (35% in patients vs. 22% in controls, P=0.0417, OR=1.909, %95 CI=1.020–3.573). Additionally, H allele showed a significant association with increased risk of TB (56.5% in patients vs. 46% in controls, P=0.0357, OR=1.525, %95 CI=1.028–2.262). Also, the distribution of L allele in patients was significantly lower frequency in TB patients compared to controls (43.5% vs. 54%, P=0.0357, OR=0.656, %95 CI=0.442–0.973). However, the allelic and genotypic frequencies of AB, XY and PQ polymorphisms were not significantly different between the patients and the controls. We couldn't detect any significant differences between haplotypes among TB patients and healthy controls.

Conclusion: Our findings demonstrated that HH genotype and H allele may increase the susceptibility to pulmonary TB in the Lur population of Iran, although L allele may decrease the susceptibility to pulmonary TB in this population. We suggest that it is necessary to further more studies with larger sample size and other ethnic population.

Keywords: MBL, Pulmonary Tuberculosis, Lur population.
The Genetic Backgrounds of Ankylosing Spondylitis: A Systematic Review

Toomaj Sabooteh¹, Andisheh Soleimani², Farhad Shahsavar³*

1. Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
2. Ayatollah Borujerdi Hospital, Lorestan University of Medical Sciences, Borujerd, Iran.
3. Department of Immunology, Lorestan University of Medical Sciences, Khorramabad, Iran.

Background: Ankylosing spondylitis (AS) is a subset of spondyloarthritis (SpA), which is characterized by inflammation of the sacroiliac joints, peripheral inflammatory arthropathy, and the absence of rheumatoid factor. Other subsets of SpA include reactive arthritis, psoriatic arthritis, colitic arthropathies (inflammatory bowel disease [IBD]-related SpA), and undifferentiated SpA. With a prevalence of 0.1%–1.4%, AS is an underrecognized form of chronic arthritis. It can lead to significant spinal disease and peripheral arthritis, which can manifest as chronic back pain and a progressive spinal ankylosis. The disease strikes predominantly men between the ages of 20 and 40 years, in their peak productive years, leading to significant loss of work productivity and decreased quality of life. In this study we assessed the genetic backgrounds of ankylosing spondylitis by performing a systematic review.

Methods: A systematic search was performed. ISI Web of Science, Pubmed and Scopus were searched from 1990 to 2017 using the keywords “ankylosing spondylitis” AND “Genetic*” with their synonyms and MeSH terms. In addition, a manual search of the reference lists of the articles found was performed.

Results: After research with an adequate combination of keywords in the databases and after a manual search of the literature we found a total of 283 articles. Altogether, 269 articles were excluded for different reasons such as double counting, insufficient description of grading, not well defined AS population, no possibility to calculate sensitivity (eg, only mean values given), case reports only, report focusing on technical details, only letter, comment or editorial. Finally, 14 articles were included in our analysis.

Conclusion: It is evident that the MHC, especially HLA-B27, plays a central role in susceptibility to AS. For example, HLA-B27 confers approximately 20 to 50% of the total genetic risk for this disease. However, AS is definitely not a single gene disease and the genetic background of AS cannot be fully explained by associations with the MHC. Candidate gene and, recently, genome-wide association studies have confirmed the strong association of IL1 cluster on chromosome 2, IL-23R gene on chromosome 1, ARTS1 genes on chromosome 5, ERAP1, ANKH and TNAP with AS. Linkage analysis confirmed possible associations with other regions. The strongest linkage was observed for loci on chromosome 16, while moderate linkage was suggested at sites on chromosomes 3, 10, 11, 17 and 19.

Keywords: Ankylosing Spondylitis, Genetic.
Main functions of conserved tissue-enriched genes

Ali Najafi¹, Noshad Hosseini², Pouya Salehipour¹, Mohammad Hossein Modarressi¹

¹. Department of Medical Genetics, School of Medicine, Tehran University of Medical Sciences
². Department of Computer Engineering, Sharif University of Technology

*: Ali Najafi, Department of Medical Genetics, School of Medicine, Tehran University of Medical Sciences

Background: While housekeeping genes are important for basic cellular functions, but conserved tissue-enriched (CTE) genes are related to tissue identity and tissue specific functions. Here, the most prominent functional and structural areas of these genes have been investigated.

Methods: All expression data of UniGene website were downloaded from Downloads/FTP section. The data of 5 mammalians including Homo sapiens, Mus musculus, Rattus norvegicus, Bos taurus and Sus scrofa were analyzed. Only protein coding genes were involved and normalized with Transcript per million (TPM). All genes with normalized expression ratio more than 50% in a single tissue were selected. Then to select conserved ones only those genes were selected that were tissue-enriched in at least 3 of the selected species. The analyses were conducted with Python 2.7 programming language and Notpad++ v7.4.2 software. Then the functional analysis was performed with PANTHER version 13 to statistically determine over-representation or under-representation of PANTHER or Gene Ontology (GO) classification categories.

Results: We found 646 CTE gene from 24 tissues of the mammalians. Different categories showed over-representation or under-representation when comparing with human reference. The most over-represented categories with higher than 20 fold enrichment include: kainate selective glutamate receptor complex, troponin complex, sperm fibrous sheath, lipoprotein lipase activator activity, troponin C binding, structural constituent of eye lens, regulation of very-low-density lipoprotein particle remodeling, regulation of muscle filament sliding, and cytology in other organism involved in symbiotic interaction. Under-represented categories were mainly related to genetic functions and the nucleus.

Conclusion: The CTE genes seem to be important in special functions of different tissues and organs. Also, it seems that these genes are not involved in nuclear functions of cells.

Key words: Conserved Tissue-Enriched Genes, PANTHER Classification, UniGene, Human
PG-39

Evaluation of molecular method for Diagnosis of Bacterial Congenital infection in umbilical cord blood by Broad Rang PCR

Vida Sianaki¹, Mohammad Hassan Shahhosseiny²,³ Tahere Naji⁴

¹Genetic Sciences, Islamic Azad University, Pharmaceutical Branch, Advanced Science & Technology Faculty ((M.Sc)) Thesis
²Department of Microbiology – shahr-e-Qods Branch – Islamic Azad University – Tehran / Iran
³Iranian Gene Fanavar Institute (IGF), Tehran/Iran
⁴Molecular & Cellular Sciences, Islamic Azad University, Pharmaceutical Branch, Advanced Science & Technology Faculty ((M.Sc)) Thesis

Background: Diagnosis of bacterial infection is one of the greatest challenges in embryology and one of the most serious and important of these infections is sepsis. Different germs, such as bacteria, viruses, parasites and fungi, can lead to highly infected blood infections and the causes of these infections are viruses and bacteria. In many cases of infectious neonatal infection (sepsis), bacteria are transferred during pregnancy or during delivery through the placenta and circulation of the maternal blood of baby so, the purpose of this project is to examine the bacterial congenital infections in the umbilical cord blood. This project is performed by molecular methods, using the extensive PCR method which is done by Universal primers and it can be a great help in identifying, diagnosing and treating congenital bacterial infections at a low cost.

Methods: 100 umbilical cord blood samples were prepared under sterile conditions in the operating room of Mostafa Khomeini Hospital. DNA was then extracted from the umbilical cord blood by using the General DNG-Plus method. PCR test was examined by using universal primers based on 16S rRNA gene target and DNA of several optimized bacteria, and then sensitivity and specificity were examined. The optimized PCR test was performed on extracted DNAs of samples.

Results: Optimal PCR test and 1502 bp product were observed in 1.5% agarose gel. The diagnostic LOD was 900copy / reaction obtained in this study. Primers were propagated with no other microorganism’s DNA. None of the 100 umbilical cord blood samples studied were found to be positive.

Conclusion: By considering the little role of bacteria in congenital infections and also the results of this study, and the accuracy and sensitivity of molecular amplification tests such as PCR, It can be concluded that bacteria play a minor role in congenital infections.

Key words: Broad Rang PCR, Umbilical cord blood, Diagnosis, Bacterial congenital infection
PH-01

Glycophorin A and Transferrin Receptor as Erythroid Lineage Specification Markers

Davod Pashoutan Sarvar¹, Karim Shamsasenjan², Parvin Akbarzadehlaleh³

¹. Asadabad Sch School of Medical Sciences, Asadabad, Iran.
². Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran.
³. Department of Pharmaceutical Biotechnology, Faculty of Pharmacy, Tabriz University of Medical Sciences, Tabriz, Iran.

Background: Erythropoiesis is a process of the commitment and differentiation of HSCs to the primitive erythroid progenitors and mature erythrocytes that is associated with changes in antigenic expression. In this research work, we investigated the erythroid lineage commitment of umbilical cord blood-derived HSCs (UCB-HSCs).

Methods: In this study, UCB was obtained from healthy full-term normal deliveries after obtaining informed consent. Then, HSCs were isolated using MACS technique. HSCs were cultured with mixture of cytokine-driven proliferation (rhSCF, TPO and FLT3-ligand). To induce erythroid differentiation of HSCs, cytokine-driven erythroid differentiation (SCF and rhEPO) were added to HSC culture medium. Finally, transferrin receptor (CD71) and glycophorin A (CD235a) antigens were assayed by flowcytometry.

Results: Changes in the expression of CD71 and CD235a in the presence of cytokine-driven proliferation was not significant (P>0.05) but with adding differential cytokines of SCF and rhEPO, the expression of CD71 and CD235a were significantly increased (P<0.0001).

Conclusion: The results of this study showed that CD71 and CD235a are erythroid-specific antigens because with HSC commitment to erythroid lineage, the expression of described antigens were significantly increased. Hence, CD71 and CD235a can be used for diagnosis of erythroid dysplastic changes and erythroleukemia.

Keywords: Hematopoietic stem cell, Erythroid differentiation, Glycophorin A, Transferrin receptor.
Study of interferon gamma (IFN-γ) and interleukin 6 (IL6) Gene expression level in patients with Acute Lymphoblastic Leukemia (ALL)

Introduction: interferon gamma and interleukin 6 are among the most important cytokines have been associated with the biological behavioral and immune responses in malignancies. In this study we evaluated the level of these cytokines genes in patients with Acute Lymphoblastic Leukemia.

METHODS & Samples: 52 patients with ALL without chemotherapy treatment were under studied. The peripheral blood mononuclear cells of all samples were separated by Ficoll. The expression of interferon gamma and interleukin 6 genes were analyzed by RQ-PCR. Finally all data were analyzes using SPSS software version 20.

Results: our results showed that IFN-γ gene expression decreased 83 change fold in ALL patient samples in compassion with controls data (p=0.0001). No significant different were seen (p=0.4) in The level of IL-6 Gene expression in B-ALL patients compared with healthy control, but in T-ALL patients, significant reduction were seen (p=0.01).

Conclusions: We found statistically significant reduction in IFN-γ gene expression of the B-ALL patients compared to healthy control, whereas there was no significant difference in IL-6 gene expression in these patients.

Key words: ALL, IFN-γ, IL6
Comparison of biochemical and hematologic factors in stored red blood cells, from first and regular blood donors

Maryam Azizi³, Mohammad Reza Dayhim⁴, Mohammad Hessam Rafiee⁵, Maryam Monsef Shokri⁶

Background: Dense red blood cell storage are one of the important blood products that are injected to patients in order to compensate for the amount of lost blood. For this purpose, the quality of this product should be maintained from the time of donation to its consumption and maintenance, which is usually between 35 and 42 days at 2 to 6 degrees Celsius. Red blood cell storage undergo various biochemical, functional, and morphological changes during storage, which is known red blood cell storage lesion, which can have a negative effect on the quality of the product and may reduce the quality of this blood product. In this study, some biochemical and hematological parameters in red blood cells were prepared from two groups of regular and first-time donors.

Methods: In this experimental study, 20 red blood cell storage from blood transfusion center of Tehran province were evaluated. Biochemical parameters include glucose, lactate, LDH, pH, MDA, NO, TAC, plasma protein, sodium, and potassium. The hematological parameters also included hemolytic index measurements, RBC, HCT, Hb, MCV, MCH, and MCHC, which lasted for 42 days (days 3, 7, 14, 21, 28, 35 and 42 days) for RBC in RBC the reds were donated from the regular donors and first donors.

Results: Measurement of these biochemical parameters and hematology in both groups showed significant changes during storage. On the other hand, comparing some of the parameters, using the IBM SPSS Statistic Version 24 software, was significantly different between the two groups.

Discussion and Conclusion: In this study, it was found that there is a difference in the quality of blood products in first and regular donors. Therefore, it can be said regular donations should be consumed earlier than the first time. It is hoped that the findings of this study will be useful to the Blood Transfusion Organization.

keywords:
RBC damage, red blood cell storage lesion, regular donor and first donors.
PH-04

Apoptotic effect of neurokinin 1 receptor antagonist, Aprepitant, in multiple myeloma KMM cells

Elham Razani, Davood Bashash*

Department of Hematology and Blood banking, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Background: The substance P/neurokinin 1 receptor (SP/NK1R) cascade has been demonstrated to play a considerable role in development of human cancers. In spite of therapeutic improvements in treatment strategies over the past decades, multiple myeloma (MM) still remains as one of the leading causes of person-years of life lost all over the world. On the basis of the pathogenic role of SP/NK1R pathway in cancer, it was of great interest to investigate the anti-cancer effect of Aprepitant, an oral competing non-peptide antagonist of NK1R, in MM cells.

Methods: To evaluate the cytotoxic and anti-proliferative effects of Aprepitant in multiple myeloma, KMM cells were treated with increasing doses of the inhibitor. Cell viability and metabolic activity were investigated by trypan blue and MTT assays, respectively. Afterwards, Annexin-V/PI staining and DNA content analysis were performed to evaluate whether Aprepitant-induced cytotoxic effect could be attributed to either apoptosis induction or cell cycle arrest. Additionally, transcriptional alteration of apoptosis-related target genes was also studied using real-time RT-PCR.

Results: We found that treatment of KMM cells with Aprepitant resulted in inhibition of both viability and metabolic activity in a concentration-dependent manner. Moreover, flocytometric analysis delineated a considerable pro-apoptotic potential of the inhibitor in MM cells, as evidenced by increased externalization of phosphatidylserine, and elevated cell population in sub-G1 phase. Noteworthy, the results of real-time PCR revealed that Aprepitant-induced cytotoxicity is mediated through shifting the ratio of death promoters to death repressors via alteration of Bax and Bcl-2 expression.

Conclusions: Based on the pharmacologic safety of Aprepitant and its broad clinical application in chemotherapy-induced nausea and vomiting prevention, our study suggests this inhibitor as a promising agent for the treatment of multiple myeloma. However, further investigation, including clinical trials will provide valuable clues to add this inhibitor for treatment of MM patients.

Keywords: Multiple myeloma, Aprepitant, Neurokinin-1 receptor, KMM cells.
PH-05

Mild Hypoxia and bone marrow mesenchymal stem cell enhances expansion and self renewal of human cord blood CD34+ stem cells

Fatemeh Mohammadali 1, Saeid Abroun 2, Amir Atashi 3, 4

1- Ph.D. Student, Department of Hematology and Blood Banking, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran f.mohammadali@modares.ac.ir

2- Ph.D, Associate Professor, Department of Hematology and Blood Banking, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran Abroun@modares.ac.ir

3- Ph.D, Assistant Professor, Department of Hematology and Blood Banking, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran atashia@shmu.ac.ir

4- Stem cell and tissue engineering research center, Shahroud University of Medical Sciences, Shahroud, Iran

Corresponding Author: Saeid Abroun, Ph.D of Hematology and Blood Banking, Associate Professor, Department of Hematology and Blood Banking, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran. Email: Abroun@modares.ac.ir

Background: Cord blood (CB) is a rich source of Hematopoietic stem cells (HSCs) that has been used successfully to treat a variety of hematologic and non-hematological disorders. Beside the advantage of CB, the main disadvantages of CB are the limited number of stem cells available for transplantation and delayed engraftment. Identifying strategies to enhance expansion, engraftment and self renewal of HSCs can improve transplant efficiency. The goal
of this study was to examine different culture conditions on ex vivo expansion and self renewal capacity of CB-HSCs.

**Methods**: In this study, human cord blood CD34+ HSC isolated by MACS, cultured in the serum-free medium (Stem line II) supplemented with cytokines (TPO, FLT3L, SCF) with/without Bone marrow Mesenchymal stem cell feeder layer in normoxia (21% O2) and mild hypoxia (5% O2) for 7 days. Before and after of this period, Total nucleated cell count (TNC), CD34+ cells count, CFC assay, and HOXB4, C-MYC expression by Real time PCR were evaluated. The data analyzed using the t-test and ANOVA. Value < 0.05 were considered statistically significant.

**Results**: At the end of 7 days of culture, highest number of total nucleated cell (TNC), CD34+ cells, Colony forming units (CFUs), HOXB4 and C-MYC mRNA levels were seen in coculture of HSC with bone marrow Mesenchymal stem cell (MSC) feeder layer at 5% O2. Our findings demonstrated statistically significant (1.25-1.8 fold) increase of HOXB4 gene expression and (1.3-1.4 fold) increase of C-MYC gene expression in hypoxia versus normoxia.

**Conclusions**: Bone Marrow (BM)-MSC and mild hypoxia (5% O2) combination not only improves HSC expansion but also enhanced self renewal capacity of HSC and better mimicked the niche microenvironment conditions. These findings are expected to contribute to the development of more efficient culture systems for the ex vivo expansion of CB HSCs.

**Keywords**: Cord blood, Hematopoietic stem cell, CD34+ cells, Mesenchymal stem cell, hypoxia, HOXB4, C-MYC
Apoptosis and Proliferation of NB4 Cell Line: Effect of Deferoxamine and Arsenic Trioxide

Abstract

Introduction: Arsenic trioxide is activist agent in the treatment of APL, which acts alone, but has adverse effect on patients. Moreover, deferoxamine has antiproliferative activity and induce leukopenia. Aim of this study is evaluation ability of deferoxamine and arsenic trioxide to inhibit the cell proliferation and induce apoptosis in NB4 cell line: is it an APL-like cell line, to induce antileukemic effectiveness and reduce dosage of ATO.

Materials and Methods: We treated cells indifferent groups, one group cultured and treated with different doses of DFO and others were treated with DFO in combination with ATO. At the end cells were evaluated for cell viability, metabolic activity, apoptosis and expression pattern of Caspase-3 and hTERT genes.

Results: We found that DFO alone and in combination with ATO has cytotoxic and anti-proliferative effects, and reduce viability and cell metabolic activity in NB4 cell line in a dose and time dependent manner. In addition, this combinations causes increase in apoptosis, up-regulation of Caspase-3 and down-regulation of hTERT genes in cells.

Conclusion: Combined ATO/ DFO treatment cooperatively decreased the mRNA levels of the hTERT and increased the mRNA levels of Caspase-3 in a time-dependent manner in compared to DFO alone.

Keywords: Acute Promyelocytic Leukemia, Arsenic trioxide, Deferoxamine.
A Review of Blood Usage and Wastage in a Tertiary Heart Center

Amir Shamshirian¹, Ali Reza Mohseni²,³, Ali Akbar Pourfathollah⁴,⁵, Samira Hosseini¹, Atiyeh Ghorbanpour¹, Soheil Azizi²

¹Department of Laboratory Sciences, Student Research Committee, School of Allied Medical Science, Mazandaran University of Medical Sciences, Sari, Iran
²Department of Laboratory Sciences, School of Allied Medical Science, Mazandaran University of Medical Sciences, Sari, Iran
³Thalassemia Research Center, Hemoglobinopathy Institute, Mazandaran University of Medical Sciences, Sari, Iran
⁴Blood Transfusion Research Centre, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran
⁵Departments of Immunology, Faculty of Medicine, Tarbiat Modares University, Tehran, Iran.

Abstract

Background/Aims:

Blood is a vital resource that its utilization is ever increasing throughout the world and blood wastage is a global challenge that needs to be controlled. The objective of this study is to analyze the usage and wastage of blood and its products in Mazandaran heart center.

Methods:

In this retrospective study, the survey was carried out on the data that were obtained from Mazandaran heart center of Sari, Iran during 2012–2017. Data included details of usage and wastage on blood and its product units. MS Excel2016 and SPSS 16.0 were used in analysis and diagrams.

Results:

A total of 35,686 blood units were consumed, which included packed red blood cells, platelets, fresh-frozen-plasma, and cryoprecipitates, based on frequency. Moreover, 823 blood units were wasted mostly because of inappropriate order. The results showed that although the amount of blood usage is increasing, the amount of its wastage is decreasing.

Conclusion:

Our study showed not only the increasing pattern of blood usage but also the dropping pattern of blood wastage due to hemovigilance performance in our healthcare center. We found that the main reason for the blood wastage in this center is an excessive order of blood units.

Keywords:

Blood transfusion, hemovigilance, Blood utilization, Blood usage, Blood wastage
PH-08

Evaluation of different diagnostic index’s sensitivity in differentiation of Iron Deficiency Anemia from beta-Thalassemia Minor

Amir Shamshirian¹, Alireza Mohseni²,³*, Samira Hosseini¹, Atiyeh Ghorbanpour¹,

¹Department of Laboratory Sciences, School of Allied Medical Science, Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran
²³Thalassemia Research Center, Hemoglobinopathy institute, Mazandaran University of Medical Sciences, Sari, Iran
³Department of Laboratory Sciences, School of Allied Medical Science, Mazandaran University of Medical Sciences, Sari, Iran

Corresponding author:
Dr. Alireza Mohseni
Thalassemia Research Center, Hemoglobinopathy institute, Mazandaran University of Medical Sciences, Sari, Iran
E-Mail: mohseni2404@gmail.com

Background: Iron deficiency anemia (IDA) and Beta-Thalassemia trait (BTT), are two prevalent microcytic anemia. For differentiation of these two clinically and morphologically similar disease, used different Laboratory tests and indexes with different sensitivity and specificities. The aim of this study was to compare the sensitivity of some of these indexes in the differentiation of them.

Methods: In this experimental study, 30 patients with IDA and 30 patients with BTT and 30 healthy cases as control group from 2-56 years old were studied. 5cc venous blood samples were taken from all cases and CBC, the level of serum ferritin and serum iron, TIBC and HbA2, and Transferrin receptor of the serum (sTfR) have been measured. In addition, for all subject, Mentzer, Srivastava, Shine and Lal indexes were calculated.

Findings: Serum ferritin level in IDA and BTT respectively measured 7.16±4.47 µg/L and 47.40±32.37 µg/L, also mean of serum transferrin receptor in iron deficiency were 3.26±3.16 µg/L and in BTT 1.86±0.72 µg/L. The mean ratio of Log (ferritin / sTfR) was measured 0.29±0.16 and 1.31±0.12 in IDA and BTT respectively. The accuracy of indexes to differentiate from highest to lowest are RBC count> Mentzer> RDW> Srivastava > shine and Lal.

Conclusion: Serum ferritin is able to differentiate 90% of patients, because this protein belongs to acute phase reactants and increases in inflammation, we cannot rely on it only. In addition, HbA2, RDW and sTfR levels had overlaps with approximately 50% of IDA and BTT patients. Instead, the ratio of Log (Ferritin / sTfR) and Log (Iron / sTfR) are Indicators with good sensitivity to differentiate.

In conclusion, our study shows that ferritin level, RBC count and Log (Ferritin / sTfR) had more sensitivity more than other tests for differentiation. So use of these parameters and indexes together for maximizing accuracy to obtain the correct diagnosis is recommended.

Keywords: Iron deficiency anemia, Beta-Thalassemia Minor, Ferritin, Mentzer, RDW, sTfR
Prevalence of Alloantibodies and Autoantibodies in Transfusion Dependent Thalassemia Patients

Kazem Ghaafari, Ali Ghasemi, Mahmmod Khosravi, Davood Azadi, abdorrahim absalan

1. Department of Laboratory Sciences, School of Allied Medical Sciences, Khomein University of Medical Sciences, Khomein, Iran
2. Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran
3. Department of Laboratory Sciences, School of Allied Medical Sciences, Arak University of Medical Sciences, Arak, Iran

Background: The development of anti-red blood cell alloantibodies remains a major problem in transfusion of blood in thalassemia major patients. Also, Autoantibodies can result in clinical hemolysis and difficulty in crossmatching blood. We studied the frequency of red blood cell alloimmunization and autoimmunization among thalassemia patients who received regular transfusions in Ilam province of Iran.

Methods: This study was carried out on 110 multiply transfused patients with thalassemia major. The saline method, Albumin method, direct/indirect coombs’ and Three cell panel test used for detection of red blood cell alloantibody/ autoantibody.

Results: 12 patients out of total 110 patients (10.9 %) developed alloantibodies and 2 (1.81 %) developed autoantibodies. Rh and Kell blood group system alloantibodies were most commonly found, with the majority of patients being transfused with blood matched for ABO and D antigens only.

Conclusion: This study suggests screening RBC antigens prior to transfusion. Our findings accentuate the necessity of antigen typing of supposed to be transfused red blood cells and screenings tests before the first transfusion, at least for Rh (Rh system) and Kell (Kell system) antigens.

Keywords: Alloimmunization, Autoimmunization, Thalassemia, Transfusion
Interferon-Gamma +874 (T/A) Polymorphism and Susceptibility to Aplastic Anemia: A Systematic Review and Meta-Analysis

Bahman Razi¹, Azadeh Omidkhoda¹

¹Department of Hematology and Blood Banking, School of Allied Medical Sciences, Tehran University of Medical Sciences (TUMS), Tehran, Iran.

Abstract

Background: Many studies have assessed the relation between IFN-γ +874(T/A) polymorphism and risk of aplastic anemia. However, the results of these studies were inconclusive. In the current study, we performed a meta-analysis to evaluate the association between IFN-γ+874(T/A) polymorphism and susceptibility to aplastic anemia.

Methods: All publications were searched precisely to find eligible articles on IFN-γ polymorphism +874(T/A) and aplastic anemia. Odds ratios (ORs) and their corresponding 95% confidence intervals (CIs) were calculated to evaluate the strength of association in the dominant model, recessive model, allelic model, homozygotes contrast, and heterozygotes contrast.

Results: A total of 4 case-control studies, including 210 cases and 537 healthy controls were eligible for this meta-analysis. Combined analysis of these studies showed no significant association between the IFN-γ polymorphism +874(T/A) and aplastic anemia risk in the overall population (dominant model: OR=1.52, 95% CI=0.57-2.46; recessive model: OR=1.27, 95% CI=0.47-2.08; allelic model: OR=0.98, 95% CI=0.63-1.34; TT vs. AA: OR=3.68, 95% CI=0.21-7.15, and AT vs. AA: OR=1.20, 95% CI=0.43-1.97). No heterogeneity or publication bias was observed in this study.

Conclusion: This meta-analysis showed that the IFN-γ +874(T/A) polymorphism was not associated with the risk of aplastic anemia. To confirm our results, further studies are needed.

Keywords: IFN-γ; Polymorphism; Aplastic anemia; Meta-analysis
PH-11

Anemia of hemodialysis patients in Bushehr city

Shaghayegh Rostami Yasuj1, Zeynab Gharehdaghi1*, Eisa Safavi2

1. MSc of Hematology and Blood Banking, Student of Research Committee, Bushehr University of Medical Sciences, Bushehr, Iran
2. PhD of Social Health, School of Paramedicine, Bushehr University of Medical Sciences, Bushehr, Iran

Background: Chronic kidney disease is one of the global issues that results in a significant increase in mortality. Anemia and dyslipidemia may also be secondary to patients with chronic renal failure. Anemia in dialysis patients is often due to decreased production of erythropoietin from insufficient kidneys, which can lead to decreased tissue oxygenation. Therefore, anemia control is one of the important factors in the management of patients. So, in line with this issue the present study was conducted on anemia of hemodialysis patients in Bushehr city.

Method: This is a descriptive cross-sectional study which was done on hemodialysis patients admitted to the hospitals of Bushehr city. Details of age, sex, RBC, Hb, Hct, MCV, MCH, MCHC, RDW, serum iron, TIBC and ferritin were collected. For data analysis, SPSS21 software and descriptive statistics (including frequency, mean and standard deviation) and inferential statistics (Pearson correlation coefficient test, Eta) were utilized.

Result: The statistical population included 63 patients (female: 46%, male: 54%). The average of parameters such as age, RBC, Hb, Hct, MCV, MCH, MCHC, RDW, serum iron, TIBC and ferritin were obtained 59.3 years old, 3.69 million/μl, 10.6 g/dl, 33.4%, 91 fl, 28.8 pg, 31.6 g/dl, 14.9%, 93.6 μg/dl, 255 μg/dl and 503 ng/ml, respectively. The results of these parameters in males were 50.5 years old, 3.98 million/μl, 10.9 g/dl, 35.4%, 89 fl, 28.3 pg, 31.7 g/dl, 14.9%, 103 μg/dl, 252 μg/dl and 673 ng/ml, respectively. 90.4% of patients had anemia. 40 patients had normocytic normochromic RBC and 4 patients had microcytic hypochromic anemia. Ferritin of 86% of female and 79% of male patients were measured more than 160 and 270 ng/ml, respectively. No significant correlations were found between age and sex with other parameters.

Conclusion: This study showed that many patients had normocytic normochromic anemia. Also the iron load of the body (ferritin) was increased in most of the patients.

Keywords: Anemia, Hemodialysis, CKD, Bushehr
The study of relationship between donor age and red blood cell storage lesion in blood bank condition

SJahanshahi Ghajar, 2M.H.Rafiee, 2M.R.Deyhim, 1F.Sotoodehnejad
1Department of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran
2 Iranian Blood Transfusion Research Center, High institute for research and education in transfusion medicine, Tehran

Introduction:
The side effects of blood transfusion are the challenges that are resulted from the RBC storage lesion due to oxidative stress. Given that previous studies have shown that the antioxidant capacity decreases with age, it is possible that donated blood, based on age, has a different antioxidant capacity and following a different response during storage, and this study attempts to uncover this important.

Method:
Twenty packed RBCs taken from the volunteer, male donors were randomly selected and divided in three group of age; 20-30 y (n=5), 30-40 y (n=8) and 40-60 y (n=7). All bags studied during storage of RBCs under IBTO blood banking regulations (as days 3,7,14,21,28,35, and 42). The RBC biochemical parameters including; sodium, potassium, lactate concentration, lactate dehydrogenase (LDH), pH and oxidative stress biomarkers such as malondialdehyde (MDA), total antioxidant capacity was performed using commercially available kit. Nitrate/nitrite metabolites and RBC Hemolysis index were measured by drabkin and Griess method, respectively. Hematologic parameters were measured by automated cell counter.

Result:
In all age groups, total antioxidant and pH showed a decreasing trend (p<0.05). Potassium, lactate, LDH, MDA and RBC hemolysis index showed an increasing trend during storage (p<0.05) which further increased with an age-specific manner (p<0.05); in the age groups of 30-40 y and 40-60 y, nitrate/nitrite, MDA and other hematologic parameters (RBC, MCV, MCH) exhibited a significantly increase in comparison with group of 20-30 y of blood donors (p<0.05).

Discussion:
Similar to the Iranian population pattern, the average age of donors is constantly rising. The results of this study indicate that donated blood from elderly donors has the potential for more peroxidation and some lesions occur earlier for elderly blood donors that could result in a less shelf life. A deeper insight need into the apparently complex donor age effect on the RBC storage lesion.

Key words: Blood Donors, Age, RBC storage Lesion, RBC oxidative Status
Evolution of Frequency of mutation +1849G>T, V617F mutation in jak2 Gene in polycythemia patients referring to Sirjan therapeutic centers

Nastaran Aslani¹, Alireza Rafati², Maryam Beygi¹, Mahboube Ryahi¹

1- Student Research committee, Sirjan faculty of Medical sciences, Sirjan, Iran
2- Sirjan faculty of Medical sciences, Sirjan, Iran

Presenter Author: Nastaran Aslani

Introduction: Polycythemia is a hematologic disorder that causes the bone marrow to develop more than a normal red blood cell and is associated with an increase in Hematocrit up to 55%. The prevalence of this disease in the general population of the world is 1 in 36,000. Its prevalent age is over 50 years of age. One of the most important proteins in the production of RBC is Janus kinase2 protein, a non-serotonin protein of cytoplasmic tyrosine kinase. The most important mutation that changes the structure of this protein is the acquired mutation of 1849G>T, V612F, which is permanently activated as a result of the Jak2 gene mutation and results in an uncontrolled growth of RBCs in the absence of growth hormones. These mutations are detectable in 90% of cases. Diagnosis of this disorder is important in the early diagnosis of polycythemia and other systems. The aim of this study is to identify early detection and detection of polycythemia in the treatment process and to reduce its symptoms. In this study, we used mutated samples from blood samples from Imam Reza Hospital.

Materials and Methods: In this study, 20 samples were evaluated for blood indices and used for genetic assessment. The first step of tests in this study is that CBC testing is first performed samples are prepared for DNA extraction for molecular testing. The CBC test is performed for everyone by the standard Sysmex K1000 calibration curve in the same conditions. After testing the device, a duplicate test is performed randomly to test the accuracy of the test. After homologous and serological tests, they are known to be patient and acceptable and are performed for 20 molecular precise Examination "ARMS PCR".

Results and discussion: According to previous studies, it has been shown that after a Hematology tests, those some Sample introduced for ARMS PCR, mutation +1849 G>T, V617F gene of jak2 occurred in 65% of samples (13 of 20) and this mutation is negative for 35% (8 of 20). Therefore, this mutation in often cases helps to identify a variety of polycythemia, but it also requires a series of complementary factors, like Age and environment condition (Smoking). So for more research may on other genetic and biochemical factors to diagnose people with the polycythemia.

Key world: Polycythemia, ARMS PCR, jak 2, bleeding disorder
Evaluation expression of ERG gene in Acute Myeloblastic Leukemia in North East of IRAN.

Somaieh Azarkerdar1*, Hossein Ayatollahi2, Hossein Rahimi3, MohammadHadi Sadeghian2, Mohammad Reza Keramati2, Mojgan Amirpour1, Maryam Sheikhi4, Sepideh Shakert4, Seyyede Fateme Shams4, Elham Pourrahim1.

1. MSc of hematology and blood banking, Mashhad University of medical sciences, Mashhad, Iran.
2. Department of Hematopathology and blood banking, Cancer Molecular pathology Research center, Faculty of Medicine, Ghaem Hospital, Mashhad university of Medical sciences, Mashhad, Iran.
3. Department of Internal Medicine, Faculty of Medicine, Mashhad University of Medical sciences, Mashhad, Iran.
4. Cancer Molecular Pathology Research Center, Ghaem Hospital, Mashhad University of Medical.

Background: ERG (Erythroblast transformation specific Related Gene) is a member of ETS transcription factors family, which act as a regulator of primary hematopoietic cell differentiation. Previous researches suggested proto-oncogene for response to mitogenic signal of different cell with MAP kinase and help to tumorgenesis, apoptotic and prognostic role for ERG gene in acute myeloid leukemia (AML) patients. The aim of his study was to evaluate ERG gene expression level in AML cases compare to control group.

Methods and materials: 54 AML patients and 54 healthy individuals as control group were evaluated in this study. ERG gene expression and reference gene GPI was assess by real-time polymerase chain reaction (RT-PCR) method. mRNA were extract from BM and PBS of AML ‘s patient. SPSS.V21 was applied for statistical analysis. Clinical and laboratory findings od studied cases were extracted from medical documents.

Results: The level of ERG gene expression in AML patient had no significant differences compare to control group (1.81±2.41) (P <0.05).ERG gene expression was correlated to patients hematocrit (P <0.05).

Conclusion: there were no significant relation between ERG expression and control groups. It seems that ERG gene assessment is not a good index for AML patients evaluation.

Keywords: ERG gene, acute myeloid leukemia (AML), RT-PCR method.
PH-15

Evaluation of cyclooxygenase-2 expression in association with clinical-pathological factors in malignant melanoma


1. Associate Professor of Pathology, Cancer Molecular Pathology Research Center, Faculty of Medicine, Mashhad university of Medical sciences, Mashhad, Iran.
2. Assistant Professor of Pathology, Cancer Molecular Pathology Research Center, Faculty of Medicine, Mashhad University of Medical sciences, Mashhad, Iran.
3. Cancer Molecular Pathology Research Center, Faculty of Medicine, Mashhad University of Medical sciences, Mashhad, Iran.
4. MSc of hematology and blood banking, Mashhad University of medical sciences, Mashhad, Iran.

Abstract: The primary goal of this study is to develop a rigorous understanding of the correlation between COX-2 expression and malignant melanoma prognostic factors.

Methods: In this cross-sectional study, we analyzed 60 cases with histopathological and immunohistochemically recognizable stages of tumor progression regarding cutaneous malignant melanoma. The related stained slides were reviewed by two pathologists, therefore the results were interpreted according to the COX2 staining index (SI), tumor thickness (Breslow, Clark) and mitoses number per 10 hpf and melanoma types. Gender, lymph node involvement, metastasis, and survival were considered as evaluation factors as well.

Results: Expression of COX-2 protein was found in 98.4% of cases. A strong Staining Index(SI) was reported in 60% of all melanomas, moderate staining was detected in 20.8% and weak staining in 10%; 1.6% of studied cases showed no staining. Benign nevus specimens showed no staining for COX-2 enzyme.

Conclusions: We have demonstrated that COX-2 is strongly expressed in the majority of malignant melanomas and SI score of COX-2 is related to mitoses number, tumor thickness (based on Clark level and Breslow), melanoma sub-type, lymph node involvement, metastases; No association was noted between anatomic site, gender, and survival. Cox-2 can served as a prognostic factor in malignant melanoma and a promising candidate for future target therapies.

Keywords: Malignant Melanoma, COX2, Prognostic Factors.
Evaluation of Body Mass Index (BMI) on Blood Pressure

Arghavan hosseinpour¹*, Narges Obeidi²

¹.Masters student of cell and Molecular Biology, khalij fars university, Bushehr.
². Department of Hematology, Faculty of Paramedicine, Bushehr University of Medical Sciences.

*A.hosseinpour@gmail.com

Abstract

Background and target: Numerous folks influence blood concentrations including risk factors such as sex, smoking, age, body mass index (BMI), and cardiac pacemaker. Height and smoking reduce the oxygen supply. Cardiac pacemaker cause transmits blood from the right side of the heart to the arteries and this low blood oxygenated venous blood leads to blood concentration. In this study, the effect of body mass index (BMI) on blood concentration was investigated.

Material and Methods: In this study, a quantitative method for measuring BMI using formula (body mass index = weight divided by square meter height) and the blood concentration measured using the Sysmex system was calculated. To conduct this research, 60 patients were referred to the laboratory of the social security hospital, blood was taken. 14 of them were considered as tobacco users individually reviewed. Because this risk factor alone affects blood concentration.

Discussion and conclusion: Observation showed that there is some direct impact between weight gain and blood concentration and during a comparison done between tobacco users and people without experience, the finding showed that the effect of smoking on the increase in blood concentration is more pronounced. Although the findings showed that the effect of weight gain on blood concentration is not significant, but putting this risk factor apart from other risk factors has this effect more and more tangible.

Keywords: cardiovascular disease, weight gain, body mass index, blood concentration.
PH-17

Effect of Ziziphus extracts on proliferation and apoptosis of T lymphoblastic leukemia cell line

Zahra Surani¹, Masome Ghasemi-Pirbaluti², Batoul Pourgheysari³,⁴*

¹Department of Medical Laboratory Technology, Shahrekord University of Medical Sciences, Shahrekord, Iran
²Clinical Biochemistry Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran
³Medical Plants Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran
⁴Pathology and Hematology Department, Shahrekord University of Medical Sciences, Shahrekord, Iran

*corresponding author: Batoul Pourgheysari, Medical Plants Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran
Email: bat238@yahoo.com

Background: Acute lymphoblastic leukemia (ALL) is the most prevalent leukemia in children. Novel chemotherapy regimens are promising in most patients, but chemotherapy-resistance is still a problem. More over T-ALL has shown less favorable prognosis. Befits of some natural components to struggle aggressive malignancies and overcome some side effects of conventional treatments could be encouraging. Ziziphus species have been sued in traditional medicine particularly in Asia and Africa and recently been used as anti-proliferative agents in vivo and in vitro. We investigated the effect of Ziziphus jujube on a T cell lymphoblastic leukemia cell line.

Methods: Jurkat cells were incubated with the different concentrations of Ziziphus jujube fruit and seed aqueous ethanol extracts (10-8000µm) for 24, 48, and 72 hours and cell viability was investigated using MTS test. Apoptosis and necrosis were evaluated using flowcytometry.

Results: None of the used concentrations of Ziziphus jujube extracts decreased viability of jurkat cells to a significant level as we could not reach to IC50 with none of the extracts. Apoptosis also had no significant difference with control at the used concentrations, however there was a tendency to increase necrosis in higher concentrations (more than 5mg/ml) of extracts.

Conclusion: Ziziphus jujube fruit and seed aqueous ethanol extracts are not effective component to decrease cell viability and apoptosis induction in Jurkat cell line which is the aim of cancer therapy. Other Ziziphus extracts may have benefits. The difference between our data and the finding of other cells may be related to the cells or the type of extracts. More studies are required to get more comprehensive data.

Key words: Ziziphus, Jurkat cell line, Apoptosis, necrosis, proliferation
The inhibitory effect of Epigallocatechin gallate on the viability of myeloid leukemia cells is associated with induction of apoptosis

Zahra Surani1 Batoul Pourgheysari2,3*

1Department of Medical Laboratory Technology, Shahrekord University of Medical Sciences, Shahrekord, Iran
2Cellular and Molecular Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran
3Pathology and Hematology Department, Shahrekord University of Medical Sciences, Shahrekord, Iran

*corresponding author: Batoul Pourgheysari, Cellular and Molecular Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran
Email: bat238@yahoo.com

Background: Acute myeloid leukemia (AML) is the most prevalent cancer in adults in Iran. Novel components to help struggle aggressive malignancies and overcome some side effects of conventional treatments could be a promising strategy. Epigallocatechingallate (EGCG), a plant derivative has attracted the attention of scientists for prevention or treatment of some cancers in recent years and we investigated its anti-proliferative effect on myeloid leukemia cell lines.

Methods: KG-1 and HL-60 myeloid cell lines were cultured and incubated with the different concentrations of EGCG (10-200µm) for 48 hours and cell viability was investigated using MTS test. Apoptosis was evaluated using AnnexinV-PI apoptosis kit and analysed by flowcytometry.

Results: EGCG decreased viability of KG-1 and HL-60 with a dose dependent manner after 48 hours incubation time. Two cell lines had different susceptibility to EGCG as KG-1 and HL-60 showed about 30% viability at 100 and 200 micromolar concentrations of EGCG respectively. EGCG also induced apoptosis in both cell lines with different levels at the same concentration. The apoptosis also presented dose dependency after 48 hours incubation with EGCG.

Conclusion: EGCG induced anti-proliferative and apoptotic effects on myeloid cell lines. Our results suggest that EGCG might be a potential anti-cancer agent in myeloblastic leukemia. The study of the mechanism of the EGCG-induced cell apoptosis in these cells may be a step toward better treatment with fewer side effects.

Key words: EGCG, proliferation, apoptosis, myeloblastic leukemia, KG-1, HL-60
Pterostilbene Increases the Effect of Dexametazone on Lymphoblastic Leukemia cells

Zahra Surani¹ Batoul Pourgheysari²,³*, Tahereh Rahimnejad⁴

¹Department of Medical Laboratory Technology, Shahrekord University of Medical Sciences, Shahrekord, Iran
²Medical Plants Research center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran
³Pathology and Hematology Department, Shahrekord University of Medical Sciences, Shahrekord, Iran
⁴Cellular and Molecular Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran

*corresponding author: Batoul Pourgheysari, Medical Plants Research center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran
Email: bat238@yahoo.com

Background: Pterostilbene (PT) has demonstrated inhibition of cell growth in some cancer cell lines. Dexamethasone is a part of one of the combination chemotherapy regimen in acute lymphoblastic leukemia (ALL). We examined its anti-proliferative effects in combination with Dexamethasone in jurkat cell line.

Methods: Jurkat cells were incubated with different concentrations of PT (10-120µM) alone or in combination with dexamethasone (0-500 µM) for 48 h. Cell viability was evaluated using MTS assay compared to the control.

Results: Decline of cell viability to 50% was observed at 60.97±3.36 µM concentration after 48 h incubation with PT. Viability also decreased in the presence of dexamethasone. PT at a concentration of 20, 40 and 60 µM in combination with 450 µM dexamethasone and at a concentration of 40 µM with a concentration of 350 µM of dexamethasone declined relative cell viability to a significant level, however the decrease of cell viability was not significant in the presence of dexamethasone alone.

Conclusion: Pterostilbene increased anti-proliferative and apoptotic effects of dexamethasone in jurkat cells. Our results suggest that PT might be a potential anti-cancer agent in lymphoblastic leukemia and potentiate the effect of dexamethasone. The study of the mechanism of the PT-induced cell apoptosis in this cell line may be an improvement toward targeted therapy.

Key words: Pterostilbene, dexamethasone, jurkat cell line, proliferation, lymphoblastic leukemia
Role of Mean Platelet Volume (MPV), Platelet Distribution Width (PDW) and Platelet count (PLT) Value in Immune Thrombocytopenic Purpura diagnosis

Niloofar Ghanavati¹, Najmaldin Saki², Elahe Khodadi³, Hadi Rezaian⁴, Omid Almahdi⁵

1. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2. Ph.D. of Hematology and blood banking, Thalassemia and Hemoglobinopathy Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3. MSc of Hematology and blood banking, R&D researcher at Payvand Clinical and Specialty Laboratory, Tehran, Iran
4. MSc of Hematology and blood banking student, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
5. Head of informatics, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background: Immune or idiopathic thrombocytopenic purpura (ITP) is a common autoimmune bleeding disorder. ITP has two forms: acute and chronic. ITP is a complex disease and a diagnostic marker has not been known to confirm its pathogenesis yet. Recently it has been shown that the platelet indices like mean platelet volume (MPV), platelet distribution width (PDW) and platelet (PLT) count are valuable in diagnosis of ITP from other thrombocytopenias. The aim of this study was to clarify the usefulness of platelet indices: MPV, PDW and PLT count in diagnosis of Immune thrombocytopenic purpura (ITP).

Method: One hundred and five patients with ITP (57 acute, < 15 years old), (48 chronic, > 15 years old) and 38 healthy individuals were involved in this study in Ahvaz Jundishapur University of Medical Sciences. SPSS software was used to analyze the data. Man Whitney test was done for the comparison of MPV, PDW and PLT between control group with acute and chronic ITP patients. P ≤ 0.05 was considered to be statistically significant.

Result: There was no significant difference in MPV and PDW between control group with acute and chronic ITP patients. There was a significant difference in PLT count between two groups (acute and chronic patients) with control group.

Conclusion: On the contrary of recent studies that confirmed the ability to use MPV and PDW as diagnostic factors in ITP from other thrombocytopenias, our result suggested that these indices couldn't help to diagnose ITP and the only helpful factor is PLT count < 100,000. So, PLT count can be used as a diagnostic marker in ITP patients.

Key Words: Mean platelet volume, Platelet distribution width, Platelet count, Immune Thrombocytopenic Purpura.
PH-21

Assessment the Role of -137G/C Single Nucleotide Polymorphism (rs187238) and Gene Expression Levels of the IL-18 in Patients with Coronary Artery Disease

Mohammad Soleiman Soltanpour¹, Sanaz Mahmazi², Fatemeh Hoseini², Khalil Mahmoudi³

1. Department of Medical Laboratory Sciences, School of Paramedical Sciences, Zanjan University of Medical Sciences, Zanjan, Iran
2. Department of Genetic, Faculty of Basic Sciences, Zanjan Islamic Azad University, Zanjan, Iran
3. Department of Cardiology, School of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran

Background: Interleukin 18 (IL-18) is a pro-inflammatory and pro-atherogenic cytokine, and its genetic variations may contribute to the development of coronary artery disease (CAD). The present study aimed to investigate the role of -137G/C polymorphism and gene expression levels of IL-18 in patients with CAD.

Methods: The study population included 100 patients with angiographically proven CAD and 100 matched controls. Total RNA and DNA were extracted from leukocytes using appropriate kits. Genotype of -137G/C polymorphism and gene expression level of IL-18 was determined using allele-specific PCR and real-time RT-PCR assay, respectively.

Results: The genotypic and allelic distribution of IL-18 -137G/C polymorphism was not significantly different between the two groups (P>0.05). Moreover, the -137G/C polymorphism did not increase the risk of CAD in dominant and recessive genetic models (P>0.05). However, subgroup analysis of CAD patients revealed that the IL-18 -137G/C polymorphism was significantly associated with increased risk of CAD in hypertensive patients (P=0.019) and smokers (P=0.031) but not in the diabetic (P=0.261) subpopulation. Also, the genotype distribution of IL-18 -137G/C genetic polymorphism was significantly different among patients with one, two and three stenotic vessels (P<0.05). The gene expression level of IL-18 was significantly higher in CAD group than the control group (P<0.001). Moreover, the carriers of CC genotype had significantly lower gene expression levels of IL-18 than carriers of GG genotype (P<0.05).

Conclusion: The -137G/C polymorphism of IL-18 may be associated with the risk of CAD in hypertensive and smoker subgroup of CAD patients. The -137G/C polymorphism seems to play an important role in determining the severity of CAD. Also, increased gene expression level of IL-18 is a significant risk factor for the development of CAD. The CC genotype of -137G/C polymorphism is associated with lower gene expression levels of IL-18.

Keywords: Interleukin 18, Coronary artery disease, promoter polymorphism, gene expression
PH-22

Investigation of the effect of kind of delivery on hematological parameters in healthy full-term neonates

علي اصغر کیانی

Background: generally extent tow kind method for delivery. First normall vaginall delivery and secondary way at caesarean section delivery that whichever of in methods have advantage and complication for neonates and mothers in study we in Assalyan and Emam KHominy Hospital in Khorramabad that investigation of the effect of kind of delivery on hematological parameters in healthy full-term neonates in 2016-2017

Material & methods: We studied 300 pregnant women who delivered term normal infants. The patients were divided into two groups according to the route of delivery: vaginal (n=150) and cesarean section (n=150). Complete Blood Cell Count (CBC) and Peripheral Blood Smear (PBS) was performed on these neonates from umbilical cord blood immediately after birth. Data were analysed by using spss-24. And Statistical analysis were done by students t test and correlation test taking P value < 0.05 as the lowest limit of significance.

Results: We observed a significant increase in hematologic parameters such as haemoglobin, red blood cell count, hematocrit, platelet, total leucocyte count, neutrophils and red cell distribution width (RDW) in full-term neonates delivered vaginally than to neonates delivered by caesarean section (p<0.001). However, there was no significant difference in the mean corpuscular volume (MCV), mean corpuscular haemoglobin (MCH), mean corpuscular haemoglobin concentration (MCHC), Mean platelet volume (MPV), Platelet distribution width lymphocytes (PDW), eosinophils, lymphocyte and monocytes with kind of delivery

Conclusion: The mode of delivery, influence on hematological parameters of umbilical cord blood in full-term neonates. Thrombocytopenia and anemia is further in neonates result caesarean section in attention to Thrombocytopenia and anemia harmful on neonates therefore recommendation to pregnant women no performance caesarean section unless in necessary situation.

Key words: kind of delivery, Hematological parameters
PH-23

Thrombotic complication via Platelets Micro Particles in the Patients with Type 2Diabetes: from Laboratory Detection to Prognostic application

Razie Mahmoodian¹, Morteza Salimian², Mohsen Hamidpour³, Ahmad Gharehbaghian⁴

1- Department of Hematology and Blood Banking, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2- Paramedical Faculty, Kashan University of Medical Sciences, Kashan, Iran.
3- Department of Hematology and Blood Banking, School of Allied Medical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
4- Department of Hematology and Blood Banking, School of Allied Medical Sciences Shahid Beheshti University of Medical Sciences, Tehran, Iran.

*Corresponding author: r.mahmoodiyan@gmail.com.00989128906571

Background: Platelet micro particles (PMPs) are submicron particles released from the membrane of activated platelets through shedding. They are involving in thrombotic problems of the type 2diabetes mellitus. As high clinical relevance, standardization of PMPs detection is required. Flow cytometry methods based on flow-rate and based on volumetric fluidic system are used as calibration factor to turn cytometer events to absolute count.

Methods: 40 patients with type 2diabetes mellitus and 35 healthy individuals volunteers were under study. 5 ml of anti-coagulated (sodium citrate 3.8%) blood of patients and controls were collected. After sampling, Platelets Rich Plasma was separated. Absolute counting of CD41+-Annexin-v+ micro particles was evaluated by bead-based strategies and volumetric system. Isotype controls were used for each flow cytometry run.

Results: Direct Absolute Counting for Platelets Micro particles were recorded and compared in the both groups. The volumetric Fluid system counts micro particles as accurate as flow-rate beads. In comparison with to healthy individuals, Diabetic group showed a significant increase in shedding of platelet micro particles in all of states with ADP stimulation. (P < 0.001, SD: ±74.52)

Conclusion: The flow cytometric data show Platelets in patients with type 2diabetes mellitus are pre active and they are more susceptible to released micro particles that it can be associated to metabolic environment in this patient. This is while they act as a pro inflammatory mediator and pathological factor in different pathological occasions when they are systematically and abundantly produced and thus cause for progress of atherosclerosis and thrombotic complications.

Keywords: Platelets Micro Particles, thrombotic complications, type 2diabetes mellitus
Treatment of sickle cell anemia by CRISPR

Obeidi Narges¹*, Madadi Fatemeh², Mohamadi Amin¹

¹Department of Hematology, School of Para Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
²School of Para Medicine, Bushehr University of Medical Sciences, Bushehr, Iran

Gene editing is a novel technology used by creating any sequence of DNA with programmable nucleases. Genome editing includes: 1- meganuclease 2- zinc finger nuclease 3- Transcription activator-like effector nuclease and 4- clustered regularly interspaced short palindromic repeats (CRISPR). Genome editing is the most favorable therapeutic choice in treating genetic disorders such as sickle cell disorder by using CRISPR. Sickle cell disease is an inherited disease caused by point mutation of beta-globin protein genome. This mutation caused RBCs malfunction and patients suffered from awful pain and many other complications without definitive cure until now.

CRISPR is the bacterial complex discovered in 1987 when scientists studied on bacteria and found it as a defensive method against viruses. It formed in two parts, a nuclease called CAS-9 and a guide portion of RNA sequence. In 2013, scientists used CRISPR as a gene-editing tool in the human genome. The hypothesis was that at the first the stem cells of the patient would be given, then inappropriate mutation of DNA was identified and cut by CRISPR, and corrected by the cell's DNA repair system and eventually performed an autologous transplant for the patient. Now the patient can produce normal cells. In several studies, scientists worked on this hypothesis and in one group of them, Dever et al. used this method and their results showed that their correction was 25% of mice's RBCs. This method is successful because of its ability to cure such disease, lower costs and lower adverse effects than the other methods.

Keywords: CRISPR, Gene editing, Sickle cell disease
PH-25

Studying of "different method of attracting Clientele to Bushehr's Blood transforming center "efficiency in 1396"

Zahra Mohammadi\textsuperscript{1,2}, Sepideh Valipour\textsuperscript{1,2}, Raziye Jalakani\textsuperscript{1,2}, Eissa Safavi\textsuperscript{2,3*}

1. MSc student of hematology, Student Research Committee, Bushehr University of Medical Sciences, Bushehr, Iran.

2. Department of Hematology, Faculty of Allied Medicine, Bushehr University of Medical Sciences, Bushehr, Iran.

3. Phd of social health, faculty of Para medicine, Bushehr University of medical sciences, Bushehr, Iran.

Corresponding author*

)(Case study of Bushehr city

Introduction

Blood donation is one of the most important principles of humanity and morality. There are lots of methods to encourage people for the purpose of donating blood, such as: Pamphlet, physicians, Friends, Social Networking and Audiovisual.

Methodology

This study, statistically, was quantitative and descriptive. Our Researching tool was a questionnaire which designed by researcher and 570 person involved, while this study accomplished in spring and summer of 1396 in Bushehr township. The "SPSS-21" was that software used for analyzing data, as we mentioned, the statistic method that used was descriptive.

Findings

The mean age of the participants was 38 years, 5% were female and 95% were male. In this study 16% of people were attracted by Pamphlet, 21% by the physicians, 54% by friends and family, 5% by 'audiovisual information' and 4% by social network.

Conclusion

According to results, encouraging by friends, colleagues and family is more efficient to attracting people for the purpose of donating blood. What is wonderful is weakness of physicians in encouraging people for donating blood.
PH-26

Use of CAR-T Cell in the treatment of B-ALL

Obeidi Narges 1*, Kabgani Reza 2, Dorfeshan Mohammad javad 2, Mohammadi Seyed Amin 2

1*: Department of Hematology, School of Paramedicine, Bushehr University of Medical Sciences, Bushehr, Iran

2: Department of Hematology, School of Paramedicine, Bushehr University of Medical Sciences, Bushehr, Iran

Anti-tumor and anti-cancer treatments have been focused by scientists and today, its importance is not concealed by anyone due to the prevalence of cancers. Manipulation and editing of the immune system cells are a branch of immunotherapy and anti-cancer therapy. Treatment by Car T-cell is based on the use of T lymphocyte cells in the patient and it is an autologous treatment. The most important cells in the immune system confronting with tumor is cytotoxic T lymphocyte cells which are separated from individual's blood in the Car T-cell method, are engineered and replicated against tumor antigens and then they are returned to the patient's body. Acute lymphoblastic leukemia (ALL) is a cancer of the lymphoid line of blood cells characterized by the development of large numbers of immature lymphocytes. Using Car T-cell in the treatment of some malignancies especially acute lymphoblastic leukemia of the B Cells (B-ALL) has been successfully accepted.

key words: Anti-Tumor, CAR T-Cell, B-ALL
PH-27

MicroRNA Evaluation in Acute Myeloid Leukemia patients; A new horizon for Hematologic-oncologists’ Diagnosis Accreditation (A Systematic Review)

Mohammad Javad Hajkazemi1a, Nazila Bahmaie1b, Dr. Abdolreza Esmaeilzadeh2,3*

1aMD Student, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran
1bMSc of Medical Sciences and Research Assistant, Comprehensive Research Laboratory, Zanjan University of Medical Sciences, Zanjan, Iran.
2* Associate professor of Immunology, Department of Immunology, 3*Cancer Gene Therapy Research Center (CGRC), Zanjan University of Medical Sciences, Zanjan, Iran.

*Corresponding author’s Email address: a46reza@zums.ac.ir

Background: As one of the most adults hematological malignancies, Acute Myeloid Leukemia (AML) is characterized with a poor prognosis and diverse clinical symptoms. These, enable clinical researchers to focus on molecular pathophysiology and some cytogenetic abnormalities. Alterations in expression patterns of miRNAs, as small noncoding single-stranded, endogenous RNA, in tumor initiation, has been consensused for a great consideration. So, the aim of this study is investigation of miRNAs clinical values contributing to AML cell processes.

Search method: PubMed, Scopus, Elsevier and Google scholar databases were searched in English with 5 keywords from 2008 up to November 2017. Initially, 89 articles were found and totally 63 articles were selected based on our inclusion and exclusion criteria.

Results: There are various reports on miRNAs post-translational gene expression regulation, ectopic expression in AML diagnosis, determination of the clinical prognosis of diverse subtypes, and targeted therapy. Notably, miR-10a/b, 21, 155 and 196a/b, were found to be highly expressed in pediatric AML patients positive for NPM1, FLT3 and HOX mutations. It is demonstrated that down-regulation of miR-128a/b discriminate AML from ALL. Several studies specified that reduced microRNA-215 expression is associated with poor clinical outcome in AML. miR-155 upregulation independently identifies High-Risk Patients. Elevated miR-181 expression was associated with increased survival prognostic biomarker. Higher expression of miR-204 in patients after induction therapy was correlated with complete remission achieving. Down-regulation of miR-96 was associated with leukemic burden, suggesting it’s detection as a potential biomarker of AML monitoring.

Conclusion: Despite current efforts for AML worldwide dilemma, inaccurate diagnosis and insufficient chemotherapy regimens, make clinical outcomes of AML, undesirable. With an optimistic view on stable, low cost and repeatable miRNA strategy, specialists and laboratory science experts collaborate to diminish AML patients concerns.

Keywords: MicroRNA, Acute Myeloid Leukemia, Diagnosis, Prognosis, Clinical Applications.
Prevalence of JAK2 V617F mutation and BCR-ABL fusion gene in patients with acute leukemia

Hossein Ayatollahi1, Mohammad H. Sadeghian1, Ahamad Azimi2, Alireza Khiabani2, Geshvad Nasiri2, Maryam Sheikhi2, Faeze bagherifar2

1. MD, Associate professor of Hematopathology department of Hematology and Blood Bank, Cancer Molecular Pathology Research Center, Ghaem Hospital, Faculty of Medicine, Mashhad, Iran
2. Msc, Cancer Molecular Pathology Research Center, Department of Hematology and Blood Bank, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Background: In the pathogenesis of leukemia, several genetic alterations take on great importance. BCR-ABL fusion gene (Philadelphia chromosome) is documented in chronic myeloid leukemia and JAK2 V617F mutation is detected in hematologic malignancies such as polycythemia vera, essential thrombocythemia, and primary myeloproliferative disorder. Finding the genetic abnormalities associated with acute leukemia can help us to find a treatment for this disease. The purpose of this study was to determine the frequency of JAK2 V617F mutation and BCR-ABL fusion gene in patients with acute leukemia.

Methods: This study was performed on 50 patients with acute lymphoblastic leukemia (ALL) and 50 patients with acute myeloid leukemia (AML) in Mashhad, northeastern Iran. BCR-ABL fusion gene and JAK2 V617F mutation were detected by means of nested PCR and allele-specific PCR, respectively. The clinical and laboratory observation results were analyzed using SPSS (version 16).

Results: JAK2 V617F mutation was not detected in our patients. The BCR-ABL fusion gene was found in five patients with acute leukemia – that is, four ALL patients and one AML patient. The mean age of patients with positive BCR-ABL fusion gene was 19±16.43 years. There were no significant differences among positive BCR-ABL fusion gene, sex, and age (P=0.63 and 0.56).

Conclusion: There was no positive JAK2 V617F mutation among ALL and AML patients in our study. BCR-ABL fusion gene is uncommon in AML and ALL patients.

Keywords: Acute Leukemia, BCR-ABL fusion gene, JAK2 V617F mutation, malignance
Prevalence of hepatitis B and C in patients with beta thalassemia in Iran

Yaghoob Madmoli1*, Mostafa Madmoli2, Parvin Ghezelbash3, Amirhossein Kohantorabi1

1. Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran*
2. Dezful University of Medical Sciences, Dezful, Iran
3. Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background: Major thalassemia is relatively common in Iran and in looking of their need to recurrent transfusion; their high risk for acquisition of HCV is revealed. Because patients with thalassemia major need frequent blood transfusions among high-risk groups in terms of blood-borne viral diseases, including hepatitis C virus infection are. No screening donated blood and blood products to patients with thalassemia are the most important risk factors for HCV transmission. This study aimed to investigate the prevalence of hepatitis B and C in patients with beta thalassemia in Iran.

Methods: This study is a systematic review was conducted by searching on Google scholar, magiran, Sid, PubMed, iranmedex and elmnet with keywords hepatitis b, hepatitis cand beta thalassemia during 1990-2018. This study, descriptive and analytical articles have been used.

Results: In studies in patients with thalassemia there was a significant relationship between HIV Ab positive and age, and the number of units of blood transfused blood transfusion duration, age patients with thalassemia with positive HBS Ab, between positive antibodies and the number of units of blood transfused, splenectomy and treatment duration. A study showed that the project Blood screening for the presence of antibodies against the hepatitis C virus and severe control in the production of clotting factor concentrates effectively protects thalassemia and hemophilia patients infected with Hepatitis C Virus and the prevalence of hepatitis C in patients with thalassemia and dialysis patients is very high. The prevalence of hepatitis C in patients in Kerman province, compared to other provinces. In A study of more than 30% of adults transfusion-dependent patients with thalassemia have had hepatitis C infection and the ratio affected of patients with thalassemia after the screening of blood and blood products for hepatitis C received was almost zero.

Conclusions: Because hepatitis, particularly hepatitis b and c in these patients had a higher prevalence of new and more sensitive laboratory methods and virus inactivation of coagulation factors may be ways to decrease viral infection in these patients. It also is recommended at least once every few years determine the level of antibodies against hepatitis b and c and vaccine be used.

Keywords: Hepatitis B, Hepatitis C, Beta thalassemia
PH-30
Study of blood Utilization in Cardiac Surgery Department at the Golestan Hospital of Ahwaz

Zahra Rasti¹, Bahar Reza Zadeh¹, Mohammad Ali Jalalifar²

1. Student Research Committee-Ahvaz Jundishapur University of Medical Sciences Ahvaz, Iran
2. PhD student of blood transfusion research center, high institute for research and education in transfusion medicine, Tehran, Iran

Background
Cardiac surgery is one of the most common surgeries that blood transfusion play critical role in patient life, as well as the need for blood transfusions, and the higher transfusion rate occur in that surgeries. It's estimated that half of platelets, one-third of FFPs (fresh frozen plasma) and less than one-fifth of its RBCs are over transfused. Overuse or limited and strict prescription of blood and its products can threaten the patient's life. Aims' determine the blood transfusion rate in the Cardiac Surgery department at the Golestan Hospital of Ahwaz can help us to evaluating blood utilization.

Methods
In order to collection of data for this retrospective cross-sectional study, blood ordering forms in Golestan Hospital during 9 to 11 September and 23 to 30 October 2016 were selected random. Finally, data was analyzed in SPSS software by appropriate statistical methods.

Results
We found that, the 100 platelet units and 75 units of AHF (Antihemophilic factor) requested by hospital blood banking unit, the most utilization units from both components in the hospital was 33 in cardiac surgery. In addition to, all of 21 units of CPP (Cryo Poor Plasma) have been requested in our hospital on surgery department. Nearly three-quarters of the patients were men and the rest of them were female. In the forms, the age of almost 30 percent of patients and pre-operative hemoglobin level for non of our patient didn't mentioned.

Conclusion
Several factors such as age, sex, weight, initial hemoglobin and hematocrit of the patient are more important to determine the actual blood needs in cardiac surgery. Failure to record of above information is major error that must be corrected. On the other hand, determination the exact cause of bleeding and management of optimal blood usage in patients is recommended. Todays in many countries, by using Thromboelastogram the blood transfusion ordering has reduced to 50%; therefore, it's recommended in patient blood management of blood transfusion.

Keyword: Cardiac surgery, Blood transfusion, patient blood management
**PH-32**

**Cytotoxicity effect of Brivanib Alaninate, an inhibitor of vascular endothelial growth factor receptor, on leukemic cell lines**

Shayan Alikhani¹, Saeed Mohammadi², Mohsen Nikbakht², Saeid Kaviani³

1. MSc. Student of Hematology and transfusion medicine, Hematology department, Faculty of medicine, Tarbiat Modares University, Tehran, Iran.
2. Hematology oncology and stem cell transplantation research center, Tehran University of Medical Sciences, Tehran Iran.
3. Hematology Department, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran

**Background:** Acute Myeloid Leukemia (AML) is a heterogenous, clonal hematopoietic malignancy with overproduction of abnormal myeloid progenitors in bone marrow. Nowadays, common chemotherapy is not very efficient especially for older patients. Hence, target therapy by inhibiting specific signaling pathway in leukemic blasts is needed. We aimed to evaluate the cytotoxicity of brivanib alaninate on AML cell lines by inhibiting VEGFR-2 signaling pathway.

**Methods:** KG1a cell line was used for cell culture. Cells were treated with 5 different doses of Brivanib Alaninate for 48 and 72 hours and then MTT assay was performed to evaluate the viability. Optical densities of each wells were measured at 540 nm wavelength.

**Results:** Viability of the cells at doses of 0.01, 0.1, 1, 10 and 100 μM were 87, 72, 84.5, 88 and 70 % after 48 hours and 76, 73, 75, 88 and 47 % after 72 hours, respectively.

**Conclusion:** The effective dose of brivanib alaninate is 100 μM with 53% cell death after 72 hours. It can be concluded that leukemic cells used different signaling pathway to evade apoptosis after inhibiting a specific pathway. So, targeting two or more dominant signaling pathway is suggested for target therapy.

**Keywords:** Acute myeloid leukemia, Brivanib Alaninate, Vascular endothelial growth factor receptor
PH-33

The Relationship between CBC and High Level of FBS.
Obeidi Narges1*, Khadempour Elahe2, Kabgani Reza2, Mousavi Mohammad Javad1,3, Amrooni Ali4.

1. Department of Hematology, School of Para Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
2. School of Para Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
3. Immunology department, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
4. Hematology graduate student, Member of research committee, Bushehr University of Medical Sciences, Bushehr, Iran

Background: Kidney damage at several levels is a complication of diabetes in the other hands, the erythropoietin (EPO) is produced by the kidneys then anemia may occur with diabetes. The aim of this study was to evaluated of the relationship between CBC and FBS of the patients attending Salman Farsi and Persian Gulf Hospital.

Methods: In a cross-sectional study, 405 (150 female and 255 male) blood specimens were processed for Complete Blood Count (CBC) and HbA1C. Specimens were selected from in the patients with cutoff point of FBS >110 mg/dl and HbA1C>6%.

Results: Among the CBC parameters, there were no significant difference between RBC, Hb, and HbA1C (p>0.05). There were significant difference between MCV, MCH, Plt and HbA1C (p=0.006), (p=0.009)and (p<0.04) respectively.

Conclusion: The finding of this study shown that some of CBC parameters can be change in diabetic patients.

Key words: CBC, diabetes, FBS, HBA1C
**PH-34**

**CBC Parameters in the Third Trimester of Pregnancy in Bushehr.**

Obeidi Narges¹, Ebrahim Doost Mostafa², Mousavi Mohammad Javad¹,³, Malekhayati Hamideh⁴, Amrooni Ali², Farrahi Masoumeh⁵, Dehghani Reza²

¹. Department of Hematology, School of Para Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
². Hematology graduate student, Member of research committee, Bushehr University of Medical Sciences, Bushehr, Iran
³. Immunology department, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
⁴. School of Para Medicine, Bushehr University of Medical Sciences, Bushehr, Iran
⁵. Salman Farsi Hospital, Bushehr, Iran

**Background:** During pregnancy, the total blood volume is increased and expansion of plasma volume occurs in pregnancy. The aim of this study was to assess CBC of pregnant women attending Salman Farsi and Persian Gulf Hospital, so as to determine the hematological changes in pregnancy.

**Methods:** In a cross-sectional study, K2 Dipotassium ethylenediamine tetra acetate (EDTA) anticoagulated blood specimens were processed for complete blood count (CBC). Ninety-six subjects (27.69 ± 6.31). Specimens were selected from pregnant women Third Trimester of Pregnancy in Bushehr.

**Results:** The mean of RBC, Hb, Hct, MCV, MCH, MCHC were 4.30 ± 0.04 × 10⁶, 12.02 ± 0.11, 37.80 ± 0.39, 88.40 ± 0.75, 27.94 ± 0.30, 31.55 ± 0.21, respectively. The mean of WBC and Plt were 11.47 ± 0.34 × 10³ and 218.23 ± 6.50 × 10⁶.

**Conclusion:** The finding of this study shown that CBC parameters in the third trimester of pregnancy in Bushehr was in the normal range. But more studies are needed in this area.

**Key words:** CBC, pregnant women, Persian Gulf
Long-term effects of sulfur mustard on hematological parameters

Ensieh Sadat Mirsharif1, Tooba Ghazanfari1*
1Immunoregulation Research center, Shahed University, Tehran, Iran.

Background: Sulfur mustard (SM) or (bis-[2-chloroethyl] sulfide) is a chemical warfare agent that attacks mainly skin, eye and lungs. Although Medical effects of exposure to SM in humans include ocular, dermal, respiratory, reproductive and developmental toxicity, gastrointestinal injuries, hematological, and cancer, but the effects of SM-exposure on body are not restricted to these known injuries. The aim of this study is to examine the long-term effects of SM on peripheral blood cells in SM victims of the Iraq-Iran war (1980–1988).

Method: During a case-control study, 114 SM-exposed individuals and 109 unexposed as control group were recruited. Blood sampling was collected from both control and exposed groups at the same time and blood cell counts were performed within one hour of the collection of blood samples. The following tests consist of WBC, Diff, RBC, Hb, HCT, MCV, MCH, MCHC, and PLT were done on each sample. Hematological related data was presented as mean ± standard deviation.

Results: as shown in table1, WBC, Neutrophils count, MCV, HCT are significantly higher than control group, whereas Lymphocytes count and MCHC are significantly lower than control group. There are no significant differences between control and exposed group in RBC, Hb, Pt.

Conclusion: these results show that long term effects of Sulfur Mustard changes the abundance of peripheral blood cells and their related parameters.

Key words: Sulfur mustard, long-term effect, peripheral blood cells
PH-36

Long non-coding transcripts, in leukemia: What do we know about them?

Khamisipour Gholamreza¹, Mohsenifard Iman², Obeidi Narges¹*

¹. Department of Hematology, School of Para Medicine, Bušehr University of Medical Sciences, Bušehr, Iran
². Department of Medical Laboratory Sciences, School of Para Medicine, Bušehr University of Medical Sciences, Bušehr, Iran

Over past years, non-coding RNAs(ncRNAs) have been strongly attracting researchers and clinicians attention. Some of the most important types of ncRNAs are long non-coding RNAs(lncRNAs). It’s been proofed that they play a major role in cancers and especially leukemia. Several reports have identified specific patterns of lncRNA expression associated with human leukemia. They could have a potential impact on diagnosis, prognosis, screening/follow-up and classification of hematologic malignancies. Recent findings have revealed lncRNAs as diagnostic or prognostic biomarker, novel drug targets or even as a cause of therapy resistance due to their significate role in gene regulation, epigenetic control and regulation of RNA processing such as splicing, editing, translation, turn-over/degradation and many known and unknown functions that’s adding an additional layer of complexity in human leukemia.

Keywords: ncRNAs, long non-coding RNAs(lncRNAs), leukemia,
The effect of cell derived microparticles in transfusion medicine and adaptive immune system

Mohammad Ali Esmaeili
1, Fatemeh Yari
2, Ali Amini
1, Mohammad Reza Rezvani
3*

1 Department of Hematology, School of Allied Medical Sciences, Iran University of Medical Sciences, Tehran, Iran
2 Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran
3 Department of Hematology, Faculty of Allied Medicine, Iran University of Medical Science, Tehran, Iran

Received: Nov 12, 2015; Accepted: March 26, 2016

Abstract
This article reviews will focus on the concept and formation of micro particles (MPs) in circulation and their role in transfusion medicine and immune system. MPs are cell membrane derived vesicles which express markers of their parent cells and are found in circulation at low levels. Exact functions of MPs are unclear. In here, Physiological almost all types of circulating MPs including platelets MPs (PMPs), leukocytes MPs (LMPs), red blood cells MPs (RMPs) and endothelial cells MPs (EMPs) have been discussed. Furthermore, MPs present in plasma and blood products and their levels increase during storage. Thus, it can be stated that MPs are likely to cause transfusion reactions, particularly thrombotic complications and Transfusion-Related Acute Lung Injury (TRALI). Also, it is shown that the MPs may affect the immune system. However, to prove these, more and extensive studies both in vivo and in vitro need to be done.

Keywords: Microparticles, platelets, transfusion medicine, adaptive immunity

*Corresponding Author: Mohammad Reza Rezvani. Department of Hematology, Faculty of Allied Medicine, Iran University of Medical Sciences, Hemmat Highway, Tehran 1449614535, Iran, Email: mohrezrez@yahoo.com
Evaluations of Detection Methods of Bacterial Contamination in Platelet Components

Mohammad Ali Esmaili 1, Farhad Razjou 2, Behzad Nazel Khosroshahi 2, Ali Amini 1, Soodeh Namjoo 1, Peyman Beigi 3, Mohammad Reza Rezvani 1*

1- Department of Hematology, School of Allied Medical Sciences, Iran University of Medical Sciences, Tehran, Iran.
2- Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran.
3- Faculty of Allied Medicine, Alborz University of Medical Sciences, Alborz, Iran.

Key words: Bacterial contamination, BacT/ALERT, Culture based methods, Platelet components

Platelet components (PCs) have widespread applications in clinical cases. Since PCs store in room temperature (between 20-24°C), they are susceptible to bacterial contamination. There are varied approaches for identifying bacterial contamination in PCs. These methods categorized into two groups: Firstly, culture based methods and secondly, non-culture based methods. Both of them have a couple of merits and demerits. BacT/ALERT is a culture-based technique, which has been approved by the food and drug administration. Although sensitivity and specificity of this method could be debatable and is not universal. This method is considered as gold standard contemporary method and it is far more dependable and superb in comparison with the contamination detection methods. It is assumed that, application of rapid methods play an important role in detection of bacterial contamination in the future. Accordingly, this study aimed to represent a summary of each method, which was used for bacterial contamination detection in PCs with detailed assessment of culture-based methods, specifically BacT/ALERT.

Corresponding Author: Department of Hematology, Faculty of Allied Medicine, Iran University of Medical Sciences, Hemmat Highway, Tehran, Iran. Email: mohrezrez@yahoo.com
The role of blood vessels in regulation of hematopoiesis in normal and neoplastic niche

Samira taghizade¹, Moghdeh rahimi²

¹- Research Center of Thalassemia &Hemoglobinopathy, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
²- Research Center of Thalassemia &Hemoglobinopathy, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Background: There are two regions in Bone marrow, Endosteal and Vascular niche. In these regions Hematopoietic stem cells (HSCs) are in contact with blood vessels, like sinusoids and arterioles. These vessels involved in hematopoiesis by balancing self-renewal and differentiation of HSCs, additionally they increase chemotherapy resistance of leukemic cells. In this study, we are checking vessels role in hematopoiesis and proliferation and relapse in leukemic patients.

Material and Methods: Relevant articles from 1992 up to date, published in PubMed, were studied and compiled. The articles all contained the Keywords: Bone marrow, Niche, Hematopoiesis, Vessel.

Results: HSCs in Bone marrow are in differentiation and Quiescence phase respectively near the sinusoids and arterioles. Quiescence phase prevents HSC’s mutation. Furthermore in pathological states, leukemic cells inter Quiescence phase and cause chemo resistance formation by integrating vessel’s walls.

Conclusion: According to previously mentioned fact locating leukemic cells in vessel’s walls lead leukemic cells to exit cell cycle and inter Quiescence phase, as a result leukemic cells will be resistant to chemotherapy. So using methods in order to destruct vessel’s wall and exiting leukemic cells from Quiescence phase can be a considerable method in order to prevent relapse.

Keywords: Hematopoietic, Leukemia, Niche, Vessel.
Therapeutic effects of Pentoxifylline on the response of T-helper cells in Streptozotocin induced Diabetes in C57BL/6 mice.

Farin Malekifard 1*, Nowruz Delirezh 1, Rahim Hobbenaghi 2, Hasan Malekinejad 3

1 Department of Microbiology, School of Veterinary Medicine, Urmia University, Urmia, Iran
2 Department of Pathobiology, School of Veterinary Medicine, Urmia University, Urmia, Iran
3 Department of Pharmacology & Toxicology, School of Veterinary Medicine, Urmia University, Urmia, Iran

* (Corresponding E-mail: malekifard90@gmail.com)

Background: Type 1 diabetes mellitus (T1DM) is one of the most frequently occurring chronic diseases in puberty. This disease results from selective destruction of the insulin-producing b cells in the pancreatic islets, and is primarily a T cell-mediated autoimmune disease directed against one or more bcell autoantigens. In the pathogenesis of T1D, several pro-inflammatory cytokines including IFN-?, TNF-?, IL-1, as well as IL-17, have been implicated. It is also thought that the production of anti-inflammatory cytokines such as IL-4, IL-10 and TGF-β correlates with protection from T1D. It has been shown that some drugs such as pentoxifylline (PTX) have immunomodulatory and anti-inflammatory activity, which might represent a potential preventive therapy for autoimmune diseases. The purpose of this study was to investigate the effects Pentoxifylline on the response of T-helper cells in Streptozotocin induced Diabetes in C57BL/6 mice.

Methods: Diabetes was induced by multiple low-dose of streptozotocin (MLDS) injection (40 mg/kg/day for 5 consecutive days) in male C57BL/6 mice. After induction of diabetes, mice were treated with Pentoxifylline (100 mg/kg/day i.p.) for 21 days. Mice were euthanized and their spleens were removed on day 21 for cytokine production assay. After aseptic removal, spleens were placed in cold Hanks solution and teased apart with a pair of forceps and a needle. A single cell suspension was obtained by passing it through a 200-mesh net and hemolyzed by the buffer solution containing 1 mmol/l Tris–HCl and 1% NH4Cl (pH 7.2). Subsequently, the macrophage cell content was depleted by incubation of the cell suspension in tissue culture dishes at 37 °C (air+5% CO2) to allow these cells to adhere to the bottom of the culture dishes. Remaining free floating cells were seeded on culture dishes at a density of 5×10⁶ cells/ml in RPMI 1640 with 10% fetal calf serum, and 2 mmol/l L-glutamine. Cell viability was determined by Trypan blue dye exclusion. The splenocytes (5×10⁶ cells/ml) were treated with 2 μg/ml concanavalin A for 72 hr, and cell supernatants were collected, then the levels of IL-10, IL17 and IFN-γ were measured by ELISA kits according to the manufacturers’ instructions.

Results: Treatment of mice with PTX significantly decreased MLDS-induced production of IFN-γ and IL-17, while increased IL-10 as compared with those in MLDS group (diabetic control group) (P<0.05).

Conclusion: In summary, results of the present work demonstrated that the suppressive effect of the PTX treatment on T1D was accompanied by down-regulation of Th1 and Th17 cytokines (IFN-γ and IL-17) and increase in the production of IL-10 in supernatant of splenic culture of the treated mice.

Keywords: Cytokine Pentoxifylline Type 1 diabetes
Cholinesterase inhibitory compounds for treatment of myasthenia gravis

The development of medications to cure myasthenia gravis (MG) has concentrated on strategies that improve central cholinergic function. Some herbal plants, which have fewer side effects and are less expensive than other medications, are absorbing treat candidates for a variety of diseases. In this study we examined the capability of extracts from ~100 plants to inhibit the acetylcholinesterase enzyme. Among the plants, Iranian seedless barberry, currant-fruited rhubarb and Lovage inhibited the acetylcholinesterase. We recognized the active inhibitory compounds of these plants using thin-layer chromatography (TLC) bioautography. Our results offer that alkaloid and terpenoid compounds are primarily responsible for the inhibitory activity of these plants. More research is needed to find all of the compounds and chemical structures that make up these plants.

Keywords: acetylcholinesterase, alkaloids, Iranian seedless barberry, currant-fruited rhubarb, Lovage, MG, myasthenia gravis.
Seroprevalence of Toxoplasmosis in Pregnant Women in Urmia, Iran

Javid Eghbal¹, Rahim alizadeh², Arian Eghbal³

Background and Aim:
Toxoplasmosis is an infection caused by the protozoan parasite *Toxoplasma gondii*. Acquired toxoplasmosis during pregnancy can lead to severe pathological effects to the fetus of infected women and immuno compromised patients. Knowledge of the prevalence of *T. gondii* infection in pregnant women would be a valuable approach for planning appropriate preventive strategies. This study aimed to determine the level of IgG, IgM anti-Toxoplasma antibodies in pregnant women of Urmia in 2016 and investigate demographic factors such as age, education, environment nutrition, etc., is done in toxoplasmosis infection.

Methods:
In this cross-sectional study from May to September 2016, 300 pregnant women referred to Medical laboratories in Urmia city were selected randomly and serum samples collected and stored at -20°C. The sera were tested for IgG and IgM antibodies against *T. gondii* by Electrochemiluminescence (ECL) Technique.

Results:
Out of the 300 pregnant women, 108 (36%) were positive for *T. gondii* IgG antibodies and 192 were negative. And the rate of IgM-positive cases for *T. gondii* infection was 12 (4%). Our results showed that between toxoplasmosis and education, contact with cats, living environment (urban or rural) and the consumption of raw meat was statistical relationship exists significant. In other variables such as age and consumption of raw vegetable were not significantly difference between the groups.

Conclusions:
In conclusion, we reported high Seroprevalence for *T. gondii* infection among of pregnant women in urmia. The results show a considerable number of pregnant women in urmia that are susceptible to infection with *T. gondii* over the course of pregnancy.

We recommend the sera of the pregnant women should be monitored for toxoplasma infection at least once a pregnancy period, particularly during the first trimesters of pregnancy.

Keywords: seroprevalence, Toxoplasmosis, ECL, pregnant women, Urmia

Presenter Author: Javid Eghbal

Corresponding Author: Javid Eghbal

Email: javid_egbal@yahoo.com
Prevalence of *Helicobacter pylori* infection in children Admitted in Pediatric Hospital of Urmia, Using Antigen in stool Method

Javid Eghbal¹, Salar Mokhtari Irvanlou², Arian Eghbal³

9. Assistant professor., Department of pathobiology, Urmia Brabch, Islamic Azad University, Urmia, Iran
10. Department of Biology, Urmia Brabch, Islamic Azad University, Urmia, Iran
11. Student of dentistry, Urmia University of Medical Sciences, Urmia, Iran

**Background and Aim:**

*Helicobacter pylori* is a curved Gram-negative bacillus associated with a variety of digestive diseases, for example peptic ulcer, gastritis, mucosa-associated tissue lymphoma, and gastric cancer. *H. pylori* infection is acquired mainly in childhood, specially in developing countries.

This study was performed to evaluate a non-invasive antigen test of stool samples for the diagnosis of *H. pylori* infection in children Admitted in Pediatric Hospital of Urmia.

**Methods:**

This cross-sectional study was conducted among 235 children (aged 1-15 years), referred to Urmia city Children's Hospital, from November 2015 to September 2016.

The stool assay was performed using the *H. pylori* stool antigen (HpSA) by Enzyme-Linked Immunosorbent Assay (Elisa) test kit.

**Results:**

Of the 235 children tested, 39 (16.6%) were positive for HpSA and 196 (83.4%) were negative. The prevalence of infection in girls was 25% and in boys was 7.2%. Also The prevalence of infection among 1-4, 5-9 and 10-15 years-old children were respectively 25.6%, 16.1% and 6.1%

**Conclusions:**

The results of this study indicated that the high percentage of girls are suffered from *H. pylori* in compared to boys which is statistically significant (p<0.05).

Also there was significant relationship between age of children and *H. pylori* infection and rate of *H. pylori* infection in an early age is higher than those in older age group.

**Keywords:** *H. pylori* Stool Antigen, Elisa, Children, Urmia

Presenter Author: Javid Eghbal

Corresponding Author: Javid Eghbal
PI-05

Effect of moderate exercise on proinflammatory cytokines level

Alireza Zamani1,2, Iraj Salehi3, Mahdi Alahgholi-Hajibehzad1,2

1Department of Immunology, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran
2Molecular Immunology Research Group, Research Center for Molecular Medicine, Hamadan University of Medical Sciences, Hamadan, Iran
3Department of Physiology, School of Paramedical Sciences, Hamadan University of Medical Sciences, Hamadan, Iran

This study was to explore the effect of two months moderate exercise on levels of IL-4, IL-6, IL-12 and IFN-γ in serum and in vitro mitogens activated whole blood (WB) and peripheral blood mononuclear cells (PBMCs) cultures. Thirteen apparently healthy and non-athletic male university students participated in a running program. The blood samples were collected in three stages, 24 hours before to start exercise, 48 hours and two months after the last session of the exercise. WB and PBMCs were cultured with mitogens phytohemagglutinin and lipopolysaccharides for 48 hours. The serum and supernatants of WB and PBMCs were analyzed for the cytokines by enzyme-linked immunosorbent assay. The results showed that level of IFN-γ was increased significantly in activated whole blood and PBMCs culture after exercise. The level of IL-12 was also increased after exercise in PBMCs culture. The serum levels of the IFN-γ, IL-12 and IL-6 were not changed, whereas the level of IL-4 was increased after exercise. Furthermore, a significant elevation of IFN-γ/IL-4 ratio was observed in serum, whole blood and PBMCs cultures. This can be translated into a higher Th1/Th2 ratio in the post-exercise state.

Key Words: Cytokine; T helpers; Exercise
PI-07

Association between IL-6 174 G/C polymorphism and Graves' disease: a systematic review and meta-analysis

Ramazan Rezaei1, Bahman Razi2

1-Department of Immunology, School of Medicine, Tehran University of Medical Sciences (TUMS), Tehran, Iran.
2- Department of Hematology and Blood Banking, School of Allied Medical Sciences, Tehran University of Medical Sciences (TUMS), Tehran, Iran.

Background/Aims: several studies have evaluated the association between interleukin-6 (IL-6) -174G/C polymorphism and Graves' disease (GD). However, the results have been inconsistent. In this study, we performed a meta-analysis to assess the association of the IL6 -174 G/C polymorphism with Graves' disease.

Methods: Literature search of Medline, EMBASE, and Web of Science databases were conducted to identify all eligible studies published before August 2016. Odds ratios (ORs) and their corresponding 95% confidence intervals (CIs) were calculated to assess the strength of association in dominant model, recessive model, allelic model, homozygotes contrast, and heterozygotes contrast.

Results: A total of four case-control studies with 554 GD cases and 1201 healthy controls were contained in this meta-analysis. In the combined analysis, the results showed no significant association between the IL6 -174 G/C polymorphism and Graves' disease risk in the overall population (dominant model: OR = 1.24, 95%CI = 0.89-1.60; recessive model: OR = 1.14, 95%CI = 0.63-1.65; allelic model: OR = 0.87, 95%CI = 0.49-1.26; CC vs. GG: OR = 1.33, 95%CI = 0.68-1.99, and GC vs. GG: OR = 1.14, 95%CI = 0.80-1.48). No publication bias was found in all genetic models (all P > 0.05).

Conclusion: The meta-analysis results suggested that the IL6 -174 G/C polymorphism was not associated with the risk of Graves' disease. Further studies are warranted to confirm our results.

Keywords: Interleukin-6, Polymorphism, Graves disease, Meta-analysis.
Lack of Association between OX40L gene polymorphism rs3850641 and the risk of premature myocardial infarction

Abdolreza Sotoodeh Jahromi¹, Saeideh Erfanian¹, Mohammad Shojaei¹

¹Jahrom University of Medical Sciences, Jahrom, Iran

*Corresponding author: Jahrom University of Medical Sciences, Jahrom, Iran. E-mail: sotoodehj2002@yahoo.com

Background: Tumor necrosis factor (TNF) is one of the inflammatory cytokines which has an important role in inflammation and migration of other inflammatory cells to the atherosclerotic plaques. OX40 ligand (OX40L) is a member of the TNF super family receptor protein. OX40 and OX40L are co-stimulators for T-cells and can increase inflammatory response in atherosclerotic plaques. The aim of this study was to determine the association of rs3850641 polymorphism in OX40L gene with premature myocardial infarction (MI) in Iranian population. Methods: This case control study was done on 100 patients with premature MI and a similar number of sex, age and some other cardiovascular risk factor matched healthy people. The OX40L rs3850641 polymorphism was genotyped, using PCR-RFLP method. Results: A-allele frequency of rs3850641 SNP was lower non-significantly in Premature MI, compared to healthy subjects (57.5% vs. 58.8%). The analysis of rs3850641 (A/G) polymorphism showed an odds ratio of 0.980 (95% CI: 0.473-2.030; P= 0.957) for the GG genotype and 1.127 (95% CI: 0.635-1.999; P= 0.00) for the AG genotype, compared to the AA genotype. Conclusion: The results of this study indicate that the rs3850641 SNP of OX40L gene is not associated with premature MI in the Iranian population.

Key words: OX40L gene polymorphism, rs3850641, myocardial infarction
PI-09

Isolation and Culture of Mesenchymal Stem Cells from Bone Marrow of Balb/c Mice

Sahar Hamoon Navard¹, Hossein Rezvan¹, Mohamadreza Baghaban Eslaminejad², Ali Reza Nourian¹, Roya Abedizade¹

1. Department of Pathobiology, School of Veterinary Science, Bu-Ali Sina University, Hamedan, Iran
2. Department of Stem Cell and Developmental, Cell Sciences Research Center, Royan Institute for Stem Cell Biology and Technology, ACECR, Tehran, Iran.

Background

Isolation and culture of bone marrow mesenchymal stem cells is the first step in all stem cell studies, although isolation of these cells from BALB/c mice bone marrow is not as easy as other animals. Hence, developing an efficient method with high simplicity for isolation of bone marrow stem cells has always been a goal for stem cell researchers.

Materials and Methods

After anesthetizing Balb/c mice, femur and tibia bones were removed and the bone marrow was flushed out with DMEM cell culture medium containing Penicillin/Streptomycin (100u/ml)/(0/1mg/ml) using a 10ml siring. The cells were then harvested and cultured in T25 flasks containing 5ml of the cellmedium. The cell medium was replaced every 24 hours for 3 times and the cells were recultured at three days interval for three times. To confirm the stem cell identity, the cells were induced to be differentiated into osteocytes and adipocytes by culturing the cells in differential medium. The expression of stem cell markers and the lack of hematopoietic markers on the cells were also investigated.

Results

The cells were isolated from the mouse bone marrow and differentiated to adipocytes or osteocytes cell lines. The expression of CD90, CD44, CD73 and CD105 on the mesenchymal stem cells are 74%, 79%, 86% and 81%, respectively. The expression of CD34 and CD45 on the cells were also 8.7% and 0.28%, respectively.

Conclusion

The results showed that BALB/c mice bone marrow stem cells can be efficiently isolated and cultured by this method.

Keywords: Isolation, Bone marrow, Balb/c mice
PI-10

The effect of maternal number of births on Oxidative stress markers in cord blood and maternal plasma

Faegheh Golalizadeh Bibalan

Background: This study is planned to investigate relationship between oxidative stress biomarkers levels in maternal plasma and cord blood with maternal number of births.

Materials and Methods: This is a analytical cross–sectional study that was carried out in Fatemieh Teaching Hospital, Hamadan, Iran. Subjects were divided into two groups according to their number of parity: Primiparous group (n = 40), multiparous group (n=40). Maternal and umbilical cord blood sample were taken in all objects. Then assessed for catalas activity (CAT), total thiol molecules(TTM) and total antioxidant capacity(TAC).

Results:TAC levels were significantly higher in newborns of primiparous women compared to multiparous women (p < 0.05). There was no significant difference Between two group study in terms of CAT and TTG levels in cord blood (p>0/05). CAT levels were significantly lower and TAC levels significantly higher in maternal plasma of primiparous women compared to multiparous women (p < 0.05). There was no significant difference Between two group study in terms of TTG levels in maternal plasma (p>0/05).

Conclusion: Increase the number of births lead to decreases antioxidant defense mechanisms in multiparous women and their newborns. So control of oxidative stress is considered to be beneficial in multiparous women.

Keywords: Oxidative stress, Total antioxidant capacity, parity
Prediction of accessibility of amino acids in human immunoglobulin G light chains

Fatemeh Hajighasemi *, Soheyla Rohani 1, Fatemeh Sefid 2
1Department of Immunology, Faculty of Medicine, Shahed University, Tehran, Iran.
2Department of Biology, Faculty of Basic Science, Shahed University, Tehran, Iran.
*e-mail: fatimahajighasemi@gmail.com

Objective: Immunoglobulin G (IgG) has very important role in defense against microorganisms. The quantity of serum IgG is linked to severity of some diseases specially infections. Thus IgG has high diagnostic value. For careful measurement of IgG, diagnostic tools such as IgG-epitope specific monoclonal antibodies (MAbs) are required. Immunogenic epitopes are valuable targets for producing very efficient MAbs. More accessible amino acids in an epitope make it more immunogenic. Immunoinformatic is an immunology branch helpful for better determination of immunogenic epitopes through definition of their physiochemical properties such as amino acids accessibility. The aim of this study is prediction of accessibility of amino acids in human immunoglobulin G light chains by immunoinformatic.

Methods: The amino acid sequence and third structure of reference human IgG was found in PDB database. The second IgG structure was determined by Phyre 2 software. IgG light chains amino acids accessibility was defined by IEDB software.

Results: The most accessible amino acids were located in 125 - 175 and in 181 – 191 amino acid sequence (in constant domain (CL)) of light chains as was determined by IEDB software.

Conclusion: According to the results of this study the amino acid sequences located in 125 - 175 or 181 – 191 positions of light chains are the most accessible amino acids and hence very useful tools for recognition of more immunogenic epitopes to producing highly sensitive and specific anti IgG MAbs.

Key words: Human IgG, immunoinformatic, accessibility
Determination of amino acids hydrophilicity in constant region of human IgG light chains

Fatemeh Hajighasemi *1, Soheila Rohani 1, Fatemeh Sefid 2

1Department of Immunology, Faculty of Medicine, Shahed University, Tehran, Iran.
2Department of Biology, Faculty of Basic Science, Shahed University, Tehran, Iran.
*e-mail: fatimahajighasemi@gmail.com

Objective: Antibodies (Immunoglobulins) are a group of glycoproteins play essential role in combating against pathogens. Immunoglobulin G (IgG) has very important effect in destruction of microorganisms. Extent of serum IgG is related to severity of a number of diseases including infections. Therefore IgG has special diagnostic importance. Careful quantification of IgG, needs certain assessment tools like IgG-epitope specific monoclonal antibodies (MAbs). Epitopes with high immunogenicity are very valuable for generation of highly effective MAbs. High accumulation of hydrophilic amino acids in a region of a molecule determines the presence of immunogenic epitope(s) in that location. Immunoinformatic is a part of immunology helps in more true definition of immunogenic epitopes through prediction of their immunogenic characteristics such as amino acids hydrophilicity. The aim of present study is determination of hydrophilicity of amino acids in constant region of human immunoglobulin G light chains by immunoinformatic.

Methods: The sequences of amino acids and third structure of reference human IgG were obtained in PDB database. Second IgG structure was found by Phyre 2 software. IgG light chains constant region amino acids hydrophilicity was determined by IEDB software.

Results: The amino acids were located in 120 – 130, 150 – 170 and 180-200 positions (in constant region of light chains (CL)) were hydrophilic. The most hydrophilicity was detected in amino acids located to 150 – 170 positions as was determined by IEDB software.

Conclusion: The results of this study show that amino acid sequences located in 150 – 170 positions of IgG light chains have the most hydrophilicity and so could be the most probable site for presence of more immunogenic epitopes. This location is very suitable to predict most proper epitopes to produce anti IgG MAbs with high sensitivity and specificity.

Key words: IgG, immunoinformatic, hydrophilicity
Plasma Exchange Therapy effects on IL-6 and TGF-β signaling in Relapsing-Remitting MS patients
Azam Jamshidian¹,²; Zahra Khademi²; Vahid Shaygannejad³

1 Faculty of Paramedical Sciences, Shahrekord University of Medical Sciences, Shahrekord, Iran
2 Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran
3 Neurology dept. Medical school, Isfahan University of Medical Sciences, Isfahan, Iran

Background: Lack of sufficient information about the effects of plasma exchange (PE) therapy in multiple sclerosis (MS), has limited this treatment to individual patients with severe refractory relapses. Development of Th17 cells as the main promoters of inflammation in MS is critically dependent on concomitant signaling of interleukin 6 and TGF-β. The aim of this study was evaluating the effect of PE on the frequency of cells which co-expressed IL-6 and TGF-β receptors.

Methods: Peripheral blood samples were obtained before and after a complete course of PE therapy, from 30 Relapsing Remitting-MS patients in relapse phase. Using flowcytometry the surface expression of IL-6 and TGF-β receptors were assessed.

Results: A significant decrease in IL-6 receptor were observed (P=0.028). Correlation analysis showed the frequency of CD4+IL6R+ cells and CD4+IL6R+ TGF-βR+ cells before PE was conversely correlated to TGF-β mRNA expression levels after PE (p= 0.03 & p= 0.04, respectively). The frequency of CD4+IL6R+ cells was also correlated with disease severity (p= 0.001) and the disease severity was related with symptom relief (0.009).

Conclusion: This study showed increasing TGF-β mRNA and decrease of IL-6 receptor expression can be a way in which plasma exchange improves MS relapse symptoms, and this therapy impacts on the two cytokine and their receptor in an interrelated manner.

Keywords: Multiple sclerosis, Plasma exchange therapy, IL-6R, TGF-βR
Recent achievements in cold atmospheric plasma’s (CAP) technology have caused numerous applications in biomedical engineering, some of them include: sterilization, inactivation of microorganisms, wound healing, blood coagulation and tooth bleaching. For these biomedical purposes, CAP sources, such as resistive barrier discharges, dielectric barrier discharges, plasma jets or plasma needles have been developed.

It is accepted that cells react to stimulation caused by physical and chemical changes, such as temperature and electric-field changes. Plasma provides a combination of physical and chemical stimuli, so both in-vitro and in-vivo studies of CAP action on human subjects and cancer cells have been carried out. However, there is very little fundamental knowledge regarding the relevant interaction mechanisms of plasma species with living cells. Currently, CAP has been shown to inherit a significant anticancer capacity, leading to a new field in medicine called “plasma-oncology”. Current cancer-therapy tries to annihilate cancer cells without influencing the healthy tissue. Studies in case of bladder cancer tumors demonstrated that, CAP selectively eradicates cancer cells in-vitro and significantly reduces tumor size in-vivo. Different cancer types have been studied so far include leukemia, brain tumor, skin, lung, bladder and breast cancer.

According to similarities in high proliferation phenotype, between RA synovial fibroblasts and cancerous cells, it seems that, the CAP might be a good candidate for affecting these kind of cells. The idea behind this scenario is based on the anticancer selectivity feature of the CAP, that may help to reduce the rate of local inflammation in autoimmune diseases such as Rheumatoid Arthritis (RA). The purpose of this paper is to review the CAP capabilities in cancer-therapy and suggest the CAP as a valuable research tool in the inflammations treatments.
The association between single nucleotide polymorphism in interleukin-27 gene and recurrent pregnancy loss in Iranian women

Zeinab Nematollahi, Hossein Hadinedoushan

Introduction: Recurrent pregnancy loss (RPL) has been defined as two or more miscarriages before 20(th) week of gestation. It seems that IL-27 may reduce inflammatory responses and affect the survival of the embryo during human pregnancy. IL-27 polymorphisms may influence RPL by altering the levels or the activity of gene product. We studied for the first time the association of IL-27 -964 A>G single nucleotide polymorphism (SNP) with RPL in Iranian women.

Materials and Methods: A case-controlled study was performed on two groups consisting of 150 healthy women with at least one delivery (control group) and 150 women with two or more primary RPLs history (RPL group). The -964 A>G SNP in IL-27 gene was determined by PCR-RFLP technique. Genotype and allele frequencies were compared using (2) tests between two groups.

Results: There was no difference between the two groups regarding age of women (29±4.4 [control] vs. 30.84±5.2 years [case]). In the RPL group, the genotype frequencies of -964 A>G polymorphism were AG (49.3%), AA (40%), and GG (10.7%), and in the control group, they were AG (43.3%), AA (48.7%), and GG (8%). There was no significant difference between the genotypes of AA, AG, and GG in two groups (p=0.23). As the frequency of allele A was 64.7% in the RPL group and 70.3% in the control group, the difference in frequency of allele A in -964 A>G between two groups was not significant (p=0.19).

Conclusions: Our findings indicate that SNP of -964 A>G in IL-27 gene is not a risk factor for RPL in Iranian women.
PI-16

**CCL28 is a biomarker for diagnosis of COPD**

Erfan babaei¹, Ali jalili¹

¹Department of Immunology, Faculty of Medicine, Kurdistan University of Medical Sciences, Sanandaj, Iran

**Background and Aim:**

Chronic obstructive pulmonary disease (COPD) is a complex inflammatory disease of the lung with systemic reflections. The disease is one of the major health problems around the world that affects 10 to 15 percent of the adult population of 40 and older, this disease is thought to be associated with local and systemic inflammation. However, the exact mechanism of inflammation in this disease has not been fully understood. The chemokine CCL28, known as mucosal epithelial chemokine, is shown to be produced by epithelial cells and chemoattracts inflammatory cells into mucosal tissues.

**Materials and methods:**

Blood sample were taken from 40 patients with COPD and 40 age matched normal individuals. Serum were collected and frozen at -80°C until use. CCL28 was measured by ELISA as described by manufacturer. All the data were analyzed by SPSS 24.

**Results:**

Our data show that (i) the levels of CCL28 almost equal in both genders, (ii) CCL28 levels are significantly higher in the serum of patients with COPD and (iii) treated patients showed to have a lower levels of CCL28 than untreated patients. However, it was higher than the normal group.

**Conclusion:**

For the first time we demonstrate that CCL28 is elevated in serum of patients with COPD and this inflammatory marker could be used as biomarker for diagnosis of COPD.

**Keywords:**

CCL28, COPD, Inflammation
**PI-17**

Immune-related small interfering RNAs (siRNAs) and their potential in treatment of multiple sclerosis

*Mojde Kazemi*¹, *Abdollah Jafarzadeh A*², *Mahsa Rahgoshay*³

¹ Department of Immunology, Medical School, Kerman University of Medical Sciences, Kerman, Iran.
² Department of Immunology, Medical School, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
³ Department of Paramedical Sciences, School of Paramedical Sciences, Kerman University of Medical Sciences, Kerman, Iran

*Corresponding to: Abdollah Jafarzadeh, Professor of Immunology, Department of Immunology, Medical School, Kerman University of Medical Sciences, Kerman, Iran.

**Background:** Small interfering RNAs (siRNAs) exerts their regulatory effects through silencing a specific gene. The siRNA are produced by effects of Dicer enzyme on long double-stranded RNA (dsRNAs) molecules to result a product with 21–23 nucleotide. As dis-regulation of gene expression is occurred in a vast board of disease, the therapeutic potential of siRNAs are extremely considered as their efficient and specific gene silencing. It is well-known that the Th1 and Th17 cell-related immune responses play fundamental roles in the pathogenesis of multiple sclerosis (MS). The down-regulation of Th1- and Th17 cell-related parameters using specific siRNA may have therapeutic application for treatment of MS. Here, we present new insights regarding the possible therapeutic application of siRNA for treatment of MS.

**Methods:** In order to determine the therapeutic potential of siRNA in multiple sclerosis we searched by keywords such as multiple sclerosis, EAE, siRNA, Th1, Th17, IL-12, IL-17, T-bet and ROR-γt in PubMed, Scopus, Science Direct, and the Google Scholar database. We selected the original and review articles and used those in the preparation of this article.

**Results:** The siRNA targeting the Th1-related transcription factor (T-bet), Th17-related transcription factor (ROR-γt), Th17-related cytokines (IL-17 and IL-23), Th1-related cytokines (IFNγ - and IL-12) were displayed reducing effected on the Th1-and Th17 cell-associated immunopathological reactions in MS or its animal model named experimental autoimmune encephalomyelitis (EAE). Moreover, the targeting of CD40, TIM-3, IL-1R, IRF-4, IL-10, NR4A2, IFN-B,Act-1 ,TRIF, SOCS1, SLC9A9,c-Jun,IRF8,CD6,Nogo-A, SHP-1 and CXCR4 genes has attenuating effects on Th1 and Th17 cell-related immune responses in MS or EAE models.

**Conclusion:** The results provide evidence that siRNA may consider as new therapeutic agents for treatment or amelioration of Th1- and Th17-related autoimmune diseases such as MS.

**Keywords:** multiple sclerosis, EAE, siRNA, Th1 cells, Th17 cells, treatment
PI-18

Level of C-reactive protein Markers in Acute Myocardial Infarction patient refers to Imam-Reza hospital Sirjan Iran

Maryam Beygi¹, Alireza Rafati², Nastaran Aslani¹, Mahboube Ryahi¹

1- Student Research committee, Sirjan faculty of Medical sciences, Sirjan, Iran
2- Sirjan faculty of Medical sciences, Sirjan, Iran

Presenter Author: Maryam Beygi

E-mail: maryam.bi1377@gmail.com

Background: C-reactive protein, an acute phase protein produced by the liver and myocardial infarction (AMI) is associated with inflammation. High C-reactive protein (CRP) levels have been associated with higher mortality rate in patients with acute myocardial infarction. This study evaluates the prognostic value of CRP and the determinants of it are during AMI.

Material and methods: In 60 patients suspected with AMI, and then it was assessed on the 1, 3, and 7 days after admission. Levels of C-reactive protein (CRP) were calculated in standard lab condition, According to previous research median for CRP was 3.5 mg/dl.

Results: CRP was significantly higher in the patients with AMI than in the control patients and peaked on the third day. There was an increasing relationship between the occurrence of cardiac failure and the magnitude of the CRP peak. 31 of the 60 patients recurrent hospital has increased CRP levels were higher than the average on the third day, and After 3 days for the other patients, CRP level returns to normal range.

Conclusion: CRP in patients to hospital is suitable for predicting the time-course of Heart failure in patients with AMI. Peak CRP value is a strong independent predictor of global and Heart failure-mortality during the recent year.

Key worlds: CRP, Heart failure, AMI
Comparison of the Immunomodulatory Properties of Root and Leaves of *Arctium lappa* (Burdock) *in vitro*

Root and Leaves of *Arctium lappa*

Hasan Namdar Ahmadabad¹, Morteza Behnamfar².

¹Department of Pathobiology and medical laboratory science, School of Medicine, North Khorasan University of Medical Sciences, Bojnurd, Iran.

²Student Research Committee, School of Medicine, North Khorasan University of Medical Sciences, Bojnurd, Iran.

Background: The roots and leaves of *Arctium lappa* (burdock) have been used for different therapeutic purposes, especially for diseases linked to chronic inflammation. The present study was designed to evaluate and compare the immunomodulatory activities of root extract of burdock and leaves extract of burdock *in vitro*.

Methods: PHA- or LPS-stimulated splenocytes were treated with different concentrations of root or leaves extract of burdock and proliferation of splenocytes measured by MTT assay. The levels of IFN-γ and IL-4 in the supernatants of PHA-stimulated splenocytes determined using ELISA. We also studied the effects of root and leaves extract of burdock on Nitric Oxide production by LPS-stimulated macrophages using the Griess reagent.

Results: Our findings showed that both root and leaves extract of burdock have suppressive effects on LPS-stimulated splenocytes proliferation, IL-4 secretion from PHA-stimulated splenocytes, and NO production from LPS-stimulated macrophage and stimulatory effects on PHA-stimulated splenocytes proliferation, and IFN-γ secretion from PHA-stimulated splenocytes. Although both root and leaves extract of burdock had similar immunomodulatory effects *in vitro*, stronger immunomodulatory effects seen in root extract of burdock.

Conclusion: According to our results, we suggest that root of burdock is better option than leaves of burdock in modulation immune responses and inflammations.

Keywords: *Arctium lappa*, Burdock, Immunomodulation, Macrophage, Nitric Oxide
Differential systemic levels of CXCL12 and CXCL1 as angiogenesis and CXCL9 and CXCL10 as anti-angiogenesis CXC chemokine's in gestational diabetes mellitus mothers and their neonates

Taghipour F 1,2,3 (MSc), Fatehi A 4 (MD), Khorramdel azad H 3 (MSc), Noroozi Karimabad M 1 (PhD), Mahmoodi S 3 (MSc), Hassanshahi GH 1 (PhD), Aminzadeh F 5 (MD), Afsharkhas L 4 (MD0, Fattahpour Sh 3 (MSc), Ahmadi Z 3 (MSc), Darakhshan Sh 4 (MD)

1. Student Research Committee, Rafsanjan University of Medical Sciences Rafsanjan, Iran.
2. Department of Immunology, Medical School, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
3. Molecular Medicine Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
4. Dept. of Pediatrics, Faculty of Medicine, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
5. Dept. of Gynecological Surgery, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.

Introduction:
Gestational diabetes mellitus (GDM) is the most frequent metabolic disorder in pregnancy, affecting 1–10% of all pregnancies. Several types of regulators including cytokine and chemokine network is considered to play a crucial role in pregnancy by local modulation of the immune system at the level of peripheral leukocytes. Therefore, current study aimed to determine systemic levels of CXCL9, CXCL10, CXCL1 and CXCL12 in GDM mothers and their neonates.

Material and Methods:
The study group consisted of 54 pregnant women suffering GDM in the third trimester of pregnancy and 54 healthy normal pregnant women matched for gestational age served as a normal control group. The serum and cord blood levels of CXCL9, CXCL10, CXCL1 and CXCL12 were measured by ELISA in studied groups.

Results:
Our results showed increased levels of angiogenesis chemokine's CXCL1, CXCL12 in parallel with decreased angiostatic chemokine's CXCL9 and CXCL10 neonates of delivered from mothers with GDM. Our results also showed that the levels of studied CXC chemokine's were not changed in mothers with normal or GDM-associated pregnant women.

Conclusion: According to the results of this work it could probably be concluded the expression of CXC chemokine's in GDM is related with the balance between angiogenesis / angiostasis phenomenon associated with pregnancy and follows a pattern of inflammatory in pregnant women.
A study on the seroprevalence of H9N2 and H5N1 subtypes of influenza virus in human population in the North West of Iran

Samad Farashi Bonab1*, Parya Bassimi1, Aydin Azizpour2, Soodabeh Jami3

1Department of Immunology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran
2Meshkin-shahr College of Agriculture, University of Mohaghegh Ardabili, Meshkin-shahr, Ardabil, Iran
3Faculty of Veterinary Medicine, Garmsar Islamic Azad University, Garmsar, Iran

*Corresponding author: Samad Farashi Bonab, Email: Farashibs@yahoo.com

Influenza viruses are a major cause of respiratory diseases in humans. Some subtypes of influenza viruses can transmit to human from animal species, including birds, pigs, and horses, and the antigenic shift is common among these viruses. The H9N2 subtype is an avian pathogenic influenza virus that its outbreak frequently occurs in poultry farms of Iran. As well, the H5N1 subtype is a highly pathogenic avian influenza subtype which causes high mortality in poultry and wild birds. Importantly, H5N1 viruses pose a major public health threat around the world. Recently, H5N1 viruses have been detected in the north of Iran. The aim of this study was evaluation of seroprevalence of H9N2 and H5N1 influenza viruses in human population in the Ardabil province, in the North West of Iran. Sera samples were obtained from 311 individuals, including 86 patients hospitalized with clinical symptoms of respiratory disease, 88 hospitalized patients without respiratory complications, 44 hospitalized medical personnel who related to health profession, 41 veterinarians and poultry vaccinators, and 52 farmers, poultry-farm and slaughter-house workers. The presence of antibodies specific to H9N2 and H5N1 subtypes was investigated using hemagglutination inhibition assay. Antibodies specific to H9N2 subtype were detected in 37.2% of patients hospitalized with clinical symptoms of respiratory disease, 23.9% of patients hospitalized without respiratory disease symptoms, 18.2% of hospitalized medical personnel, 29.3% of veterinarians and poultry vaccinators, and 15.4% of farmers, poultry-farm and slaughter-house workers. Antibodies against H5N1 subtype were not detected in any of the sera samples. These results suggest that transmission of avian influenza viruses to humans can be common in human populations and it should be critical during outbreaks of avian influenza subtypes posing a major public health threat.

Keywords: Influenza Virus, H9N2, H5N1, Prevalence, Human Population, Public Health Threat
PI-23

CC Chemokines CCL2 and CCL5 are differentially expressed in patients with Sickle cell disease
Oladpour O1,2,3, Noroozi-Karimabad M3 and Hassanshahi GH3

1. Student Research Committee, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
2. Department of Immunology, Medical School, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.
3. Molecular Medicine Research Center, Rafsanjan University of Medical Sciences, Rafsanjan – Iran.

BACKGROUNDs AND OBJECTIVES:

Sickle cell disease is amongst a group of genetic disorders resulting from a single base pair DNA mutation at the beta chain of hemoglobin. Chemokines play a role in the pathogenesis of inflammatory and infectious diseases. They are also involved in neovascularization processes to form new vascular networks. We aimed the present study to measure the circulating CC chemokines CCL2 and CCL5 in the plasma of sickle cell patients (SCD).

METHODS:

Present cross-sectional study was conducted at the Rafsanjan Molecular Medicine Research Center during 2010 to 2011. Peripheral blood was collected from 77 children with SCD and 70 controls. Serum was isolated and both CCL2 and CCL5 were examined using ELISA.

RESULTS:

The findings of this study demonstrated that serum concentrations of both chemokines increased in SCD patients when compared with controls. We also showed an increased level of these chemokines in patients suffering pain crisis compared to control.

CONCLUSION:

Based on the results of present study it can probably be concluded that the balance between angiogenesis/angiostasis CC chemokines is an important predictive factor for initiation of complications in SCD patients. The elevated level of may also be related to pain crisis complications in SCD.

Key Words: Sickle cell disease, CCL2, CCL5 and pain
PI-24

Serum Levels of the CC Chemokines CCL2, CCL5, and CCL11 in Food Allergic Children with Different Clinical Manifestations

Dalfardi M(MSc)¹, Radman M(MD)², Hassanshahi GH(PhD)¹, Ahmadi Z(MSc)¹

¹Molecular Medicine Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
²Department of ENT, Moradi Hospital, Rafsanjan University of Medical Sciences, Rafsanjan, Iran
³Student Research Committe, Rafsanjan University OF Medical Sciences, Rafsanjan, Iran

Introduction: Food allergies (FA) are frequent in 8% of children under 3 years old and approximately 2% of adults. Chemokine are involved in various allergies such as FA. The present study was aimed to determine CCL2, CCL5, and CCL11 levels in FA.

Material and Methods: The study population of this cross-sectional study contained 63 patients suffering from FA and 100 healthy controls. Concentrations of CCL2, CCL5, CCL11, and IgE were measured by enzyme-linked immunosorbent assay (ELISA). Eosinophils were counted using Casy I cell counter + analyzer system model SCAREF system GmbH. Differences were considered significant at P<0.05.

Result: Current results showed that FA patients had significantly elevated numbers of circulating periphery eosinophils than the disease-free controls. Serum IgE levels in FA patients were also higher than controls. We also showed that serum levels of CCL2 and CCL11 were significantly enhanced in FA patients compared to control but CCL5 was not detectable.

Conclusion: Overall, findings of the present study proposed that serum levels of CCL2 and CCL11 are elevated in FA and these may be considered as useful parameters in diagnosis of disorder. It is also possible to design treatments on the basis of blocking of chemokines expression by application of antibodies against them to overcome allergic complications in patients suffering from FA.
PI-25

Effects of black seed on type 2 cytokines gene expression in the asthmatic mice
Seyyede Masoume Athari¹, Faride Afshari², Asie Eftekhari³, Bahram Yavari⁴, Seyyed Shamsadin Athari⁵*

1. Department of Biology, Faculty of Basic Sciences, Maragheh University, Maragheh, Iran
2. Department of Immunology, Faculty of Medical sciences, Tarbiat Modares University, Tehran, Iran
3. Department of psychology, Zanjan Branch, Islamic Azad University, Zanjan, Iran
4. Department of Genetic and Molecular Medicine, Hamadan University of Medical Sciences, Hamadan, Iran
5. Department of Immunology, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran
SS.Athari@gmail.com

Background: Black Seed (BS) is used in traditional medicine as a therapy for a variety of diseases including allergic asthma.

Materials and Methods: In the present study, anti-inflammatory and immunomodulatory effects of BS on cytokine gene expression, were examined in a mouse model of allergic asthma. Groups of 6-week-old female BALB/c mice were sensitized and challenged by OVA. Similar experiments were conducted with mice receiving saline as a negative control.

Results: in the mouse allergic asthma model received BS by food, mRNA expression levels of interleukin (IL)-4, IL-5, IL-13 genes were significant decreased in compare of asthmatic mice.

Conclusion: Our findings suggested that BS has an anti-inflammatory and immunomodulatory effect during the allergic response in the lung.

Keywords: Black Seed, allergic asthma, Th2-type cytokines.
Association of TGF-β serum level and severity of coronary artery disease

Mahsa Rahimzade¹, Nadereh Naderi², Fereshteh Rasa¹, Ebrahim Eftekhar¹

¹. Department of Biochemistry, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
². Department of Immunology, Faculty of Medicine, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.

Background: In recent years, the role of inflammatory and anti-inflammatory cytokines in the pathogenesis of atherosclerosis is increasingly evident. The aim of this study was to evaluate the role of TGF-β1 in patients suffering from coronary artery disease (CAD).

Methods: TGF-β serum level was measured in 75 patients (55 male and 20 female) referred for coronary angiography using ELISA. Coronary occlusion more than 50% was accepted as stenotic CAD. Patients divided to No vessel (n=25), single (n=25) and double (n=25) vessel disease groups and TGF-β serum concentration was compared in these groups.

Results: TGF-β1 concentrations in No vessel disease patients were significantly higher than CAD patients (657.7±407.6 versus 360.4±354.1 respectively, p<0.05). Subgroup analysis showed that TGF-β1 was significantly higher in No vessel disease group compared to the single vessel disease patients (mean 657.7±407.6 pg/mL versus 297.1±142.6 pg/mL, p=0.02). Correlation analysis revealed that TGF-β1 serum level was negatively correlated with the disease severity and extent of coronary artery stenosis (r=-0.4, p<0.05).

Conclusion: These results suggested that TGF-β1 serum concentration has significant association with coronary artery disease and its role might be attributed to the anti-inflammatory effect of this cytokine.

Keywords: Coronary artery disease, CAD, TGF-β1
PI-27

The surveillance system, diagnosis and treatment challenges of asthma and health policy orientation of main challenges
Seyyede Masoume Athari¹, Seyyed Shamsadin Athari²*
  1. Department of Biology, Faculty of Basic Sciences, Maragheh University, Maragheh, Iran
  2. Department of Immunology, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran

Introduction
Asthma is a complicated chronic inflammation of airway and is widespread in whole of the world, especially in developed countries and 300 million individuals are affected throughout the world which causes 250000 deaths per year. Parallel of Genetic, epigenetic and environmental factors have important roles in asthma’s pathophysiology. These costs due to the main challenges can give us new vision and applicable program for prevention of damages and disadvantages of this field in Iran.

Study Design
An observational study was designed in primary care settings in Iran in order to determinate the main challenges of surveillance system, diagnosis, control and treatment of asthma.

Finding
According to our searches from ministry health database, about 6.5 million people in Iran are asthmatic and more than 3.2 billion US$ is spent on asthmatic patients in Iran. The direct costs represented about 30% of the total costs and the indirect costs is hidden and is the main part of costs. The high morbidity and mortality rates of asthma should be added to these costs.

Conclusion
Health policy should emphasis on improving asthma control which can be beneficial for the patients, their families, even though the economies of countries as reductions in the cost of asthma care and increases in productivity.

Keywords: Challenges, asthma, health policy.
A meta-analysis of Vitamin D Receptor polymorphisms and susceptibility to Behcet's disease

Hassan Mehrad-Majd¹, Samira Tabaei², Zahra Mirfeizi²

¹. Clinical Research Unit, Mashhad University of Medical Sciences, Mashhad, Iran
². Rheumatic Diseases Research Center, Faculty of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Background: Behcet’s disease (BD) is a systemic vasculitis characterized by recurrent oral aphthous and genital ulcers, uveitis, and skin lesions. Although the exact pathogenesis is unknown, several genetic epidemiological studies have been demonstrated a significant genetic basis to BD development. The vitamin D receptor (VDR) gene polymorphisms have been reported to be connected to the development of BD. However, the results remained controversial among different populations. Therefore, a meta-analysis of observational studies has been conducted to determine whether VDR gene variants confer susceptibility to BD.

Methods: An electronic literature search from online databases, such as PubMed, Embase, Cochrane, and Scopus was conducted to identify eligible studies. Pooled odds ratios (OR) with its corresponding 95% confidence interval (CI) were calculated in different genetic models to assess the association.

Results: A total of six eligible studies involving 468 cases and 516 controls were enrolled in this meta-analysis. The combined results demonstrated that A allele of ApaI (A vs. a: OR= 1.54, 95% CI = 1.04-2.26, p = 0.029), and F allele of FokI (F vs. f: OR= 0.58, 95% CI= 0.45-0.76, p=0.007) variants were associated with the risk of BD in total and African populations respectively. However, Bsmi and TaqI polymorphisms exhibited no associations with BD risk.

Conclusion: This meta-analysis demonstrated the association between FokI and ApaI polymorphisms in VDR gene with the risk of BD, providing insights that VDR may confer susceptibility to BD development.

Keywords: Behcet’s disease, Vitamin D receptor, Polymorphism, Meta-analysis
The role of NETosis in the pathogenesis of Systemic Lupus Erythematosus

Sepideh Valipour\textsuperscript{1,2}, Raziyeh Jalakani\textsuperscript{1,2}, Zahra Mohammad\textsuperscript{1,2}, Mohammad Javad Mousavi\textsuperscript{2,3*}

1. MSc student of hematology, Student Research Committee, Bushehr University of Medical Sciences, Bushehr, Iran.

2. Department of Hematology, Faculty of Allied Medicine, Bushehr University of Medical Sciences, Bushehr, Iran.

3. Immunology Department, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran.

NETosis, mediated by neutrophils, is a type of cell death that is different from other cell death mechanisms, such as necrosis and apoptosis. Neutrophils release neutrophilic extracellular traps (NETs), which include DNAs with citrullinated histones and cytoplasmic protein granulates that have microbicidal activity. After being released, the NETs surround microorganisms and then kill them. Extracellular accumulation of the NETs reduces the release of cytokines and chemokines, thus reducing inflammation. NETosis may be a potential source of autoantigens in autoimmune diseases, such as systemic lupus erythematosus (SLE), vasculitis, and rheumatoid arthritis (RA). Along with two major types of suicidal and vital NETosis which are known, mitochondrial NETosis is an important mechanism in the pathogenesis of diseases such as SLE. In patients with SLE, the patient’s antibodies attack the citrullinated histones, thus the excessive expression of NETosis or the lack of clearance of the NETs will contribute to the pathogenesis of SLE. Among the mechanisms of NETosis, it seems that the mitochondrial form is dominantly involved in lupus development, since the mitochondrial DNA of these patients is unprotected. Also, patients with chronic granulomatous disease (CGD) that do not have NADPH oxidases (NOX) genes may cause more severe lupus with classical NETosis deficiency. Interferon (IFN)–\(\gamma\) and immune complex (IC) both potentially increase the number of NETosis in patients with lupus. Ribonucleoproteins in IC stimulate mitochondrial reactive oxygen species (ROS) and induce mitochondrial NETosis, through which the mitochondria are transmitted to the cell surface and release their oxidized DNA. The inhibition of ROS from mitochondria in vivo reduces the severity of lupus and IFN-I responses. As a result, a role of mitochondrial NETosis, along with other pathogenic factors, is suggested in SLE development. In this review, we discuss the roles of various inflammatory molecules associated with NETosis in the etiology and pathogenesis of SLE.

\textbf{Keywords:} Mitochondrial NETosis; NETosis; immune complex; inflammation; systemic lupus erythematosus
بررسی اثر آنزیم ایندول آمین (IDO1) بیان شده در سلولهای بنیادی مزانشیمی بر روی فعالیت‌های Bسلولی لیفوسیت های موضعی مهیا ضایعی

زمینه و هدف: امروزه ایمونوساینس بایو پزشکی و استفاده از اصلاح کندگان سیستم ایمنی به عنوان یکی از راهکارهای مؤثر در زمینه درمان بیماری‌های آتومیونی و پیشگیری از روند پیوند‌شکننده بیماری‌های قلبی، تغییر در سلول‌های بنیادی مزانشیمی باعث افت و یا بهبود آنزیم IDO1 و افزایش تولید تعدادی از پیامدهای اکسیژن قانون (PGE2، NO، IL6) می‌گردد که می‌تواند آنزیم IDO1 را تحت تأثیر بیوتیک دیپاکس سایکلین می‌باشد. به B است. در این روش تحقیق، در سلولهای نرمیل (MSC) سلولهای بنیادی مزانشیمی به‌‌دست‌آمده (TMSC) که منشأ هر دو از مغز خوانند و شرکت BCL1 تحت عنوان BCL1alone و MSC+BCL1 شد. بین انواع کشت نرمال، نرمال و BCL1 که در هر سه گروه B منجر به Real-time PCR افزایش گیری میزان زئان 1 B در گروه B منجر به Real-time PCR افزایش گیری میزان زئان 1 بود. 

کلمات کلیدی: سلولهای بنیادی مزانشیمی، سیستم ایمنی، سلولهای MSC، دیگر کلمات مهم: BCL1، IDO1، B، سلولهای B، و کلمات مهم: BCL1، IDO1، B
Assessment of serum level of Stromal Derived Factor – 1α (SDF – 1α) in serum of patients with sepsis at admission and discharge

Mahsa Rahgoshay, Gholamhossein Hasanshahi, Ziba shabani, Hamid Abousaeedi, Mohammad Kamali

1. Department of Paramedical Sciences, School of Paramedical Sciences, Kerman University of Medical Sciences
2. Department of Medicine, School of Medicine, Rafsanjan University of Medical Sciences
3. Department of Medicine, School of Medicine, Rafsanjan University of Medical Sciences
4. Department of Medicine, School of Medicine, Rafsanjan University of Medical Sciences
5. Department of Medicine, School of Medicine, Rafsanjan University of Medical Sciences

Background: Sepsis is a leading cause of death and the most common cause of death in the intensive care unit (ICU) at a rate of 30 to 70 percent. SDF-1α play a critical role in the recruitment of leukocytes to sites of inflammation and has been observed to enhance tumor angiogenesis. This study aimed to compare the level of this chemokine in patients with sepsis at admission and discharge based on age and gender studies.

Material and Method: This study was performed in a cohort of 54 patients with sepsis who were admitted to the Hospital. The Peripheral blood sampling was performed (during admission and discharge) twice. Demographic data were collected through clinical history. The serum concentrations of SDF-1α measured by ELISA. Results obtained along with demographic data using the software SPSS15, and ANOVA statistical analysis was performed.

Results: The 54 patients participating in the project, 41 were male and 13 females respectively. The minimum age of participants was 51 years and a maximum of 90 years and the mean age was 69.13 years. The mean values of serum chemokines in patients with sepsis in the peripheral blood at the time of hospital discharge was significantly reduced and the differences were statistically significant (P <0.0001). Average concentrations at admission and discharge, respectively, were 222.780 and 58.980. Compared to the overall mean concentration of serum chemokines in patients with sepsis at admission by sex and age in peripheral blood concentrations were approximately equal in terms of differences not statistically significant (P =0.564, P =0.818).

Conclusion: Our study showed that the incidence of sepsis SDF-1α chemokine levels will increase significantly. Overall, the increase in concentration was not directly associated with age and sex. Finally, our study suggested that SDF-1α chemokine may be the early diagnosis and treatment of patients with sepsis and perhaps other systemic inflammatory syndrome as a new treatment.

Keywords: sepsis, SDF-1α (Call- inflammatory chemokine and angiogenesis construction)
PI-32

Idiopathic Granulomatous Orchitis: A Case Report

Parvari.Sh¹, Gheitasi.R²*, Kooshkaki.O³, Hashemloo.N³

1. Department of Pathology, School of Medicine, Ilam university of Medical Sciences, Ilam, Iran.
2. Department of Immunology, Student Research Committee, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran.
3. Department of Immunology, School of Medicine, Birjand University of Medical Sciences, Birjand, Iran.

Corresponding author: Gheitasi R. Department of Immunology, Student Research Committee, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran.

E-mail: gheitasi.r@yahoo.com

Granulomatous orchitis is an inflammatory disease of the testis. Granulomatous orchitis have been classified as chronic inflammatory disease. Although the exact etiology is unknown, this condition perhaps caused by trauma, autoimmunity, tuberculosis and malignancy. This condition may be incorrectly diagnosed as testicular tumor in physical examination and even in imaging study. Our case is a 65-years-old man with a left testicular mass, underwent radical orchiectomy by clinical diagnosis of testicular cancer. Sections of testis revealed numerous granulomas in seminiferous tubules accompanied by heavy lymphoplasmacytic infiltration at the interstitium and also, no multinucleated giant cells were seen. There are features of idiopathic granulomatous orchitis.

Key Words: Granulomatous, Orchitis, Inflammatory disease.
PI-33

Induction of the late stage exhaustion in T cells by concanavalin A

Nafiseh Esmaeil, Samaneh Mohammadzadeh

Department of Immunology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran

T-cell exhaustion is a defective state of T cells, which increase inhibitory receptors and impair cytotoxicity and cytokine secretion. Most of CD8+ T cells in tumor microenvironment are exhausted and induce inhibitory activity. PD1+ TIM3+ and PD1+ TIM3- CD8+ T cells are the important populations of exhausted T cells with more inhibitory activity than PD1_- TIM3+ CD8+ T cells. In the late stages of tumor, PD1+ TIM3+ and PD1+ TIM3- CD8+ T cells are increased. In this study we induce late stages of T cell exhaustion by non-specific antigen stimulation which was similar to exhausted tumor infiltrated T cells.

To induce exhaustion, PBMCs were stimulated by ConA (4 μg/ml) for 3 (group.1) and 6 days (group.2). PD-1 and TIM3 expression were assayed by flow cytometry.

ConA stimulation increased exhausted T cells and induced late stages of exhaustion so that 8.25% of CD8+ T cells were PD1_- TIM3+ in group 1 and 1.96% of CD8+ T cells were PD1_- TIM3+ in group 2. PD1_- TIM3+ CD8+ T cells were significantly, P<0.05, decreased after 6 days conA stimulation. Therefore this method could be an invitro model of late stage exhaustion in tumor microenvironment studies.
Paraclinical Assessment of Nano-Zinc Doped Hydroxyapatite for Filling of Segmental Bone Defect in a Rabbit Tibial Defect Model

Mohammadreza Alijani¹, khodad pirali³, Rasool Rahimi Junqani²

¹. DVM Student of Veterinary Medicine, Shahrekord University, Shahrekord-Iran
². DVM Graduated Student of Veterinary Medicine, Shahrekord University, Shahrekord-Iran
³. full Professor, Department of Clinical Sciences, Faculty of Veterinary Medicine, Shahrekord University, Shahrekord-Iran

Corresponding author’s e-mail: mohammadrezaalijani1992@gmail.com

Background: The healing of bone defects is a major clinical problem in orthopedic surgery. Zinc is a trace element in the human body that is essential for bone structure and metabolism. Studies have shown the role of zinc in stimulating bone growth and mineralization and because of osteoclasts activity inhibition and alkaline phosphatase activity stimulation, decreasing bone resorption. The purpose of this study was Paraclinical evaluation of Nano-zinc doped hydroxyapatite for filling of segmental bone defect in a rabbit tibial defect model.

Methods: For this study 10 adult New Zealand white rabbits were used. A segmental bone defect (5 mm length) was created in the middle of left Tibial diaphysis. The defects were filled with Nano-Zinc Doped Hydroxyapatite. Then at times 0, 3, 7, 14, 28 and 35 days after surgery blood sample were collected and transferred to a biochemistry Laboratory at Shahrekord University. Hemato-Biochemical factors such as white blood cell count (neutrophil, lymphocyte, eosinophil and monocyte), RBC and Alkaline phosphatase were measured.

Results: Result showed that Alkaline phosphatase level was increased after operation but the difference among post and preoperative days was not significant (P>0.05). Also this study showed no significant difference in RBC count during healing time (P>0.05). Result of WBC count revealed an increase in total WBC that is significant in all postoperative days (p<0.05). Lymphocyte and monocyte levels significantly increased after operation and in day 35 were in highest level (p<0.05). Eosinophil in day 7 increased but in day 28 decreased that this change isn’t significant (p<0.05). Also neutrophils increased in postoperative days is significant (p<0.05).

Conclusion: Zinc nanoparticles having chemical stability, low toxicity, long lasting action period and thermal resistance. Biosafety and biocompatibility of Zinc nanoparticles have been reported in earlier studies. One of the most important reasons for using Zinc nanoparticles is their antibacterial activity. According to the results of the present study, it can be concluded that Nano-Zinc Doped Hydroxyapatite for Filling of Segmental Bone Defect has a low effect on blood count parameters.

keywords: Nano-Zinc, Hydroxyapatite, Bone Defect, Tibial, Rabbit
PI-35

The role of NETosis in the pathogenesis of Rheumatoid Arthritis

Raziyeh Jalakani¹,², Sepide Valipour¹,², Zahra Mohammadi¹,², Mohammad Javad Mousavi²,³*

1. MSc student of hematology, Student Research Committee, Bushehr University of Medical Sciences, Bushehr, Iran.

2. Department of Hematology, Faculty of Allied Medicine, Bushehr University of Medical Sciences, Bushehr, Iran.

3. Immunology Department, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran.

*Corresponding author

Destruction of microorganisms injected into the body by neutrophils is accomplished by the phagocytosis of these cells. NETosis has been identified as a new function of neutrophils. When the size of microorganisms is large for phagocytosis, neutrophils activate an alternative pathway, which results in the sputtering of open chromatin strings containing histones, as well as antimicrobial granules and cytoplasmic proteins. During this process, Vital NETosis, cells are able to perform some typical functions, such as chemotaxis and phagocytosis. This process is intensified during inflammatory conditions. Histones contained in neutrophilic extracellular traps (NETs) have been deiminated, and arginines are converted to citrullines. While deamination is a physiological process, it intensifies in inflammatory conditions. Only individuals with genetic predisposition to develop rheumatoid arthritis (RA) produce antibodies to deiminated proteins. These antibodies, identified as anti-citrullinated proteins/peptides antibodies (ACPA) which react with different deiminated proteins, Netosis may be the major source of autoantigens in autoimmune diseases, such as RA, vasculitis, and systemic lupus erythematosus (SLE). The NETs components are an important source of autoantigens that stimulate the production of ACPA synthesized and send signals that help maintain inflammatory conditions. These antibodies attach to deiminated H2 and H4, and citrullinated fibrinogen, results in autoimmune reactions in the joints of RA patients. In RA, immune complexes bind to FcγR, which activates neutrophils and stimulates the release of reactive oxygen species (ROS) and proteases and produces cytokines and chemokines. By these mediators, neutrophils use different types of cells, such as monocytes, dendritic cells (DCs), natural killer (NK) cells, and modify their performance. Consequently faced with NET components, activated caspase-1 is produced in macrophages, leading to the production of active interleukin (IL)-1β and IL-18, while plasmacytoid DCs activated and release interferon (IFN)-α, which increases inflammation. So far, there have been a number of antibodies in RA, but only ACPA have been considered as a specific marker for RA detection, which has a high sensitivity and specificity. In this review, we look at various mechanisms and molecules associated with NETosis in the etiopathogenesis of RA.

Keywords: NETosis; ACPA; citrulination; inflammation; rheumatoid arthritis
Curcumin and epigallocatechin gallate are more potent than 3-Chloro-4-nitro-N-(5-nitro-2-thiazolyl)-benzamide for interaction with chain A of NF-kB: probable anti-inflammatory agents; an in silico analysis

Hanieh Faraji¹, Atefeh Shoja¹, Fatemeh Akbari¹, Somayeh Masomi, Abdorrahim Absalan¹

¹Department of Medical Laboratory Sciences, Khomein University of Medical Sciences, Markazi Province, Iran

Corresponding author: Abdorrahim Absalan; a.r.absalan@gmail.com

Background: NF-kB signaling pathway is a key point in the regulation of inflammatory responses. Inhibiting or limiting the NF-kB pathway may be useful in the disease control. There are a vast list of inhibitory agents for targeting the NF-kB signaling. However, herbal ingredients have been shown to exert anti-inflammatory effects. The aim is to evaluate and compare the interacting potency of a synthetic NF-kB agent, 3-Chloro-4-nitro-N-(5-nitro-2-thiazolyl)-benzamide (NTB), with two natural derived ingredients including curcumin and epigallocatechin gallate. The approach was virtual analysis and computer base investigation.

Material and method: The cheminformatics structures of curcumin, epigallocatechin gallate and NTB, a synthetic NF-kB inhibitor, were obtained from zinc docking repository. NF-kB chain A structure was obtained from protein data bank database with the PDB code=1nfi. Using Molegro Virtual Docker cheminformatics and PDB structures were interacted by an algorithm of energy minimization method. Docking scores were compared using analysis of variances (ANOVA).

Results: There were two hot-points for interaction of selected molecules with the chain A of NF-kB. Herbal ingredients were more potent than synthetic material for interaction in this two hot point. Curcumin (the best MoleDock score= -152.731; Mean±SD= -133.447±9.17 for 17 positions) was more potent than epigallocatechin gallate (the best MoleDock score= -146.47; Mean±SD= -116.36±17.598 for 34 positions). The best MoleDock score for NTB equal -120.332; Mean±SD= -108.25±8.66 for 16 positions. There were significant docking scores among curcumin and epigallocatechin gallate and NTB (CI=0.95; P-value=0.000). But, epigallocatechin gallate was not meaningfully different with NTB when comparing mean docking scores (P=0.147).

Discussion: Herbal ingredients such as curcumin and epigallocatechin gallate may interact with NFkB chain A subunit and inhibit it more potent than synthetic agents such as NTB and so forth. Then, anti-inflammatory effects of herbal ingredients may be desirable by the facts shown in the current in silico study. Furthermore, we suggest pure curcumin and epigallocatechin gallate as probable drugs for controlling acute phase of diseases. However, experimental and animal trials may be next steps of the current study.

Keywords: NF-kB, inflammation, herbal ingredient, docking, curcumin, epigallocatechin gallate
PI-37

CD32-a, IL-27 and IP-10 as novel biomarkers for screening, diagnosis and treatment of HIV; a systematic review

Reza Elahi\textsuperscript{1a}, Nazila Bahmaie\textsuperscript{1b}, Abdolreza Esmaeilzadeh\textsuperscript{2*}

\textsuperscript{1a} Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran.
\textsuperscript{1b} MSc of Medical Sciences, Comprehensive Research Laboratory, Zanjan University of Medical Sciences, Zanjan, Iran.
\textsuperscript{2*} Department of Immunology and Cancer Gene Therapy Research Center (CGRC), Zanjan University of Medical Sciences, Zanjan, Iran.

*Corresponding author’s Email address:
a46reza@zuma.ac.ir

Background:

Human Immunodeficiency Virus (HIV), which causes Acquired Immunodeficiency Syndrome, is a very significant health problem with a wide range spread in different parts of the world. HIV increases the sensitivity of the patients to different infections and cancers by weakening the power of the host immune system against them. In spite of all efforts, there has been no reliable screening, prognosis and treatment test for HIV. Although some markers have been introduced, but there is still requirement for new biomarkers with higher specificity and sensitivity.

Search method:

PubMed, Scopus, Elsevier and Embace were searched in English with the keywords: HIV biomarkers, CD32-a, IL-27, IP-10, HIV screening, HIV diagnosis and HIV treatment from 2014 to November 2017. 45 articles were found based on our inclusion criteria, and 19 articles were selected and included in our study based on exclusion criteria.

Results:

HIV is a chronic disease which is accompanied by alterations in the levels of different cytokines and cellular markers in the blood. Assessment of these markers presents a profile of the immune condition of the patients. Thus, analysis of those cytokines and cell markers can be an appropriate tool for monitoring HIV disease.

IL-27, an immunomodulatory cytokine which possesses multiple anti-HIV potentials, is produced by CD4\textsuperscript{+} T cells and macrophages. Recent studies have demonstrated IL-27 to be higher in HIV infected patients than in non-infected. Higher numbers of IL-27 is accompanied by higher numbers of CD4\textsuperscript{+} T cells and lower levels of HIV viral load. Also, IL-27 has reported to inhibit the progression of HIV by downregulating the SPTBN1 protein.
CD32-a, a low affinity receptor for the immunoglobulin G Fc fragment, is presented on the cell surface of the CD4+ T cells. Based on a recently published research, CD32-a is expressed highly on CD4+ T cells which contains the integrated proviral HIV DNA. The activation of these latent HIV harboring T cells would lead to the progression of HIV in the absence of ART. Accumulating data demonstrate CD32-a as a novel diagnostic and therapeutic target for HIV.

IP-10, a member of the CXC chemokine family, is produced in response to viral, bacteria and fungal infection. Based on recent published data, in the first stages of HIV infection, the levels of IP-10 are greatly improved; demonstrating IP-10 as an accurate strategy for detecting HIV in seronegative patients in the first stages of HIV infection.

Conclusion:

HIV involves a large number of patients all over the world. Alterations in the levels of cytokines and cellular markers may contribute to the screening, early diagnosis and treatment of HIV. CD32-a, IL-27 and IP-10 are novel proteins which may contribute to a relationship between the laboratory tests and clinical benefits, forwards.

Keywords:

HIV biomarkers, IP-10, CD32-a, IL-27, screening, diagnosis
The comparison between mRNA expression level of TLR3, 4 in urban and rural childrens

Kousar Smailnejad-ganjii 1, 2, Mehdi Shahbazi 2, Mousa Mohammadnia-Afrouzi 2, Mojdeh Ghias Tabari 3

1. Student research committee, Babol University of medical sciences, Babol, Iran
2. Department of Immunology, School of Medicine, Babol University of Medical Sciences, Babol, Iran
3. Department of Biochemistry, School of Medicine, Babol University of Medical Sciences, Babol, Iran

Background: Environmental exposures are important determinants of immune system development during early life and have main role in maturation of the innate and adaptive immune responses. The main objective of this study was to compare the expression level of TLR3, 4 in urban and rural childrens.

Methods: In this cross-sectional study, 72 children with the age of 3-5 years old were recruited at two urban and rural sites of Babol city (36 in each group). Blood samples were collected, PBMCs isolated from blood samples. Then, the expression level of TLR3, 4 in peripheral blood mononuclear cells (PBMCs) were analyzed by Real Time PCR method. The data of the study were evaluated by independent T-test and P-value level ≤0.05 was considered as a significant criterion.

Results: The results of this study indicated that the average expression of TLR3, 4 genes in the rural childrens was higher than urban childrens. This finding was statistically significant for TLR3 gene (P-Value <0.0001). However, it was not statistically significant for TLR4 gene (P-Value = 0.06).

Conclusion: There are relevance between the expression level of TLR3, 4 and environment. The reason for the variation in the expression level of TLR3, 4 in different areas is not clear. But may be due to the exposure with the variable antigens in each environment.

Keyword: Expression level of genes, TLR3, 4, Urban and Rural children
PI-39

Tetanus neurotoxin Hcc protein commits T cells to IFN-γ producing cells

Saeedeh Torabi Goudarzi, Mehdi Yusefi PhD, Jafar Majidi PhD.

Department of Immunology, Faculty of Medicine Tabriz University of Medical Sciences, Tabriz, Iran

Background: A protective response against tetanus toxin and toxoid demands efficient specific T cell and B cell responses. Tetanus neurotoxin (TeNT), a 150 kDa polypeptide, is the main cause of tetanus disease. TeNT consists of two structurally distinct chains, a 50 kDa N-terminal light (L) and a 100 kDa C-terminal heavy (H) chain. C-terminal heavy (H) chain (fragment C) has two sub-domains named as proximal HCN and carboxy sub-domain or HCC. Beside neural binding property, HCC has been recently found as an immunodominant module of TeNT. In the present study, we investigated the effects of recombinant HCC (rHCC) on the expression of lineage specific transcription factors and secretion of a panel of functional cytokines including IFN-γ, IL-4, and IL-17 from purified human T cells.

Methods: The heparinized peripheral blood samples were collected from 10 adult healthy volunteers with no history of tetanus after obtaining their informed consent. Peripheral blood mononuclear cells (PBMCs) were isolated by density gradient centrifugation on Ficoll®-Paque from whole blood. T cells were isolated by MACS. Purified T cells were co-incubated with recombinant Hcc. Then, we evaluated the expression level of transcription factors (T-bet, GATA3 and RORγT), the expression and secretion of cytokines (IFN-γ, IL-4 and IL-17A) using Real-time PCR and ELISA. The capability of recombinant Hcc fragments in the activation of T cells was assessed by CD69 expression.

Results: The results showed that rHcc enhanced expression of CD69 on the surface of T-cells and promoted differentiation of CD4+ T-lymphocytes toward a T-helper1 (Th1) phenotype and up-regulation of interferon (IFN)-γ secretion.

Conclusion: These results indicated that rHcc stimulates human T-cells to secrete IFN-γ that maybe considered as a promising candidate for tetanus vaccine design in near future.

Keywords: Tetanus, TeNT, Immune Respons, Hcc
Evaluation of the Level of HBs Antibody after Hepatitis B Vaccine among 3-5 years old children in Babol

Kousar Smailnejad-ganjii 1, 2, Mehdi Shahbazi 2, Mousa Mohammadnia-Afrouzi 2, Mojdeh Ghias Tabari3

1. Student researchcommittee, Babol University of medical sciences, Babol, Iran
2. Department of Immunology, School of Medicine, Babol University of Medical Sciences, Babol, Iran.
3. Department of Biochemistry, School of Medicine, Babol University of Medical Sciences, Babol, Iran.

Background and Objective: Hepatitis B virus (HBV) infection is an important infectious diseases worldwide. Vaccination has known to be the most effective methods for the prevention of transmission and prevalence of HBV. The main objective of this study was to examine the effectiveness of HBV vaccine in children aged 3-5 years old.

Material & methods: The study was conducted in Amirkola Children’s hospital during a 6-month period from November 2016 to March 2017. Blood samples were obtained from 120 healthy, 3 to 5-year-old children who had been vaccinated against HBV and HBS antibody concentration was measured by ELISA method. The individuals was divided into two groups according to their anti-HBs titer (responder group who had HBS Ab titer > 10 mIU/ml and non-responder group who had HBS Ab titer ≤ 10 mIU/ml). Results were reported as number(n) and percentage(%) by using SPSS version 22 software.

Findings: 69 of the subjects were boy and 51 of the subjects were girl, respectively. Among the cases, 98(82%) children were responder while, 22(18%) subjects were non-responder.

Conclusion: Our results showed that, the antibody response to HBV vaccine was lower than the similar studies. It is suggested, farther studies should be performed to evaluate HBs antibody levels after vaccinationespecially in high risk children and booster must be administrated, if require.

Key words: HBs Ab titer, vaccination, children and Babol
Modulatory effect of Pioglitazone on antioxidant status marker (Reduced glutathione (GSH)) levels in testes of streptozotocin-induced diabetic rats

Farin Malekifard¹, Ali Soleimanzadeh², Nowruz Delirez³

¹. Department of Microbiology, Urmia University, Urmia, Iran.
². Department of Theriogenology, Urmia University, Urmia, Iran
³. Department of Microbiology, Urmia University, Urmia, Iran

Background: Diabetes mellitus arising from either insulin deficit (type 1 diabetes) or insulin resistance (type 2 diabetes) is associated with male reproductive dysfunction. Impaired homeostasis under diabetic conditions is connected with the increased production of free radicals and deficiency of antioxidant systems. Previous studies have demonstrated that pioglitazone treatment could reduce superoxide radical generation in different tissue types. The aim of present study was to examine the antioxidative effect (Reduced glutathione (GSH)) of pioglitazone in diabetic rats.

Methods: Induction of experimental diabetes was done using single intraperitoneal injection of Streptozotocin (STZ) (Sigma) dissolved in citrate buffer (pH 4.5) at the dose of 65 mg/kg to overnight fasted rats. Only rats with blood glucose concentrations above 250 mg/dL were considered as diabetic. Animals were randomly divided into four groups of eight rats: control group, diabetic group and treated with low or high doses of pioglitazone (Sigma) of 1 or 10 (mg/kg/day, orally) for 5 weeks. Mice were euthanized on day 35 and Reduced glutathione (GSH) was estimated by spectrophotometric kit (Biodiagnostic, Egypt). In brief, the method is based on that the sulfhydryl component of GSH reacts with 5,5-dithiobis-2-nitrobenzoic acid (Ellman's reagent) producing 5-thio-2-nitrobenzoic acid having a yellow color, that was measured colorimetrically at 405 nm.

Results: Treatment of rats with pioglitazone, in low and high dosage, significantly increased GSH in testicular tissue of diabetic rats compared with control group.

Conclusion: Administration of pioglitazone could reduce excessive production of ROS with a resulting increase in the anti-oxidative defense.

Keywords: Diabetes, Pioglitazone, Reduced glutathione, Testicular damage
Cytokines Evaluation in endometriosis patients: An updated overview to Gynecologists’ Diagnosis Accreditation (A Systematic Review)

Sima Amidifar1a, Nazila Bahmaie1b, Dr. Abdolreza Esmaeilzadeh2,3*
1a MD Student, Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran
1b MSc of Medical Sciences and Research Assistant, Comprehensive Research Laboratory, Zanjan University of Medical Sciences, Zanjan, Iran.
2* Associate professor of Immunology, Department of Immunology, 3*Cancer Gene Therapy Research Center (CGRC), Zanjan University of Medical Sciences, Zanjan, Iran.

*Corresponding author’s Email address: a46reza@zums.ac.ir

Background: As a chronic inflammatory gynecological disease, Endometriosis is one of the most common diseases, which is characterized by occurrence of ectopic foci of endometrial tissue growth in pelvic cavity and outside the uterus. Poor knowledge on endometriosis etiology will be more problematic when is accompanied with infertility and dysmenorrhea. So, this study aims to investigated clinical values of cytokines evaluation in women with endometriosis.

Search method:
PubMed, Scopus, Elsevier and Google scholar databases were searched in English with 4 keywords from 2010 up to November 2017. Initially, 78 articles were found and totally 53 articles were selected based on our inclusion criteria and exclusion criteria.

Results: There are large documentations on immunological abnormalities, playing a vital role in Endometriosis. In comparison to healthy subjects, it is demonstrated that IL-1Ra, 1Rβ, 4, 6, 10, 16, 33, 35, 37, and TNF-α level in patients with endometriosis were significantly higher in serum and PF, and IL-19 and IL-22 were reduced. Up-regulation in IL-16 and IL-35 expression in PF in women with advanced stage of endometriosis (III/IV Stage), highlight an important efficacy in the pathogenesis, onset, inhibition of immune responses and Endometrial Stromal Cells (ESCs) proliferation stimulation in the peritoneal cavity. In addition, IL-22, IL-33 and IL-37 are related to severity of lesions and disease activity. There is a positive correlation between serum IL-33 concentration with severity of dysmenorrhea, digestive symptoms, total lesions and the worst type of lesions in endometriosis. Increase in IL-1β, IL-6 and TNF-α pro-inflammatory cytokines, can be considered as a reliable biomarker for the diagnosis of early stages of endometriosis (I/II Stage).

Conclusion:
Poor lifestyle of Endometriosis patients, lead basic clinical researchers forward new optimistic robust collaboration between specialists and laboratory immunobiologists on non-invasive immunobiomarkers, in order to qualify clinical diagnosis based outcomes.

Keywords: Endometriosis, Pro-inflammatory Cytokine, Pathogenesis, Diagnosis.
Mesenchymal Stem Cells strategy as a new horizon for Chronic Kidney Disease worldwide dilemma; A systematic review

Samira Moghadam1a, Nazila Bahmaie 1b, Dr. Abdolreza Esmaeilzadeh2,3*

1a MD Student and a member of Student Research Committee (SRC), Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran.
1b MSc of Medical Sciences and Research Assistant, Comprehensive Research Laboratory, Zanjan University of Medical Science, Zanjan, Iran.
2* Associate professor of Immunology, Department of Immunology and 3*Cancer Gene therapy Research Center (CGRC), Zanjan University of Medical Sciences, Zanjan, Iran.

Corresponding author’s email address: a46reza@zums.ac.ir

Background:
As a global healthcare imposed burden, Chronic Kidney Disease (CKD) is characterized with regenerative capacity limitations, progressing toward end-stage renal diseases. Therefore, it seems that novel clinical interventions development, such as regenerative cell based therapies, will be essential. This study aims to summarize the current knowledge on Mesenchymal Stem Cells (MSCs) infusion to treat CKD.

Search method:
This systematic review was conducted to outline comprehensive English studies published in PubMed, Scopus, Science Direct, Medline databases and Google Scholar search engine from 2003 up to June 2017 by using 5 keywords (MeSH Terms). 243 articles were screened and 82 were totally included.

Results:
Despite advances in renal replacement based therapies, nephrotoxicity of immune suppressor drugs, opportunistic infections, tumorigenic capabilities and immune rejection have been remained as problematic challenges for nephrologists. So, clinical researchers have been paid attention to MSCs based therapies, demonstrating in vitro and in vivo differentiation of MSCs into endothelial or smooth muscle cell lineage, contributing to angiogenesis, vasculogenesis and endothelial repair. Administration of exogenous MSCs could prevent CKD and promote renal recovery through a series of complex mechanisms, in particular via immunomodulation, release of paracrine factors including homing potential, pro-angiogenic, anti-inflammatory, mitogenesis, anti-fibrotic ones and microvesicles. Microvesicles can be regarded as an attractive cell-free therapy, protecting from acute kidney injuries induced by ischaemia reperfusion, and from subsequent chronic renal damages. They are adjusted to alter in IGF1R, KLF7, TGF-β genes expression profile and mRNA delivery (IRF6, RAX2) at their host targeted cells.

Conclusion:
Frustrating dilemma on poor life style of CKD patients, clinical applications of MSCs may lead to new optimistic targeted therapy through an integrated collaboration between specialist, molecular and cellular immunogeneticians in order to diminish imposed costs and cardiovascular mortalities of CKD patients.

Keywords:
Chronic Kidney Disease, Mesenchymal Stem Cell, Immunomodulation, Cell therapy, Treatment.
PI-44

The Main Biomarkers for Diagnosis of Ankylosing Spondylitis: A Systematic Review

Toomaj Sabooteh¹, Andisheh Soleimani², Farhad Shahsavar³*

1. Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
2. Ayatollah Borujerdi Hospital, Lorestan University of Medical Sciences, Borujerd, Iran.
3. Department of Immunology, Lorestan University of Medical Sciences, Khorramabad, Iran.

Background: Ankylosing Spondylitis (AS) is a common chronic inflammatory disease with an estimated prevalence of 0.2–1.2%. Disease onset is typically in the third decade of life, and the disease is known to have a substantial socio-economic impact on patients and society. Thus, an early and reliable diagnosis of AS is becoming more and more important. However, there is still an unacceptably long delay between the onset of symptoms and time of diagnosis with an average delay of about 8–11 years. In this study we assessed the main biomarkers for the diagnosis of ankylosing spondylitis by performing a systematic review.

Methods: A systematic search was performed. ISI Web of Science, Pubmed and Scopus were searched from 1990 to 2017 using the keywords “ankylosing spondylitis” AND “Diagnos*” AND “biomarker*” with their synonyms and MeSH terms. In addition, a manual search of the reference lists of the articles found was performed.

Results: After research with an adequate combination of keywords in the databases and after a manual search of the literature we found a total of 73 articles. Altogether, 58 articles were excluded for different reasons such as double counting, insufficient description of grading, not well defined AS population, no possibility to calculate sensitivity (eg, only mean values given), case reports only, report focusing on technical details, only letter, comment or editorial. Finally, 15 articles were included in our analysis.

Conclusion: The most established biomarker for AS is the genetic marker HLA-B27, which is commonly used in AS diagnosis. HLA-B27 has a very high sensitivity, but unfortunately lacks specificity as it is frequently encountered in other diseases, such as Reiter's syndrome or psoriasis, and it is relatively common in the general population. A second established marker, routinely used in AS patient management, is CRP. This inflammatory marker is used for monitoring disease activity in AS. Even though B cells and antibodies may not be key players in AS pathogenesis, antibodies can serve as good biomarkers for AS due to their unique features.

Keywords: Ankylosing Spondylitis, Diagnosis, Biomarkers.
The Role of HLA-B27 in Pathogenesis of Ankylosing Spondylitis: A Systematic Review

Andisheh Soleimani¹, Toomaj Sabooteh², Farhad Shahsavar³

¹. Ayatollah Borujerdi Hospital, Lorestan University of Medical Sciences, Borujerd, Iran.
². Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
³. Department of Immunology, Lorestan University of Medical Sciences, Khorramabad, Iran.

**Background:** Ankylosing spondylitis (AS) is a chronic inflammatory arthritis that affects the spine and sacroiliac joints. It causes significant disability and is associated with a number of other features including peripheral arthritis, anterior uveitis, psoriasis and inflammatory bowel disease (IBD). Since the discovery of the remarkable relationship between HLA-B27 and AS, much has been learned and many ideas have emerged regarding pathogenesis. AS is a polygenic disorder, with HLA-B27 playing a direct causative role. In this study we assessed the role of HLA-B27 in pathogenesis of ankylosing spondylitis by performing a systematic review.

**Methods:** A systematic search was performed. ISI Web of Science, Pubmed and Scopus were searched from 1990 to 2017 using the keywords “ankylosing spondylitis” AND “Pathogenesis*” AND “HLA-B27” with their synonyms and MeSH terms. In addition, a manual search of the reference lists of the articles found was performed.

**Results:** After research with an adequate combination of keywords in the databases and after a manual search of the literature we found a total of 192 articles. Altogether, 181 articles were excluded for different reasons such as double counting, insufficient description of grading, not well defined AS population, no possibility to calculate sensitivity (eg, only mean values given), case reports only, report focusing on technical details, only letter, comment or editorial. Finally, 11 articles were included in our analysis.

**Conclusion:** Animal studies suggest that T-cells, particularly CD4+ cells, are critical, and have provided evidence against a CD8+ T-cell-mediated process. Cells of the innate immune system participate in pathogenesis, and evidence for innate immune activation is increasing. Several studies support a relationship with gut inflammation, subclinical or overt, yet details remain unclear. There is increasing evidence that HLA-B27, through unusual or unique properties, modulates inflammatory responses to microbes, either via misfolding and UPR activation, or through immune receptor recognition, or possibly both mechanisms. Taken together, much of the data suggest that HLA-B27-associated diseases may be ‘auto-inflammatory’ rather than ‘auto-immune’ in nature, although this remains to be established. Fundamental studies of the immunobiology of HLA-B27 together with animal models, particularly B27-Tg rats, have provided insight into possible pathogenic mechanisms.

**Keywords:** Ankylosing Spondylitis, Pathogenesis, HLA-B27.
PI-46

The immunological effect of small interfering RNAs (siRNA) in treatment of asthma

Mojde Kazemi¹, Abdollah Jafarzadeh A¹²

¹- Department of Immunology, Medical School, Kerman University of Medical Sciences, Kerman, Iran.
²- Department of Immunology, Medical School, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.

*Corresponding to: Abdollah Jafarzadeh, Professor of Immunology, Department of Immunology, Medical School, Kerman University of Medical Sciences, Kerman, Iran.

Background: Small interfering RNAs (siRNAs) exert their regulatory effects through silencing a specific gene. The siRNA are produced by effects of Dicer enzyme on long double-stranded RNA (dsRNAs) molecules to result a product with 21–23 nucleotide. As dis-regulation of gene expression is occurred in a vast board of disease, the therapeutic potential of siRNAs are extremely considered as their efficient and specific gene silencing. It is well-known that the Th2 and eosinophil-related immune responses play fundamental roles in the pathogenesis of asthma. The down-regulation of Th2- and eosinophil -related parameters using specific siRNA may have therapeutic application for treatment of asthma. Here, we present new insights regarding the possible therapeutic application of siRNA for treatment of asthma.

Methods: In order to determine the therapeutic potential of siRNA inasthma we searched by keywords such as asthma, siRNA, Th2, eosinophil, IL-4, IL-5,GATA-3 and GATA1 in PubMed, Scopus, Science Direct, and the Google Scholar database. We selected the original and review articles and used those in the preparation of this article.

Results: The siRNA targeting the Th2-related transcription factor (GATA-3), Th2-related cytokines (IL-4 and IL-5) and eosinophil- related transcription factor(GATA1) were displayed reducing effected on the Th2-and eosinophil cell-associated immunopathological reactions in asthma.Moreover, the targeting of GRP75, KIF3A,miRNA-155, DUOX1,BLT2, Shp2, SOCS1, CD80, CD86, TLR2, Nrf-2 ,Interleukin-33-p38, MKP-1, STAT1,STAT3, GSK3β, IL-4, claudin-4, RPS3, PP5 and NFIL3  genes has attenuating effects on Th2 and eosinophil cell-related immune responses in asthma.

Conclusion: The results provide evidence that siRNA may consider as new therapeutic agents for treatment or amelioration of Th2- and eosinophil -related allergic diseases such asasthma.

Keywords: Asthma, siRNA, Th2 cells, Eosinophil, Treatment
MicroRNA Evaluation in Melanoma patients; An updated horizon for oncologists’ Diagnosis Accreditation (A Systematic Review)

Maryam Zareh Rafie1, Nazila Bahmaie2b, Dr. Abdolreza Esmaeilzadeh2,3*

1a MD Student and a member of Student Research Committee (SRC), Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran

1b MSc of Medical Sciences and Research Assistant, Comprehensive Research Laboratory, Zanjan University of Medical Sciences, Zanjan, Iran.

2* Associate professor, Department of Immunology, 3* Cancer Gene Therapy Research Center (CGRC), Zanjan University of Medical Sciences, Zanjan, Iran.

*Corresponding author’s Email address: a46reza@zums.ac.ir

Introduction: As one of the metastatic fatal cutaneous malignancies, Melanoma is characterized with aggressive clinical manifestations, diminished survival rate and tumor resistance to therapies. These, enable clinical researchers to modulate some molecular microRNA (miRNA)-targeted signalings, accounting for neo-melanomagenesis. Therefore, this study aims to investigate clinical applications of alteration in miRNA expression, contributing eventually to accomplish an accurate progression-risk biomarkers.

Search methods: PubMed, Scopus, Elsevier and Google scholar databases were searched in English with 5 keywords from 2008 up to November 2017. Initially, 89 articles were found and totally 63 articles were selected based on our inclusion and exclusion criteria.

Results: In Melanoma, several cell process such as cell cycle and proliferation, immune responses, invasion, metastasis and apoptosis have been affected by miRNAs, as small noncoding single-stranded, endogenous RNA. It is demonstrated that lower levels of miR-125b in exosomes are associated with advanced melanoma disease, probably reflecting the tumoral cell dysregulation. The ectopic expression of miR-211, miR-200c and miR-205 in melanoma cells, significantly inhibited its invasion, suggesting their tumor suppressor functions. Also, miR-196a down-regulation, stimulate consequently Basic Fibroblast Growth Factor (bFGF) signaling, which plays crucial roles in melanoma progression. Significantly, miR-17, miR-19a, miR-21, miR-126, and miR-149 were expressed at higher levels in patients with metastatic sporadic melanoma as compared with familial melanoma patients, highlighting monitor remission and relapse values. On the other hand, a number of miRNAs were found that have a different expression in thin and thick melanoma, including miR-21-5p, miR-424-5p, Let-7b-5p, Let-7a-5p, miR-182-5p, miR-205-5p.

Conclusion: In spite of surgical resection and adjuvant therapies, recurrence have been remained common in Melanoma. Therefore, optimistic insights on miRNA as stable, low-cost and repeatable strategy, can clarify early stages/lesions detection and subsequent treatment of melanoma.

Key words: Melanoma, MicoRNA, Diagnosis, Prognosis, Clinical Applications.
PI-48
Neurotensin as a promising biomarker for Colorectal Cancer challenge (A Systematic Review)

Elnaz Khosh1a, Nazila Bahmaie 1b, Dr. Abdolreza Esmaeilzadeh2,3*

1a MD Student and a member of Student Research Committee (SRC), Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran
1b MSc of Medical Sciences and Research Assistant, Central Research Laboratory, Zanjan University of Medical Sciences, Zanjan, Iran.
2* Associate professor, Department of Immunology, 3* Cancer Gene Therapy Research Center (CGRC), Zanjan University of Medical Sciences, Zanjan, Iran.
*Corresponding author’s Email address: a46reza@zums.ac.ir

Background: In spite of chemo radiotherapy and surgical resection, Colorectal cancer (CRC) is one of the most common cancers among men and women, which is characterized with weight loss, anemia, fatigue and bowel movement alterations. Expression of some peptide hormone from distal gut as Neurotensin (NT) and it’s receptors, physiologically affecting function of the gastrointestinal (GI) tract and in the carcinogenesis implication, has been attentioned by clinical researchers. The aim of this study is to investigate clinical correlations between NT and CRC.

Search method: This systematic review was performed to identify comprehensive studies using 4 keywords that were published in PubMed, Science Direct, Scopus, Embase and Google Scholar databases, in 2000-2017 time interval. Of the 108 articles initially identified, 48 were selected to be reviewed.

Results: NT, a regulator of CNS functions, is a hormone which has both physiologic and pathologic functions. NT is expressed in GI tract and has endocrine and paracrine effects to modulate vascular smooth muscle activity. NT and it’s receptors (NTR1), stimulate the growth of normal small bowel and colonic mucosa, may act as a therapeutic markers in GI malignancies. Also, NT could induce expression and secretion of IL-8 to promote colonic inflammatory response and epithelial-mesenchymal transition (EMT)-related tumor migration. So, in CRC, blockade and modulation of the NT/NTR1 signaling pathways show potential of a diagnostic biomarker for CRC. The down-regulation of NTR1 in colorectal cancers may represent anticancer and apoptotic effects of histone deacetylase inhibitor (HDACi).

Conclusion: CRC as a deadly neoplasia, will be qualified with screening programs, leading to early detection and incidence rates reduction. So, collaboration between clinicians and laboratory science experts and a practical view on NTR1 highly expression in GI stromal tumors especially CRC, can accelerate early diagnostic and therapeutic markers coming true.

Key words: Neurotensin, Colorectal cancer, Diagnosis, Biomarker.
Integration for Autism worldwide Challenge; Neurotensin as a Potential Candidate Marker (A Systematic Review)

Elnaz Khosh1a, Nazila Bahmaie1b, Dr. Abdolreza Esmaeilzadeh2,3*

1a MD Student and a member of Student Research Committee (SRC), Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran
1b MSc of Medical Sciences and Research Assistant, Central Research Laboratory, Zanjan University of Medical Sciences, Zanjan, Iran.
2* Associate professor, Department of Immunology, 3* Cancer Gene Therapy Research Center (CGRC), Zanjan University of Medical Sciences, Zanjan, Iran.

*Corresponding author’s Email address: a46reza@zums.ac.ir

Background:
As one of the severe neurodevelopmental disorder, Autism is characterized with faults in social interactions, stereotypic behaviors and verbal communications. Autism mostly has the prevalence of 1 out of 68 children. It will be more problematic when is accompanied with complicated diagnose before 24 months, regression and anxiety. So, an urgent need to some reliable biomarker, forces us to investigate clinical correlations of some neuropeptide biomarkers as Neurotensin (NT) with neurological disorders.

Search method:
This systematic review was performed to identify comprehensive studies using 5 keywords that were published in PubMed, Science Direct, Scopus and Google Scholar databases, in 2002-2017 time interval. Of the 67 articles initially identified, 32 were selected to be reviewed.

Findings:
Several preclinical studies confirmed involvement of NT in dopaminergic system and serum fluctuations in mental-neurological problems. Also, assembled evidence indicate NT serum increments in autism compared to other neuropeptides (β-Endorphin or Substance P) and normal children. Firstly, under stress situation, NT augments the ability of Corticotropin-Releasing Hormone (CRH) to increase mast cells-dependent skin vascular permeability, triggering to reinforce inflammatory and neurotoxic mediators in brain microenvironment. Secondly, NT significantly stimulates primary human microglia and release of pro-inflammatory cytokine IL-1β, CXCL8, CCL2 and CCL5. Thirdly, NT creates a hyper glutaminergic state, leading to neuron stimulation and eventually disruption of neuronal connectivity and apoptosis afterwards, may be an effective approach for Autism treatment.

Conclusion:
Due to presence of circulating auto-antibodies against fetal brain proteins in mothers and irreversibility of brain alterations, early detection based methods will be required. An optimistic trustable view on NT, makes a robust collaboration between clinicians and laboratory science experts to diminish autistic children and their parents’ concerns and suffers.

Key words:
Neurotensin, Autism, Diagnosis, Neuropeptide Biomarker, Immunomodulation.
Crosstalk of inflammation and cancer as a curious suggestion for clinicians (A Systematic Review)

Nazila Bahmaie1a, Elham Nouri1b, Mitra Mohammadzadeh1b, Mohammadjavad Hajkazemi1c, Reza Elahi1c, Samira Moghadam1c, Elnaz Khosh1c, Nahid Daneshi1c, Azita Mohammadzadeh1c, Maryam Zareh Rafie1c, Sima Amidifar1b, Dr. Abdolreza Esmaeilzadeh2,3*

1a MSc of Medical Sciences and Research Assistant, Central Research Laboratory, Zanjan University of Medical Sciences, Zanjan, Iran.
1b Bachelor of Laboratory Science and a member of Student Research Committee (SRC), Faculty of Paramedicine, Zanjan University of Medical Sciences, Zanjan, Iran.
1c MD Student Research Committee (SRC), Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran
2* Associate professor of Immunology, Department of Immunology, 3 Cancer Gene Therapy Research Center (CGRC), Zanjan University of Medical Sciences, Zanjan, Iran.

*Corresponding author’s Email address: a46reza@zums.ac.ir

Background: As one of the most disruptive challenges for Health system, infection derived inflammation has been implicated in the pathogenesis of approximately 25% of cancers. Host systemic inflammatory responses to infection (SIRS), leads to chronic inflammation (CARS), in turn, as a facilitating factor, modulate another chronic immunological condition such as cancer and it’s progression or onset. So, monitoring and therapy management often become extremely complicated for clinicians. These, enable clinical researchers to focus on some etiologic immunoserological biomarkers linking inflammation and cancer. This study, aims to investigate mentioned relationships between inflammation and cancer, assisting to overcome to qualify specialists diagnosis.

Search method: This study is a systematic review and data are collected from PubMed, Scopus, and Science Direct databases by using 5 keywords from ultimately 190 articles of 2000 to 2017 time interval.

Results: It is demonstrated that increased expression of IL-6 may promote tumorigenesis, associated with poor prognosis and cachexia in cancer patients, including multiple myeloma, lymphoma and colorectal cancer. IL-6, a multifunctional NF-kB/stat3 regulated cytokine, regulates pre-neoplastic growth during Colitis-associated Cancer as the most serious complication of IBD. Also, it has been highlighted that IL-6 and Procalcitonin concentrations are a more specific marker of liver metastasis and disease staging, respectively. On the other hand, elevated levels of CRP, belonging to acute phase protein, indicates prognostic role in breast and esophageal cancers aggression or recurrence. Angiopoitin-2(VEGF), a marker for sepsis associated multiple organ dysfunction, is a potential Hepatocellular carcinoma diagnostic marker. Inflammatory soluble urokinase Plasminogen Activator Receptor (suPAR) biomarker, was significantly associated with newly diagnosed nonspecific symptoms and signs of cancer during follow-up.

Conclusion: Due to growing considerations for tumor development, a continuous coordination between physicians and laboratory science experts on inflammation related cancers may be beneficial to accredit diagnosis based clinical outcomes.

Keywords: Biomarker, Cancer, Correlation, Diagnosis, Inflammation.
An efficient method for protein extraction from formalin-fixed paraffin-embedded (FFPE)tissues

Marzieh Eghtedardoost¹, Jamshid Davoodi², Tooba Ghazanfari¹,

¹ ImmunoRegulation Research Center, University of Shahed.
² Institute of Biochemistry and Biophysics, University of Tehran

Background: The one of the diagnosis method for cancers or other disorders is study on tissue specimens. The study on protein pattern of tissue is helpful for primary diagnosis and follow up the route of therapy. The most popular fixator for the fixation of tissue biopsy is formalin that it cause cross link between proteins in tissue. So, the effective extraction of its protein from FFPE tissue is very difficult and complex. We describe a reliable and valuable method for extraction of total protein from FFPE tissues that it could useful in western blotting technique.

Method: we used lung FFPE tissue from pathology department of general hospital. The 50 µm section from each block were prepared. After de-paraffinization and dehydration steps, the cellular pellet was re-suspend in re-suspension buffer (Tris-HCL20mM, SDS2%, 0.5M 2ME). Then, the total protein release to solution by heat and sonication. At finally the protein was precipitated by acetone. In continue, the concentration of extracted protein was determined and SDS-PAGE electrophoresis and immunobloting was carried out for some immunological and conserved proteins.

Result: The 100 µg total protein loaded in each well of poly acrylamide gel 20%. After Immunobloting with different primary antibodies, we used secondary anti mouse antibody conjugated with HRP. The chemiluminescence bands of IL-1β, TNFα, LC3, α- Tubulin, β-actin, and GAPDH proteins were appeared on x ray film.

Conclusion: The result show this protein extraction protocol from FFPE tissue is reliable for detection of proteins with different molecular weight and it could beneficial for precise measurement of important proteins in cancer diagnosis

Key Words: Protein Extraction, FFPE tissue, Western blotting,
Serum level of IL-21 and long term pulmonary complications (27 years after sulfur mustard exposure)

Ali Mohammad Mohseni Majd¹*, Tooba Ghazanfari¹, Mohammad Mehdi Naghizadeh¹

¹- Immunoregulation research center of shahed University, Tehran, Iran

**Background:** Interleukin 21 (IL-21) is the one of key cytokines produced by human activated Th17 and plays an important role in lung immunity. This cytokine as the pro-inflammatory cytokine was described recently and particularly as an important parameter for chronic inflammatory diseases. Growing up of IL-21 serum level has been associated with chronic inflammatory of lung complications and it can be effective on sulfur mustard (SM)-lung as distinct disease.

**Methods:** We collected serum samples from 112 healthy individuals and 109 SM-injured patients with prolonged pulmonary complications and were classified based on Auscultation, Pulmonary assessment, pulmonary symptoms and respiratory consequence severity. Serum level of IL-21 were investigated by ELISA method.

**Results:** The serum level of IL-21 in SM exposed group was significantly higher than non-exposed group (P<0.001). Our results also show it is significantly higher in exposed group with normal auscultation than control group (P<0.001). Serum level of IL-21 in exposed group with mild-moderate pulmonary severity was significantly higher than control group (P<0.001).

**Conclusion:** Generally, IL-21 as a pro-inflammatory cytokine has an important role in chronic steps of lung diseases and SM can increase the level of IL-21 even after 27 years. Whit due attention to IL-21 pathway, gene expression of IL-21 should study in lung chronic disease.

**Keywords:** Interleukin 21, Th17, lung, inflammation, chronic disease.
Seroprevalence of Brucellosis in individuals referred to Shafazand Medical Diagnostic Laboratory, Sirjan from September to December 2017

Hoseini F, Razeghi MS²

1. BSc, Student Research Committee, Sirjan Faculty of Medical Sciences, Kerman University of Medical Sciences, Kerman, Iran
2. MSc, Department of Laboratory Sciences, Sirjan Faculty of Medical Sciences, Kerman University of Medical Sciences, Kerman, Iran
* Corresponding Author farnaz hoseini.BSc. Student Research Committee, Sirjan Faculty of Medical Sciences, Kerman University of Medical Sciences, Kerman, Iran

Email: farnazzh20@gmail.com Phone: 09391461182

Background
Brucellosis as a worldwide zoonosis disease remains an important public health problem in many countries around the world, especially those in the Middle East. In Iran, human brucellosis is endemic and continuously reported from various part of the country. The prevalence of brucellosis in Iran has been reported from 0.5% to 10.9% in different provinces. The aim of this study was to evaluate Seroprevalence brucellosis in individuals referred to Shafazand Medical Diagnostic Laboratory in Sirjan city-Kerman.

Method
This retrospective cross sectional study was conducted on serum samples of individuals who were referred to Shafazand Medical Diagnostic Laboratory from September to December 2017. 361 of the individuals referred in two gender groups male (n=122) and female (n=239) were divided. To determine antibody titer, tube Wright and 2ME were performed (≥1.80 were considered positive).

RESULT
Mean of age in men and women were 35.58 and 40.87 respectively. Of 361, 13 (3.6%) were positive, among whom were 8 women (61.54%) and 5 males (38.46%).

Conclusion
According to the results of this study, the prevalence of brucellosis was %3.6 that shows low prevalence rather than other provinces. With consideration all aspects, screening is essential for cattle and people who are exposed to cattle.

Keywords: Brucellosis, Seroprevalence, Wright test
PI-55

Threating biomarkers in lupus pregnancy: Biochemistry and Genetic challenges

Karim Mowla¹, Elham Rajaei¹, Zeinab Deris Zayeri¹*
1- Golestan Hospital Clinical Research Development Unit, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Correspondence to: Zeinab Deris Zayeri,Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran. TEL: 0613161159, Email:zeinabderisgenetice@gmail.com

Abstract

Objectives: Using genetic markers and MiRs work strongly beside other sensitive biomarkers in lupus management during sensitive period of pregnancy.


Discussion: complement is a precious biomarker in lupus pregnancy but it has ambiguous profile because the decrease in C3 and C4 reflect inflammatory activation and they are prognostic biomarker for abortion while increase in these criteria indicates hepatic protein synthesis in hepatocytes. Anti-phospholipid anti-bodies(APL) present in 25% to 50% of lupus patients and lead to thrombotic and obstetric complications in number of lupus pregnancies and increase the risk of abortion specially in pregnant patients in active phase of lupus. Autoantibodies against the major vault protein (MVP) and anti-dsDNA antibodies work as strong biomarkers in evaluating lupus activity. Micro-RNAs (MiRs) expression pattern is different in various diseases.

Conclusion: MiR-223-3p and miR-451 are informative biomarker in estimating disease activity. TWEAK, BAFF, APOL1 genes and their polymorphisms are informative in estimating disease activity especially renal effects and in monitoring mothers with higher risks. Highlighting these genes and their important polymorphism is a precious study among various population.

Keywords: Lupus; Biomarker; Genetic; Micro-RNA; Anti-phospholipid anti-bodies.
Multiple microRNA profiling; great promising opportunities for pancreatic cancer

Azita Mohammadzadeh\textsuperscript{1a}, Mitra Mohammadzadeh\textsuperscript{1b}, Nazila Bahmaie\textsuperscript{1c}, Dr. Abdolreza Esmaeilzadeh\textsuperscript{2,3*}

\textsuperscript{1a} MD and a member of Student Research Committee (SRC), Faculty of Medicine, Zanjan University of Medical Sciences, Zanjan, Iran

\textsuperscript{1b} Bachelor of Laboratory Science and a member of Student Research Committee (SRC), Faculty of Paramedicine, Zanjan University of Medical Sciences, Zanjan, Iran

\textsuperscript{1c} MSc of Medical Sciences and Research Assistant, Central Research Laboratory, Zanjan University of Medical Sciences, Zanjan, Iran.

\textsuperscript{2*} Associate professor of Immunology, Department of Immunology, \textsuperscript{3*}Cancer Gene Therapy Research Center (CGRC), Zanjan University of Medical Sciences, Zanjan, Iran.

*Corresponding author’s Email address: a46reza@zums.ac.ir

Background: As seventh leading cause of cancer related death in worldwide and a highly heterogeneous and aggressive disease, Pancreatic cancer (PC) is mainly characterized with gastrinomas and poor appetite. Low survival rate and ambiguous prediction of cancer risk, surround investigations to focus on the role of different molecular pathways in PC microenvironment, such as microRNA (miRNA), may be efficient for biomarker utilization perspectives in PC early detection based strategies. So, in this study we purposes to investigate the appropriate diagnostic and therapeutic miRNA biomarkers profile for PC.

Search Method: This systematic review study was performed to identify studies using 4 key words published in Scopus and Google Scholar database in 2013-2018 time interval. From initially 793 identified articles, 105 articles were totally included after removing duplicates and scanning the titles and abstracts.

Results: It was obtained that different kinds of molecular signaling pathways in cancer microenvironment are known as predisposing factors for PC progression. It is demonstrated that, microRNAs, regulate post-translational gene expression, inflammatory responses, metastasis and apoptosis which have characteristic role in PC improvement or development. Circulating miR-21-5p has shown a promising diagnostic serum biomarker in patients with PC. The top 5 miRNAs (miR-1301, miR-125a, miR-376c, miR-328 and miR-376b) were significantly associated with overall survival, serving as an independent prognostic factor for pancreatic adenocarcinoma. Also, miR-145 and miR-145 has been recruited as a tumor suppressor in PC with therapeutic interventions.

Conclusion: Despite efforts on PC diagnosis improvement, it will be reasonable to identify of associations between microRNAs and PC progression, encouraging basic clinical scientists to further investigations on targeting microRNAs profile for modulation in PC microenvironment and contributing to oncologists diagnosis qualification.

Keywords: MicroRNA, Pancreatic cancer, Profile of biomarkers, Clinical applications.
PI-57

The effects of macrocyclic dinaphtho diamide on the oxidative states and stimulating the CSF production on lung tissue and colony formation of bone marrow cells

Ensiyeh Fazel Samiei¹ · Masoud Mashhadi Akbar Boojar² · Hemen Moradi-Sardareh³

¹ Tehran Center, Payame Noor University, Tehran, Iran
² Faculty of Biological Science, University of Kharazmi, Tehran, Iran
³ Department of Biochemistry, Faculty of Medicine, Tehran University of Medical Science, Tehran, Iran

Abstract

Objective Colony stimulating factors (CSFs) are endogenous cytokines that have key roles in proliferation and differentiation of hematopoietic progenitor cells and in regulation of mature blood cells performance. The CSFs families members are widely used for therapeutic purposes in many field include microbial infections, in cancer chemotherapy, alzheimer disease, hematopoiesis process, and for some neutropenia-related pathologies. Crown ethers are chemical compounds with therapeutic application that can affect the colony formation in vitro. The primary objective of the present study is to evaluate the effect of TDN (novel crown ether) on colony formation of red bone marrow cells in incubation with lung tissues cells.

Method In this study, bone marrow cells and lung tissue cells of Balb/C were used as a source of hematopoietic stem cells and a source to production colony-stimulating factors, respectively. These cells were incubated with TDN separately and together.

Results Briefly, the results of this study show that the effects of TDN has excitatory in concentrations lower than 50 μg/ml on colony formation and greater than 50 μg/ml is toxic to cells and it was inhibited the colony formation. Maximum stimulatory and inhibitory effects are shown in 50 and 400 μg/ml of crown ether and no colony was observed in the latter concentration.

Conclusion The results from this study indicate that TDN significantly able to stimulate the colon formation while increased concentrations of TDN is inhibited colony formation by induction toxic effects due to excessive production of free radicals.

Key words: Colony stimulating factor · Crown ether · Macrocyclic dinaphtho diamide
PI-58

Evaluation of serum level of IL-18BP in Sulfur Mustard(SM) exposed patients with long term pulmonary complications

Somaye Mami¹, Tooba Ghazanfari²

Background: Exposure to mustard gas leads to acute and chronic toxic effects on the pulmonary. Results from several studies have been suggested the role of immune mediators including IL18BP in the pathogenesis of pulmonary diseases. IL18BP by binding to IL18 prevents its binding to the receptor and acts as a natural inhibitor for this cytokine.

Aim: The aim of this study is to evaluate the serum level of IL18BP in SM_exposed patients with long term pulmonary complications.

Materials and Methods: 93 SM_exposed patients and 86 healthy people were study. The both exposed and control groups were homogeneous in terms of gender, age and body mass index. Given that some SM_exposed patients suffered from comorbidity as heart, kidney, liver diseases and Allergy, Asthma; In order to study the effects of diseases on serum level of IL18BP, individual were divided in to SM_exposed patients with or without comorbidity and IL18BP serum levels were measure by ELISA methods.

Results: The serum level of IL18BP was high in SM_exposed patients compared to healthy individuals. The serum level of IL18BP had no significant difference in SM_exposed patients who suffered from cardiac and kidney, liver, digestive diseases and Allergy. While the serum level of IL18BP was high in SM_exposed patients without comorbidity. Also the serum level of IL18BP was high in SM_exposed with or without kidney, digestive and asthma diseases.

Conclusion: The serum level of ILBP was high in SM_exposed patients compared to healthy individual and this increase is independent of kidney, digestive and asthma diseases. While heart, liver diseases and Allergy reduce the serum level of IL18BP in SM_exposed patients.

Keywords: Mustard Gas; Interleukin-18 binding protein; Comorbidity;
PI-59

Effects of Coenzyme Q10 and L-carnitine on Immune Response of Chickens

Hamed Asadi¹*, Nima Eila¹, Ali Asghar Sadeghi², Mehdi Aminafshar², Amirhooman Asadi³

1. Department of Animal Science, Faculty of Agriculture, Karaj Branch, Islamic Azad University, Karaj, Iran
2. Department of Animal Science, Faculty of Agriculture, Science and Research Branch, Islamic Azad University, Tehran, Iran
3. Doctorate of Veterinary Medicine, Faculty of Veterinary Medicine, Karaj Branch, Islamic Azad University, Karaj, Iran

*: Hamed Asadi, Department of Animal Science, Faculty of Agriculture, Karaj Branch, Islamic Azad University, Karaj, Iran

Background: L–carnitine and CoQ10 have immunomodulatory role such as boosting the immune system and inhibiting apoptosis.
The aim of this research was to evaluate the effects of CoQ10 and L-carnitine, individually and in combination, on the carcass traits and immune parameters of chickens.

Methods: Total of 80 one-day old male chickens were randomly divided to 4 treatment groups. Each group had 4 replicates with 5 birds per each. Two levels of CoQ10 (0 and 40 mg/kg) and L-carnitine (0 and 200 mg/kg) were fed. A completely randomized design with a 2x2 Factorial arrangement was used. Birds were individually vaccinated by using a commercial Newcastle disease virus vaccine on days 8 (B1) and 18 (LaSota). Blood samples were collected from the wing vein in test tubes containing sodium citrate at the end of grower (day 24) and finisher (day 42) periods. Antibody titers against Newcastle disease were measured by hemagglutination-inhibition test. Also, white blood cell count (WBC) and the absolute numbers of each leukocyte type were determined.
The statistical analysis was performed with SPSS 20 for windows. Anova GLM (general linear procedure) and Duncan’s Multiple Range test were used.

Results: Percentage of carcass traits (liver and heart) was not affected by use of these supplementation. Results indicated that the relative weight of spleen in control chickens was significantly lower than other groups (p<0.05). Also, WBC counts were not affected by CoQ10 or L-carnitine.
Antibody titers against Newcastle disease at day 24 of age were significantly higher when coenzyme Q10 was added to the diet (p<0.05). Among the four treatment groups, the control group presented the lowest antibody titers against Newcastle.

Conclusion: The results of this study suggest that coenzyme Q10 individually or combined with L-carnitine has positive effects on the humoral immune response of chickens.

Keywords: Coenzyme Q10, L-carnitine, Immune Response
New insight and trend in development of a new molecular-based diagnosis of Multiple Sclerosis in its early stage.

Sina khodakarimi¹, Mohammadreza shiri-shahsavar², Zeinab Aliyari Serej³, AhmadMehdipour⁴, Mohammad Pourhassan-Moghaddam⁴*, Abbas Ebrahimi-Kalan¹*

1. Department of Neurosciences, Faculty of Advanced Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran.
2. Department of Nutrition, Faculty of Health Sciences, Tabriz University of Medical Sciences, Tabriz, Iran.
3. Department of Applied Cell Sciences, Faculty of Advanced Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran.
4. Department of Tissue Engineering, Faculty of Advanced Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran.
5. Department of Medical Biotechnology, Faculty of Advanced Medical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran.

Multiple sclerosis (MS) is an autoimmune, T cell mediated and neurodegenerative disorder resulting in motor dysfunction and cognitive decline. There is no exact cure for MS, nor is there a reliable way to gauge its progression in an individual. Diagnostic criteria for MS include clinical and paraclinical laboratory assessments (Magnetic Resonance Imaging (MRI) and Cerebrospinal fluid studies (CSF) markers analysis). Simplicity and the lowcost of diagnosis is one of contributing factors of MS burden on the patients that vary substantially across countries. Direct costs of a disease represent the value of all resources consumed to diagnose, treat, or accommodate people with the condition. It is expected that the suggested in vitro assays would capable of MS diagnosis with a high specificity and sensitivity comparing with the current gold standard methods. In addition, in comparison with MRI, the suggested methods can detect the disease at the earlier steps.

When patients present with a first-time CNS demyelinating event, it is helpful to assess their risk of future MS, both to counsel about prognosis and to help with early treatment decisions. The presence of silent lesions on MRI, inflammatory markers in the CSF, and/or evidence of demyelination on evoked potentials, increase the chance of developing future CNS demyelinating events. Regarding the above introduction, it seems completely necessary to develop MS specific markers present in the CSF of MS patients with detection of the disease at the earlier stages and a high specificity/sensitivity compared with the current gold standard methods of MS diagnosis.
The effect of Hydro-Alcoholic Garlic Extract on total antioxidant capacity (TAC) in streptozotocin-induced diabetes in C57BL/6 mice

Farin Malekifard¹, Ali Soleimanzadeh²

¹. Department of Microbiology, Urmia University, Urmia, Iran.
². Department of Theriogenology, Urmia University, Urmia, Iran.

* (Corresponding E-mail: malekifard90@gmail.com)

Background: Diabetes is considered one of the largest health problems globally. Male patients may suffer from sub-fertility or infertility as a diabetic complication. Oxidative stress is one of the major pathophysiological routes during diabetes. Enhanced oxidative stress and changes in antioxidant capacity have important roles in the pathogenesis of chronic diabetes mellitus. Garlic has been reported to possess a variety of medicinal properties including hypoglycaemic, hypocholesterolaemic, hypolipidaemic and potent antioxidants property. The purpose of this study was to investigate the effects of garlic extract on the total antioxidant capacity (TAC) of the semen.

Methods: Diabetes was induced by multiple low-dose of streptozotocin injection (40 mg/kg/day for 5 consecutive days) in male C57BL/6 mice (15-20 gr body weight). After induction of diabetes, mice were divided into 6 groups: group 1 (normal control group); group 2 (diabetic control group); group 3 (treatment with garlic extract 200 mg/kg for 35 days) and group 4 (treatment with garlic extract 400 mg/kg for 35 days). Animals were randomly divided into four groups of eight mice: control group, STZ-induced diabetic group (diabetic group) and STZ-induced diabetic groups treated with low or high doses of pioglitazone (Sigma, Germany) of 1 or 10(mg/kg/day, orally) for 5 weeks. Animals were euthanized on day 35 and Testes and epididymis were removed for total antioxidant capacity (TAC) evaluation. The total antioxidant capacity (TAC) of the semen was done by ferric reduction antioxidant power (FRAP) assay.

Results: STZ caused marked decrease (P < 0.05) total antioxidant capacity(TAC) compared with control group of rats. The total antioxidant capacity (TAC) levels in treatment groups with garlic extract were significantly higher (p < 0.05) than in diabetic group.

Conclusion: In conclusion, these findings indicate that garlic extract may have a therapeutic effect against the autoimmune destruction of the testicular damage during the development of streptozotocin induced type 1 diabetes in C57BL/6 mice.

Keywords: Type 1 diabetes, Garlic Extract, Total Antioxidant Capacity (TAC)
Molecular Evidence of Human Fasciolosis due to *Fasciola gigantica* in Iran: A Case Report

**Arezoo Bozorgomid**[1], Mohammad Bagher Rokni[2], Mojgan Aryaeipour[2], Peyman Heydarian

[1]. Department of Microbiology, Asadabad School of Medical Sciences, Asadabad, Iran

[2]. Department of Medical Parasitology and Mycology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran.

*Corresponding Author: maryaiepour@gmail.com*

**Abstract**

Fascioliasis is a foodborne zoonotic disease caused by the two parasite species *Fasciola hepatica* and *F. gigantica*. There are few documents proving the presence of *F. gigantica* for human fasciolosis in Iran. Here, we report such a case in a 25 yr old woman referred to the Department of Medical Parasitology and Mycology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran in 2015. CT imaging and MRCP revealed an ill-defined lesion of segments of liver. Specific ELISA produced a positive result besides detecting egg of the parasite via stool exam. *The identification of parasite species* was performed by the DNA extracted from the eggs and sequencing ITS-1, in addition to comparison to GenBank retrieved sequences, using the BLAST search tool. The sample showed 100% identity with *F. gigantica*. She was treated for fasciolosis with a single dose of triclabendazole (Egaten®) 10 mg/kg with positive response. This is the first case of human fasciolosis due to *F. gigantica* reported in Iran.

**Keywords:** *Fasciola gigantica*, PCR, ELISA, Diagnosis, Iran
Application of proteomics in clinical parasitology

Mahmoodreza Behravan¹²

¹Ph.D Student of Medical Parasitology, Student Research Committee, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
²Infectious Diseases Research Center, Birjand University of Medical Sciences, Birjand, Iran.

Background and Objective: Proteomics is the large-scale study of proteins particularly their composition, structures, functions, and interactions of the proteins directing the activities of cell. The main theme of interest proteomics it gives a much better understanding of an organism than genomics. Genomics can give a rough estimation of expression of a protein. Most of the proteins function in collaboration with other proteins, and the main goal of proteomics is to identify which proteins interact. After genomics, proteomics is often considered as the advanced step in the study of biological systems. Based on the protein response under stress conditions, proteomics are classified into different groups: expression, structural and functional proteomics. Proteomics is useful in several research areas, including parasitology, where it can potentially elucidate the pathology of parasitic illness.

Materials and Methods: In this study, recent review articles in databases of ISI Web of Science, Pubmed, Scopus, ProQuest, ScienceDirect and Google Scholar related to proteomics and genomics fields of medical parasitology has been evaluated and analyzed.

Findings: Advanced research related to identification of biomarkers for parasitic diseases enables the potential of rapid diagnostic tests to be explored. The application of proteomics, leading to discovery of novel immunogens, and those proteins involved in stimulation of the host immune system, have been summarized and discussed. Identified antigens stand as potential vaccine candidates for protecting against parasitic diseases. Interactions between promising antiparasitic compounds and their target proteins have been studied successfully using mass spectrometry-based proteomics. An accurate definition of the drug-target interaction elucidates the drug mechanism, which is needed for drug design.

Conclusion: Based on the above findings the present review was concluded that the applications for proteomics are relevant to all of the biological process and provides a means to utilize the expressed protein data in a more effective way.

Key words: proteomics, protein, parasitology
Is Toxoplasma gondii playing a positive role in multiple sclerosis risk?

A systematic review and meta-analysis

Reza Saberi 1,2,3, Ahmad Daryani 1,2, Mehdi Sharif 1,2, Shahabeddin Sarvi 1,2, Seyed Abdollah Hosseini 1,2,3, Davood Anvari 1,2,3

1 Toxoplasmosis Research Center, Mazandaran University of Medical Sciences, Sari, Iran
2 Department of Parasitology and Mycology, School of Medicine, Mazandaran University of Medical Science, Sari, Iran
3 Student Research Committee, Mazandaran University of Medical Science, Sari, Iran

Abstract:

Background: Toxoplasmosis is a parasitic disease caused by Toxoplasma gondii with widespread distribution globally. Objective: The aim of this study was to characterize the association between T. gondii infection and multiple sclerosis (MS). Method: Up to April 2017, data were systematically collected on the English electronic databases. We identified 5 studies with 578 MS patients and 770 controls. Results: The pooled prevalence of T. gondii infection in MS patients and control groups was estimated 32% (95% CI: 27%-38%) and 39% (95% CI: 29%-50%), respectively. Statistical analyses showed the OR of T. gondii in MS patients is 0.72 (95% CI 0.49–1.07). Conclusion: This meta-analysis study showed a lower sero-prevalence of T. gondii in MS patients, as compared with control group. Further investigations are recommended to illuminate protective role on MS diseases to better investigate and determine the detailed association between MS patients and T. gondii infection.

Keywords: Toxoplasma gondii; Multiple sclerosis; Systematic review; Meta-analysis.

Abbreviations: CI = confidential interval, ORs = odds ratios.
Molecular detection and genetic characterization of *Toxoplasma gondii* using 18S-rRNA genes in rodents of Golestan province, northeast of IRAN

Ehsan shariat bahadory, Javid sadraei, Ali dalir ghaffari, Somayyeh mosavipoor

**Background:** Toxoplasma parasite is from Toxoplasmatidea family that initially was seen in *CtinodactylusGondii* rodent. Toxoplasma parasites that extracted from different rodents are same in immunologic and morphologic characteristics but have differences in pathogenicity and genotypes in mice. The rodents are most reservoir host in environment that by attention of human environment vicinity to rodent's environment causes Toxoplasma dispersion in that area. The aim of this study was abundance detection of toxoplasmosis in rodents of Golestan province using 18S-rRNA gene.

**Materials and methods:** In this study we collected 286 rodents from Golestan forest and extracted brain and heart tissues to obtain DNA of 18S-rRNA gene from these tissues. We divided these rodents to 4 groups and then detected the positive samples by PCR method.

**Results:** In these study we found 68 samples of these rodents were positive for 18S-rRNA genes. 38 samples were *Ratus ratus*, 10 samples were *Ratus norvegicus*, 10 samples were *Mus musculus* and 10 samples were *Rombunys opimus*.

**Conclusion and discussion:** In this study we found that the different types of rodents were responsible to spread of toxoplasmosis, also 18S-rRNA gene were very useful markers to detect toxoplasmosis in rodents of northeast area of IRAN.

**Keywords:** toxoplasmosis, 18S-rRNA gene, Golestan forest, rodents tissue
Molecular detection and genetic characterization of *Toxoplasma gondii* using SAG1 genes in rodents of Golestan province, northeast of IRAN

Javid Sadraie, Abdolhosein Dalimi asl, Ehsan shariat bahadory

**Background:** Toxoplasma parasite is from Toxoplasmatidea family that initially was seen in *Ctinodactylus Gondii* rodent. Toxoplasma parasites that extracted from different rodents are same in immunologic and morphologic characteristics but have differences in pathogenicity and genotypes in mice. The rodents are most reservoir host in environment that by attention of human environment vicinity to rodent’s environment causes Toxoplasma dispersion in that area. The aim of this study was abundance detection of toxoplasmosis in rodents of Golestan province using SAG1 gene.

**Materials and methods:** In this study we collected 286 rodents from Golestan forest and extracted brain and heart tissues to obtain DNA of SAG1 gene from these tissues. We divided these rodents to 4 groups and then detected the positive samples by PCR method.

**Results:** In these study we found 68 samples of these rodents were positive for SAG1 genes. 38 samples were *Ratus ratus*, 10 samples were *Ratus norvegicus*, 10 samples were *Mus musculus* and 10 samples were *Rombumys opimus*.

**Conclusion and discussion:** In this study we found that the different types of rodents were responsible to spread of toxoplasmosis, also SAG1 gene were very useful markers to detect toxoplasmosis in rodents of northeast area of IRAN.

**Keywords:** toxoplasmosis, SAG1 gene, Golestan forest, rodents tissue
**Spirometra erinaceieuropaei in a wildcat (Felis silvestris) in Iran**

Milad Badri\(^a\), Aida Vafae Eslahi\(^b\), Hamidreza Majidiani\(^a\),*, Majid Pirestani\(^a\)

\(^a\)Department of Parasitology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
\(^b\)Department of Medical Parasitology and Mycology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

The zoonotic helminth, Spirometra, has several species with almost global distribution. Herein, we describe the first detailed molecular detection of Spirometra erinaceieuropaei in a road-killed wildcat (*Felis silvestris*) in Iran and its identification at the species level using CO1 gene. Genomic DNA was extracted using CTAB extraction method. The DNA then was applied for PCR amplification of cytochrome c oxidase subunit I (CO1) gene. Afterwards, PCR product was sequenced and obtained data were analyzed and multiple aligned using BLAST program, ClustalX and Bioedit software. Microscopy findings and diagnostic clues revealed that the parasite is a *Spirometra sp.* cestode. Consequently, molecular analysis on the basis of cytochrome c oxidase subunit I (CO1) gene demonstrated that the species is *Spirometra erinaceieuropaei*. Regarding optimum climate conditions and previous reports of animal infection in this region, the likelihood of human involvement should be potentially considered.

**Keywords:**
Spirometra erinaceieuropaei-Wildcat-Felis silvestris- Iran
A survey of zoonotic and non-zoonotic gastrointestinal parasites of domestic birds in Guilan Province.

Badri M¹, Ghaffarifar F²

¹-²Department of Medical Parasitology, School of Medical Sciences, Tarbiat Modares University, Tehran, Iran

Background: Parasitic infections in birds are omnipresent, even when they occur in low amounts, and may result in subclinical diseases. Current study reveals the status of parasitic infection found in Chickens and Ducks from some parts of Guilan Province north of Iran.

Materials and Methods: A number of 153 Domestic birds including 103 chickens (Gallus gallus domesticus) and 50 ducks (Anas platyrhynchos) were collected from three locations of Guilan Province. Digestive tracts were carefully incised and inspected for parasitic investigation.

Results: About 80% of chickens and 22% of ducks were found to be infected with helminthic and protozoan parasites. Ascaridia galli, Heterakis gallinarum, Cryptosporidium spp and Eimeria spp. were detected in chickens, whereas Echinostoma spp. and Hypoderaeum conoideum were reported in ducks.

Conclusion: Avian parasitic infections are included as important diseases, especially among domestic poultry as they cause significant economic losses. Thus, accurate monitoring and appropriate prevention procedures are implicated in poultry rearing systems.

Keywords:
gastrointestinal parasites · domestic birds · Guilan Province
In vitro anti-leishmanial effects of Kelussia odoratissima Mozaff extract on Leishmania major

Farzaneh Mirzaei1, Mohammad Ali Mohaghegh2, Vahid Raissi3, Amir Maleksabet4, Sayed Hossein Hejazi5

1- Department of Parasitology and Mycology, School of Medicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
2- Department of Laboratory Sciences, Torbat Heydariyeh University of Medical Sciences, Torbat Heydariyeh, Iran.
3- Department of Medical Parasitology and Mycology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
4- Department of Biotechnology, School of Advanced Medical Sciences and Technologies, Shiraz University of Medical Sciences, Shiraz, Iran
5- Skin Disease and Leishmaniasis Research Center, Department of Parasitology and Mycology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, IRAN

Abstract

Purpose: Plants used for traditional medicine contain a wide range of substances that can be used to cure a large number of diseases such as infectious diseases. The present study aimed to evaluate the in vitro effects of aqueous, ethylacetate and butanol fractions of Kelussia odoratissima Mozaff (wild celery; mountain celery) extract on Leishmania major promastigote and amastigote.

Methods: The fractionation was carried out using liquid-liquid extraction method. Promastigotes were subjected to different concentrations (1280, 1000, 640, 320, 160, 80 and 40 μg/ml) of each extract for 24, 48 and 72 hours while amastigotes were subjected for 48h.

Results: According to our findings, no significant anti-leishmanial effects was observed for the aqueous fractions (p > 0.05) on promastigote form of parasite. The highest anti-leishmanial effect (100% Growth inhibitory) was demonstrated when amastigotes were treated with the butanol fraction (p < 0.001) (IC50=154.1 μg/ml).

Conclusion: The results indicate that the extract of this plant could be a candidate for treating cutaneous leishmaniasis. However, its anti-leishmanial potent should be evaluated on the parasite in vivo.

Keywords: Leishmania major; Kelussia odoratissima Mozaff; extract; in vitro
PP-11

Epidemiological study of intestinal parasites in referred individuals to the medical centers laboratories of Haji-abad city, Hormozgan province, Iran, 2015.

Somaye Mehran¹, Ali Haghighi², Hooshang Khazan³, Eznoallah Azargashb⁴, Hamidreza Ghasemian Moghadam⁵, Parian Masoudi⁶

¹Department of Parasitology and Mycology, School of Medicine, Shahid Beheshti University of Medical Sciences
²Department of Parasitology and Mycology, School of Medicine, Shahid Beheshti University of Medical Sciences
³Department of Parasitology and Mycology, School of Medicine, Shahid Beheshti University of Medical Sciences
⁴Department of Health and Social Medicine, School of Medicine, Shahid Beheshti University of Medical Sciences
⁵Pathologist at Haji-abad’s Hospital laboratory
⁶Department of biology, Faculty of science, university of Islamic azad, of Arak

Background: Intestinal parasitic infection is one of the most prevalent health problems in developing countries. This study was conducted to determine the prevalence of intestinal parasitic infection and its correlation with socio-demographic parameters in Haji-abad, 2015.

Materials & methods: In the present study, 635 stool samples were assessed macroscopically, and microscopically using direct slide smear with saline and lugol, formalin-ether concentration.

Results: Of total 635 samples, 198 cases (31.2%) were infected by at least one intestinal parasite. The most common intestinal parasites were: Blastocystis sp. (105, 16.5%), Endolymna nana (43, 6.8%), Entamoeba coli (32, 5.0%), Giardia lamblia (31, 4.9%), and Iodamoeba butschlii (11, 1.7%). Enterobius vermicularis (1, 0.2%) was the only detected helminthic infection. Regarding socio-demographic variables, age, residence, sampling month, and job showed a significant correlation with IPIs (P-value=0.031, 0.019, 0.014, 0.012; respectively).

Conclusion: In agreement with previous studies, helminthes infections show a dramatic decline compare to protozoa in this study. The relatively high incidence of intestinal protozoan infections in studies performed in Iran, supports strategies for preventing the transmission and expansion of these parasites as a priority.

Keywords: Epidemiological study, intestinal parasites, Haji-abad city
مطالعه سیستماتیک بر روی اثر درمانی داروهای گیاهی بر انگل لیشمانیا

طاهر علمی، فریبا اروج زاده، فاطمه طبیبی ای

1) گروه انگل شناسی و قارچ شناسی، دانشگاه علوم پزشکی ایران، تهران، ایران

مقدمه:
جهت کاهش عوارض سوء دارویی شیمیایی، محققین دنکیل راهکاری متفاوتی هستند، که از روش‌هایی پیشنهادی می‌توان به WHO، کاربرد گیاهان دارویی و مواد خوراکی طبیعی در درمان بیماری های مختلف اشاره کرد. امر اینکه گیاهان دارویی در درمان بیماری های مختلف از جمله عفونت‌های انگلی، به اثبات رسیده است. در بین عفونت‌های انگلی، لیشمانیازیس یکی از بیماری‌های است که به علت ایجاد ضایعه‌های پوستی هم‌زمان مورد توجه محققین بوده و اثر عصاره‌های گیاهی مختلف در شرایط درون تنی و برون تنی، بر روی آن مورد بررسی قرار گرفته است.

لذا در مطالعه حاضر به بررسی گیاهان دارویی استفاده شده به عنوان ضد لیشمانیا در ایران پرداختیم.

مواد و روش‌ها:
در مطالعه حاضر، جمع‌آوری مطالب از طریق جستجوی کلید واژه لیشمانیا و گیاه در بانک های اطلاعاتی google, pubmed, SID, Iran Medex صورت گرفت.

نتایج:
نتایج بررسی ها نشان داد که داروهای گیاهی موثرترین و بیشترین تاثیر کشنده عصاره گیاهان در شرایط برون تنی به ترتیب مربوط به عصاره‌های گیاهی می‌باشند که توانسته‌اند در غلظت 100 میکروگرم در میلی لتر و هیدروکلکی چای که در غلظت 50 میلی‌گرم بر میلی لتر تأثیر مثبتی و 1/5 دقیقه و عصاره‌ای گیاهی اسکورولوئید را در غلظت 25 میلی‌گرم بر میلی‌لتر بود که پس از 72 ساعت باعث نابودی کامل مکروباژیان دومود در محیط کشت شد. در شرایط درون تنی بیشترین تأثیر کشنده عصاره گیاهان در مصرف پام داشت و عصاره‌کلکی 20ردصد زرشک به ترتیب با اثر درمانی 80% و 27% بوده است.

بحث و نتیجه‌گیری:
بیماری بالینی گیاهان دارویی در سراسر کشورها وجود دارد که خواص ضد انگلی دارند. لذا با مطالعات بیشتری، می‌توان خواص ضد انگلی آن‌ها را مورد بررسی قرار داد.
Prevalence of toxoplasma gondii in pregnant woman in iran.

*Ramin Hosseinzadeh¹, Mortaza janebifam², Ali sadigh³, mehdi mahmoodi ⁴,amir mohammadzadeh⁵
* raminhz44@gmail.com
1- BSc student of Laboratory Sciences, Sarab Faculty of Medical Sciences, Sarab, Iran
2- BSc student of Laboratory Sciences, Sarab Faculty of Medical Sciences, Sarab, Iran
3- BSc student of Laboratory Sciences, Sarab Faculty of Medical Sciences, Sarab, Iran
4- Student of medical emergency, Sarab Faculty of Medical Sciences, Sarab, Iran
5- BSc student of Laboratory Sciences, TabrizFaculty of Medical Sciences, Tabriz, Iran

Background: Infection with the Toxoplasma gondii (protozoan parasite) has a worldwide distribution(1). This intracellular parasite can infect human, and it is usually asymptomatic in healthy people, but it can cause severe diseases in immunosuppressive individuals and pregnant women (2,3).

Methods: Electronic databases (PubMed, GoogleScholar) and Persian language databases (Magiran, Scientific InformationDatabase [SID]) were searched.

Results: prevalence of toxoplasmosis in pregnant women in iran is 41%. The highest and the lowest seroprevalence of toxoplasmosis were observed in South 53% and East 33% respectively(4). A significant increase in overall prevalence by age was noted. Furthermore, the information shows that there are high seroprevalence in people who have direct contact with cats, in farmers and Housewife, consume uncooked mutton, and individuals who have a low level of education (3).

Conclusion: Educating the infection pathways to pregnant women can decrease the risk of infection. It is recommended to further study for propose of better disease management and developing more efficient diagnostic tests.
بررسی فراوانی تریکوموناس واژینالیس در افراد مراجعه کننده به مراکز بهداشتی درمانی دولتی و خصوصی در سطح شهر تهران در سال 95-96

فریبا اورج زاده، فاطمه طباطبایی، خدیجه خانعلیه، طاهر علمی، فاطمه طباطبایی، گروه انگل شناسی و قارچ شناسی، دانشگاه علوم پزشکی ایران، تهران - ایران

زمینه و هدف: تریکوموناس واژینالیس، یک عفونت انگلی منتقله از راه جنسی (STI)، است که با علایم بالینی همچون التهاب و قرمزی وازن، اوررتیت همراه است. میزان شیوع آن در جوامع مختلف متغیر است. عواملی چون روابط جنسی متعدد در انتقال و یا تشدید بیماری ایزد نیز نقش دارند. لذا در مطالعه حاضر به بررسی میزان فراوانی تریکوموناس واژینالیس در افراد مراجعه کننده به مراکز بهداشتی درمانی دولتی و خصوصی در سطح شهر تهران پرداختیم.

روش بررسی: نمونه برداری از زنانی که به مراکز بهداشتی درمانی و بیمارستان های خصوصی، بیمارستان حضور رسل اکرم و اکبرابادی به منظور معاینه مراجعه می‌کردند، صورت گرفت. نمونه‌ها یک بار بصورت مستقیم و یک بار بر روی پوسته کشت در محیط دو مورد بررسی گردیدند.

یافته‌ها: بررسی نتایج نشان داد از بین 200 نمونه جمع‌آوری شده تا دو مورد مثبت (آلودگی به تریکوموناس واژینالیس) تشخیص داده شد. نتایج حاصل از کشت و روش مستقیم داده‌های یکسان را به ما نشان دادند به علت تعداد نسخه‌های صورت گرفته. نمونه‌ها یک بار بصورت مستقیم، یک بار در محیط دو مورد بررسی گردیدند.

بحث و نتیجه‌گیری: نتایج حاصل از مطالعه حاضر نشان داد شیوع تریکوموناس واژینالیس در کشور ما پایین است و یک اکل پیشرفت در افرادی که شرایط جنسی متعدد دارند دیده می‌شود. آموزش به علوم مورد نیاز گردیده نشان‌دادن اکل فوق عواقب آلودگی به آن و راه‌های انتقال، می‌تواند فراوانی این تک بیماری را کاهش دهد.
ارتباط سطح سرمی تیروکسین آزاد (fT4) و هورمون محرکه تیروئید (TSH) با ایمونوگلوبولین IgG ضد تکسوپلاسما گوندی در زنان

مراجع: افکاتین، محمدتقی احمدی، هاشم یعقوبی

1- گروه زیستشناسی، دانشکده علوم پایه، واحد اردبیل، دانشگاه آزاد اسلامی، اردبیل، ایران

چکیده:
مقدمه: تکسوپلاسما گوندی انگلی اجباری درون سولوی است که در میزان های واسط از جمله انسان منجر به عفونت حاد و مزمن تکسوپلاسما یوزین می شود. این بیماری انتقالی در افراد دچار نقص سیستم ایمنی و در خانم‌های باردارتربیت می‌تواند منجر به مرح مبتلا و سقط جنین شود. هورمون می‌گذه تیروئید شامل تری‌دیتون‌ریون (T3) و تری‌دیتون‌ریون معکوس (T3RT) می‌باشد. این هورمون ها بر روی رشد و تمرکز اندام های بدن خصوصاً سیستم عصبی و متابولیسم کربوهیدرات ها، لیپیدهای و ویتامین‌ها تأثیری ندارند. از طرف دیگر هورمون TSH توسط سلول های هیپوفیز قادی‌می‌شود و در کنترل عملکرد تیروئید نقش محرکی دارد. هدف از انجام این پژوهش بررسی ارتباط سطح سرمی هورمون های TSH، fT4 با ایمونوگلوبولین IgG ضد تکسوپلاسما گوندی در زنان می‌باشد.

روش‌ها: 50 خانم مبتلا به عفونت مزمن تکسوپلاسما گوندی (گروه بیمار) و 50 خانم غیرمبتلا (گروه کنترل) برای تعیین سطح سرمی IgG ضد TSH انتخاب شدند (فروندیان لغایت شهربور 1396). اندازه‌گیری سطح سرمی IgG ضد TSH با روش ELISA گردید.

نتایج: در افراد مبتلا به تکسوپلاسما گوندی (گروه بیمار) سطح IgG ضد TSH با روش ELISA از افراد غیرمبتلا (گروه کنترل) برابر 7/10 ng/dl و 7/3 و 76/3 و 23/6/85/2 بود.

نتیجه‌گیری: میانگین سطح سرمی IgG ضد TSH، fT4 در بیماران مبتلا به تکسوپلاسما گوندی بالاتر از افراد غیرمبتلا می‌باشد و بین سطح تیروکسین آزاد سرمی (fT4) و سطح ایمونوگلوبولین IgG ضد تکسوپلاسما گوندی در زنان مبتلا به تکسوپلاسما گوندی ارتباط معنی‌داری وجود دارد (p<0.05)

کلمات کلیدی: تیروکسین آزاد سرمی (fT4)، هورمون محرکه تیروئید (TSH)، ایمونوگلوبولین IgG ضد تکسوپلاسما گوندی
The caspase-3 in experimentally infected mice with *Toxoplasma gondii* RH strain

Rajabi S\(^1\), Ahmadpour E\(^1,2\), Spotin A\(^1\), Mahami M\(^1\), Baradaran B\(^2\), Azadi Y\(^1\), Alizadeh P\(^1\)

\(^1\) Department of Parasitology and Mycology, Tabriz University of Medical Sciences, Tabriz, Iran.
\(^2\) Immunology Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

**Background:** *Toxoplasma gondii*, an intracellular parasite, is capable of regulating the host apoptosis process to escape the immune system. Caspase-3 plays a pivotal role in apoptosis induction. Hence, in this study the gene expression level of caspase-3 was determined using real time PCR in acute toxoplasmosis.

**Materials and Methods:** In this experimental study, 14 mice were used in case and control groups (n=7). Case and control groups were intraperitoneally injected with 1×10\(^6\) tachyzoites of *T. gondii* RH strain and phosphate buffered saline (PBS), respectively. All of the mice were euthanized three days after the injection and peritoneal cells were harvested. Then the total RNA was extracted and converted to cDNA. Finally the caspase-3 gene expression level was quantified by QPCR in case and control groups.

**Results:** In the mouse model of acute toxoplasmosis, the results showed that the gene expression level of caspase-3 in tachyzoite infected cells were significantly elevated compared with non-infected cells (control group) (\(P<0.05\)).

**Conclusion:** Our findings here highlight that the *T. gondii* tachyzoites may induce the initiation and propagation of apoptosis of infected cells.

**Keywords:** *Toxoplasma gondii*, Caspase-3, Apoptosis
بررسی شیوع عفونتهای انگلی روده ای در بیماران زیر 15 سال مبتلا به سرطان در مقایسه با افراد سالم مراجعه کننده به مرکز درمانی شهر یزد

آزاده تیمورزاده نینلب
کیرشنیس ارشد انگل شنیسب. گروه انگل شنیسب و قیرچ شنیسب دانشکده علوم پزشکی شهید صدوقی یزد

چکیده: هدف از انجام این مطالعه، تحقیق بر شیوع عفونتهای انگلی روده ای در بیماران زیر 15 سال مبتلا به سرطان رد مراجعه کننده به مرکز درمانی شهر یزد می‌باشد.

مواد و روش: تیمار افراد زیر 15 سال مبتلا به سرطان در گروه 1 (مورد) و افراد سالم در گروه 2(شاهد) بود. برای اندازه‌گیری آزمایشات انگلی‌ای‌شناسی از تیر تاریخ ۱۳۹۴ قرار گرفت.

یافته‌ها: شایعترین عفونت کلی بالا گروه 1 و گروه 2 برتبلیت دار و دومانیالا (۲/۶٪) و ۱/۴٪ بوده که تراکم دارای دستگاه بین دوگروه وجود دارد. در گروه 1 دارای این عفونت بایستی‌های بالا گروه‌ی زیر ژیر این ژیر است: زیرین (۳/۳٪)، انگلی‌های عفونته‌ای گروهی (۳/۳٪) گروهی (۳/۳٪) و دومانیال (۳/۳٪) عفونت توأم (۳۳٪).

نتیجه‌گیری: نتایج این مطالعه نشان می‌دهد که عفونت‌های انگلی در بیماران مبتلا به سرطان در ایران، تاکید دارد.

کلمات کلیدی: Intestinal Diseases, parasites, immunocompromised individual, Iran

Email: Teimourzadeh1509@gmail.com
The association of serum testosterone level and *Toxoplasma gondii* infection

نیما ضوئی
nima_zouei@hotmail.com

**Background:** Latent toxoplasmosis is known to influence the morphology, behavior and personality of infected persons but there are little information about the effect of toxoplasmosis on fertility in animals and human. The aim of present study was investigated a possible association between latent toxoplasmosis and testosterone concentration in the infected and non-infected individuals.

**Methods:** The study enrolled men and women who had no clinical complications, were 18–49 years old. Whole blood samples were collected and sera separated by centrifugation at room temperature. These sera were analyzed for detection of anti-*T. gondii* IgG antibody. Then, 76 positive sera were selected as case group (men: 38 cases and women: 38 cases) and the same number of negative sera as control. Finally the concentration of testosterone was determined using Electrochemiluminescence for the case and control samples.

**Result:** Comparison of testosterone concentration in case and control groups showed that testosterone concentration in case group was higher than control group and this difference was statistically significant for men (P = .024) and women (P = .043) groups. Furthermore, significant differences were seen in testosterone concentration and anti-*T. gondii* IgG antibody levels in case and control groups (P < 0.05).

**Conclusion:** Evidence exists that testosterone influences behavior and neural processes in young women and men and perhaps interferes with spermatogenesis in the human male. Therefore, the chronic toxoplasmosis could affect reproductive parameters in men.

**Key words:** *Toxoplasma gondii*, Testosterone, Electrochemiluminescence
PP-20

Frequency of Parasitic infection among immunodeficient patients in Tehran

Khadijeh Khanaliha1, Abdoulreza Esteghamati1, Shirin Sayahfar1, Farah Bokharai-Salim2,3, Hossein Masoumi-Asl1, Masoomeh Ghaderipour1

1 Research Center of Pediatric Infectious Diseases, Institute of Immunology and Infectious Diseases, Iran University of Medical Sciences, Tehran, IR Iran.
2 Departments of Virology, Iran University of Medical Sciences, Tehran, IR Iran.
3 HIV Laboratory of National Center, Deputy of Health, Iran University of Medical Sciences, Tehran, IR Iran.

Background: Intestinal parasitic infection in immunodeficient patients needs careful consideration in the developing countries. Opportunistic infections are cause of diarrhea in patients under some kind of immunosuppression drugs. The aim of this study is to evaluate the Frequency of intestinal parasites in immunocompromised patients referred to Rasoul-e-Akram Hospital, Iran University of Medical Sciences, Tehran, Iran.

Methods: In this cross sectional study, frequency of intestinal parasitic infection among 52 immunocompromised patients including 35 cancer patients and 17 organ transplant recipients were evaluated between June and November 2017. The wet mount smear with PBS was prepared and formalin ether concentration was done. The trichrome staining performed using stool samples conserved in PBS. The smears were stained by the modified Ziehl–Neelsen technique to identify coccidia and all slides were observed with microscope.

Result: In this study 52 immunocompromised patients aged between 25-59 years including 35 cancer group: colorectal cancers, liposarcoma and lymphoma and 17 organ transplant recipients consist of kidney, liver and heart transplant recipients were evaluated. In cancer patients 5/35 (14.3%) Blastocystis hominis and one Giardia Lamblia 1/35 (2.8%) and one Dientamoeba Fragilis 1/35 (2.8%) were found. In organ transplant recipients 3/17 (17.6%) cryptosporidium spp were only observed and all of positive cryptosporidium spp had diarrhea as clinical manifestation.

Conclusion: In general in present study among organ transplant recipients cryptosporidium spp infection was more important than cancer group so this should be considered by the physicians.

Keywords: Frequency, Intestinal Parasites, immunodeficient patients, Tehran
Assess the impact of mesenchymal stem cells on macrophage phagocytosis in models of cutaneous leishmaniasis

Sahar Hamoon Navard¹, Hossein Rezvan¹, Ali Reza Nourian¹, Mohamadreza Baghaban Eslaminejad²

1. Department of Pathobiology, School of Veterinary Science, Bu-Ali Sina University, Hamedan, Iran
2. Department of Stem Cell and Developmental, Cell Sciences Research Center, Royan Institute for Stem Cell Biology and Technology, ACECR, Tehran, Iran.

Introduction

Leishmania is an intracellular pathogen that affects dendritic cells and macrophages. The various clinical forms of this parasite include: visceral leishmaniasis (kala-azar), cutaneous (CL) and mucocutaneous lesions. This study was to evaluate macrophage phagocytosis CL models that have been treated with mesenchymal stem cells.

Materials and Methods

A total number of 60 female Balb/C mice aged 6 to 8 weeks old with weight average of 29-35g were purchased from pasteur institute (Tehran, Iran). Treatment group received MSCs (Intralesion 1×10⁶/100ul). Peritoneal macrophages were collected by aspiration cold physiology serum (with pen/strep 5%). Cells treated with NBT solution (1mg/ml) after incubation, optical absorbance of trial measured (450nm).

Result

The amount of phagocytosis in the MSC treatment group with a treatment duration of 30 days showed a significant increase compared to the control and standard treatment groups p<0.05.

Conclusion

Considering the key role of macrophage in the treatment of cutaneous leishmaniasis, increasing the amount of phagocytosis can be important following treatment with mesenchymal cells.

Key words

Cutaneous leishmaniasis, Mesenchymal stem cells, Phagocytosis
An overview on *Leishmania* diagnosis

Sahar Hamoon Navard¹, Hossein Rezvan¹, Ali Reza Nourian¹

Department of Pathobiology, School of Veterinary Science, Bu-Ali Sina University, Hamedan, Iran

**Abstract**

Leishmaniasis is now accounted as a health problem and categorized as a class I disease (emerging and uncontrolled) by World Health Organization (WHO), causing highly significant morbidity and mortality with different clinical presentations. The incidence of human leishmaniasis is increasing and its geographic distribution in humans and animals is shown to be wider than estimated before. Indeed, more than 350 million people are at risk of *Leishmania* infection, and about 1.6 million new cases occur causing more than 50 thousands death annually.

In recent years, there have been advances in diagnosis of *Leishmania* infection. However, the main challenge in *Leishmania* diagnosis is the lack of a gold standard test in order to establish an effective strategic program to control and eradicate the disease. Control of leishmaniasis is highly dependent to the early diagnosis and treatment of the disease. This review provides the latest information regarding the diagnosis of the disease, which is based on a combination of clinical features (supported by epidemiologic data) and laboratory tests including direct parasitological (microscopy, histopathology, and parasite culture), serological and molecular tests.

**Keywords:** Leishmaniasis, *Leishmania*, diagnosis
The Prevalence of intestinal protozoa in the Patients Referred to the Laboratories of Shahriar Hospital in Tabriz during 2015 to 2017

Hanieh Safarpour¹, Firooz Shahrivar¹, SepideMahmoudzadeh¹

¹) Department of parasitology, Tabriz university of Medical science

Background & objectives: Intestinal protozoa infection are among important health problems all over the world especially in developing countries as well Iran. Considering the epidemiological importance of parasitological diseases and necessity to evaluation the parasites prevalence in different areas and populations, current study aimed to determine the prevalence of intestinal protozoa infections in patients admitted to the laboratories of Shahriar hospital in Tabriz.

Methods: This cross-sectional study was performed in August 2015 to August 2017. Fecal samples were collected from the patients referred to the laboratories of Shahriar hospital. Stool specimens were examined for the presence of trophozoites, cysts, and oocysts using direct wet mount.

Results: In this study, three species of intestinal protozoa were identified. The predominant protozoa was Entamoeba histolytica/dispar. Overall, seven were infected with intestinal protozoa, in which, five had E. histolytica/E. dispar, one G. intestinalis, one T. hominis. Among the positive samples, three were male and four were female.

Conclusion: Findings of this study demonstrated that protozoan infection rate in urban areas of Iran is present. Thus, efficient control programs to decrease the prevalence and incidence of intestinal protozoa infection should be considered in public health politics.

Keywords: Prevalence, Intestinal protozoa, Tabriz, Iran
LB broth-lyophilized Rabbit anti-Sheep Cell Haemolysin as a simple culture medium for cultivation of *Leishmania major* promastigotes

Vahid Nasiri¹, Farnoosh Jameie², Habibollah Paykari¹, Gholamreza Karimi¹

¹Department of Parasitology, Razi Vaccine and Serum Research Institute, Agricultural Research, Education and Extension Organization (AREEEO), Karaj, Alborz, Iran. E-mail: v.nasiri@rvsri.ac.ir

²Parasitology and Entomology Department, Medical Sciences Faculty, Tarbiat Modares University, Tehran, Iran.

**Background and aims:** The protozoan parasites of the genus *Leishmania* are the causative agents of the various clinical diseases. Different methods of cultivation of Leishmanian parasites are available. In the present work, the efficacy of the LB broth with rabbit Lyophilized anti-Sheep RBC Haemolysin was evaluated in cultivation of promastigotes of *Leishmania major*.

**Material and methods:** Conventional LB broth medium was prepared and autoclaved for 15 min at 121 °C and then lyophilized Rabbit anti-Sheep Cell Haemolysin was added at the 1-10% final concentrations. The efficacy of medium was evaluated by assessing the growth ability and replication pattern of the promastigotes of *leishmania major*.

**Results and discussions:** According to our finding, this medium with 1% lyophilized Rabbit Haemolysin supported the growth of the parasites and can be used for cultivation of Leishmanian parasites with acceptable *In vivo* infectivity for research purpose. The ability of the parasites to survive and proliferating in the presence of lyophilized Rabbit Haemolysin indicating that this material a good nutritional source. This study opens a new way to make low-cost medium that could be used in cultivation of Leishmanian parasites.

**Keywords:** *Leishmania major*, lyophilized Rabbit anti-Sheep Cell Haemolysin, fetal calf serum.
Variations of serum concentration of proBNP marker by electrochemiluminescence methods in myocardial toxoplasmosis rodents with GRA6 positive gene using nested-PCR, Golestan province, northeast of IRAN

Background: Toxoplasma parasites that extracted from different rodents are same in immunologic and morphologic characteristics but have differences in pathogenicity and genotypes. In these rodents we found that the serum levels of proBNP marker also were in high levels. The aim of this study was the assessment of serum levels of proBNP in rodents with myocardial toxoplasmosis.

Materials and methods: in this study we collected 286 rodents extracted 250g heart tissues to obtain DNA of GRA6 gene and blood samples. We detected the positive samples by nested-PCR method. Then we examine serum levels of proBNP marker using ECL methods to assessment of myocardial toxoplasmosis in rodents. This study done on January to March 2017 and based on abundance study.

Results: in this study 68 samples of rodents were positive for GRA6 toxoplasma gene and these positive samples were in high levels for proBNP marker that indicated myocardial toxoplasmosis in these rodents.

Conclusion and discussion: In this study we found that the GRA6 gene was very useful gene to detect toxoplasmosis in these rodents from Golestan forest of IRAN also proBNP marker were in high levels in myocardial toxoplasmosis rodents.

Keywords: Toxoplasmosis, rodents, GRA6 gene, proBNP, nested-PCR
PP-29

Immune response of newborn BALB/C mice to Cryptosporidium infection

Nasser Ahmadian 1; Roghiyeh Pashaei-Asl2; Masomeh Ahmadi 3; Mohammad Rahmati-Yamchi 5; Saed Shahabi1, Hossein Vazini 4*

1 Department of Medical Parasitology, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2 Faculty of Advanced Biomedical Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
3 Department of Medical Parasitology, Tarbiat Modarres University, Tehran, Iran
4 Department of Nursing, Hamedan Branch, Islamic Azad University, Hamedan, Iran
5 Department of Clinical Biochemistry, Tabriz University of Medical Sciences, Tabriz, Iran

hossein_vazini@yahoo.com

Abstract

Cryptosporidium parvum is a protozoan parasite which causes diarrheal in human and animals worldwide. Infection transmission has reported through oral-fecal by infectious objects through foods and drinks. In this study we explored the immune response pathway in animal model for C. parvum to develop the new treatment way. Oocysts collected from fecal positive for C. parvum and diluted about 1:5 in sucrose solution. Newborn BALB/c mice (3 days) divided to 2 different groups. Control group hadn’t received any oocyst, the test groups received 5x10^5 oocysts. 5 mice selected for each control group and 11 mice chosen for each test group. Blood collected from heart bleeds in days of 6, 9, 12 and 16. Protein concentrations determined by bio-photometer. Dot blotting used to find out total antibody concentrations oocyst antigen. Among the test and the control groups, blots appeared in test group which means antibody production, but not any blot observed in the control groups. The non-characteristic proteins in serum were measured by the biophotometer. In this study, we investigated antibody serum production against C. parvum oocysts in new born BALB/c mice. The detected antibody through Dot Blot technique was our aims which had conjugated to our characteristic antiserum. The recorded numbers for the controls by biophotometer related to the non characteristic proteins in serum. The results of this study can used to produce polyclonal or monoclonal antibodies against cryptosporidiosis.

Keywords: Cryptosporidium parvum, BALB/c mice, Immune response
PP-30

Immunization of Lamb against *Echinococcus granulosus* with whole protoscolex tegumental surface antigens

Saber Raeghi¹, Manouchehr Valizadeh², Alireza Badirzadeh³, Mehrdad Rostami⁴

¹Department of Laboratory Sciences, Maragheh, University of Medical Sciences, Maragheh, Iran
²Department of Parasitology and Mycology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
³Department of Microbiology and Parasitology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran
⁴Student Research Committee, Maragheh University of Medical Sciences, Maragheh, Iran

**Corresponding author:** email: saberraeghi@gmail.com

**Background:** Cystic echinococcosis (CE) has potentially economic effects to both animal products and human health. A vaccine to protect livestock against CE can be effective in reducing economic costs and increasing the livestock products. Protoscolex tegumental surface antigen used to induce the production of specific antibodies against *Echinococcus granulosus* in sheep. The tegumental antigens were extracted from viable protoscolices by solubilization in sterile PBS containing decanoyl-N-methylglucamide.

**Materials and Methods:** Ten lambs which were infected with CE (positive control), ten negative control and ten test groups of sheep were included in the study. 300µg emulsion of purified-PSTSA was injected intramuscularly in a two-step immunization on the first and 30 days. Sera were collected immediately prior to immunization and 6 times with ten-day intervals until 60 days post immunization (DPI). Thereafter, the sera were tested for antibodies by IHA in microtiter plate.

**Results:** After two immunizations, all the infected animals in test group showed substantial increases in antibody titer. Statistical analysis showed a significant difference between the titer obtained in the test and negative control groups in both phases of immunization (P<0.05).

**Conclusion:** The results showed that the Protoscolex tegumental surface antigen is a promising immunogenic compound for immunization of sheep against CE.

**Keywords:** Immunization, Lamb, Protoscolex tegumental surface antigens, Cystic echinococcosis, Iran
Report of two disseminated and hyperinfection fatal strongyloidiasis cases

Nahid Jalallou¹, Ahmad Reza Meamar²

¹Assistant Prof., Department of Medical Laboratory Science, AJA University of Medical Sciences, Eatemadzadeh street, Fatemi avenue, Tehran, Iran.
²Professor of Parasitology, Department of Parasitology and Mycology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran.

Purpose: Strongyloides infection is usually asymptomatic in healthy individuals, but immunocompromised patients are subject to potential hyperinfection involvement. The aim of this study is presentation of two fatal strongyloidiasis cases.

Case presentation: Our patients were from northern Iran, which is endemic for Strongyloides stercoralis. The first patient was a 57-year-old man who had a history of corticosteroid therapy for treatment of pemphigus vulgaris. Disseminated infection was identified by the presence of abundant larvae in direct stool smears and gastric biopsy after assessment of clinical symptoms. The second patient was a 45-year-old man that had metastatic carcinoma and was hospitalized with complicated symptoms. The infection was diagnosed by detection of numerous first-stage larvae in wet mount stool smears and agar plate analysis.

Conclusion: Despite antiparasitic treatment both patients died while hospitalized. Therefore, screening for S. stercoralis is recommended before initiating immunosuppressive therapy, especially in inhabitants of endemic areas.

Key Words: Strongyloides stercoralis; Disseminated strongyloidiasis; Hyperinfection,
PP-32

Phylomolecular characterizations of isolated Fasciola spp. from naturally infected host, North West Iran

Zahra Jafarpour*¹, Mehrdad Rostami, Saber Raeghi*².
¹ Student Research Committee, Maragheh University of Medical Sciences, Maragheh, Iran
² Department of Laboratory Sciences, Maragheh University of Medical Sciences, Maragheh, Iran
*Corresponding Author:Iiamauserr@gmail.com

Background: Fascioliasis is economically important to the livestock industry that caused with Fasciola hepatica and Fasciola gigantica. These two species can be identified using nuclear and mitochondrial markers (ITS1, ND1 and CO1) and have been employed to analyze intraspecific phylogenetic relations of Fasciola spp.

Materials and Methods: The objective of this study is to characterize the Fasciola flukes from North West of Iran based on spermatogenetic status and PCR – RFLP method in ribosomal ITS1 and mitochondrial ND1 & CO1 sequences for phylogenetic analysis.

Results: Collecting One hundred and fifty Fasciola specimens, then stained with haematoxylin–carmine dye and observed under an optical microscope to examine for the existence of sperm. ITS1 marker was used to identify different Fasciola and phylogenetic analyses based on ND1 and CO1 sequence data were conducted by Maximum Likelihood algorithm.

Conclusion: Results show that both spermic and nonspermic Fasciola existed in the north west of Iran and F. hepatica found in this region of Iran is closely related to F. hepatica found throughout of Iran and Asian countries.

Key words: Fasciola spp., Iran, Spermatogenesis, ND1, CO1, cattle
Prevalence of intestinal parasites in patients referred to medical centers of Shahid Sadoughi University in Yazd in 2015-2016

Ghafourzade M¹, Seifati SM ²*, Zaker E²

¹. MSc of Parasitology, Medical Parasitology & Mycology Department, paramedical School Faculty, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
². Student of paramedical School Faculty, Shahid Sadoughi University of Medical Sciences, Yazd, Iran
*Corresponding author

Background: Intestinal parasitic infections are among the most common infections worldwide. Numerous survey performances in different areas of Iran have also showed the spread of intestinal parasites infections in different areas of the urban and rural. Of course, the prevalence of public health as well as improving significantly reduced in recent years.

Methods: In this cross-sectional study was used in medical centers of Shahid Sadoughi University collected 31000 stool samples in long two years was studied to direct smear and formalin-ether concentration.

Results: The results showed that Incidence was 3.8%. Protozoan Infection were Blastocystis.hominis (1.7%), Giardia.lambelia (1.4%), Chilomastix.mesnili (0.3%), Trichomonas.hominis (0.05%) and helminths in infections were Hymenolepis.nana (0.1%), Enterobius vermicularis (0.01%), Ascaris lumbricoides (0.004%). There was a significant difference in parasite prevalence between age. However, no significant difference was found with gender and residence.

Conclusion: Although parasitic infections have been abundant in different regions of Iran in the past recent years, the prevalence has shown reduction after performing screening Programs. Health officials should consider necessary plans to maintain and improve the implemented programs.

Keywords: Prevalence Intestinal parasites Yazd Iran
Demographic presentation of referred cystic echinococcosis patients to Imam Khomeini hospital in Ardabil city during 2013-2016.

Jaafar Noori

Department of Parasitology and Mycology, faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

Background:

*Echinococcus granulosus* is the causative helminthic agent of cystic echinococcosis (CE), an important neglected disease which is reported world widely in both humans and herbivores. CE is considered as major public health problem due to high incidence of hydatid cyst in Ardabil province. There have been few demographic studies reporting the situation of CE in this region. We assessed characteristics of CE patients who referred to Imam Khomeini hospital over a period of 3 years (2013-2016).

Materials and methods:

In this descriptive retrospective study, data were collected from the medical records of CE patients in the archive of mentioned hospital. Information of 82 CE patient such as age, gender, cyst site and location were investigated by using STATA statistical software (version 13.1.).

Result:

Average age of patients (39 [47.5%] males and 43 [52.4%] females) was 47. common localization organs were liver (74 cases) lung (4), spleen (2), abdomen (1) and peritoneum (1). Additionally, 75% of patients were from Ardabil, Bileh savar (5%), Meshginshahr, Khalkhal, Germi, Parsabad (2% for each) and other reigns (7%).

Conclusion: CE is a major public health problem in Ardabil province, so serious implementation of control and prevention programs is recommended.
پرسی شیوع انگل‌های روده ای در مراجعین به آزمایشگاه مرکزی شبه‌شهره‌های استان اردبیل طی سال‌های 91-94

جعفرنوری1، مهدی کرامت1

1. گروه انگل‌شناس و واریانش‌دانشکده پزشک‌شناسی دانشگاه علوم پزشکی اردبیل

مقدمه: نین می‌خواهد، روده ای نماینده نقش مهمی در رشد و کاهش مقاومت بهبود از انگل‌های روده ای را داشته باشد. تشخیص شیوع انگل‌های روده ای با توجه به سطح مخاطبین در جمعیت انسان، بسیار حائز اهمیت است. سلول‌های تحت‌مدت از این طریق، می‌توانند گذشت. هدف از این مطالعه، تعیین سطح انگل‌های روده ای در مراجعین به آزمایشگاه مرکزی شهرستان اردبیل و سال‌های 1391-1394 می‌باشد.

مواد و روش‌های آزمایش: نمونه‌هایی از مراجعین جمع‌آوری شده از نیروگاه‌های کمیک آموزش و پرستاری، سرزمین‌های درمانی و استان‌های اردبیل و تهران مورد آزمایش قرار گرفتند. نتایج: تعداد کل مراجعین از تاریخ 15/01/91 تا تاریخ 22/09/94 برای افزایش 29410، در سال 1394، 6753 نفر زن و 22657 نفر مرد بودند. یافته‌های این مطالعه نشان داد که سطح انگل‌های روده ای در مراجعین به آزمایشگاه مرکزی شهرستان اردبیل در سال‌های 1391-1394، در سطح مخاطبین جمعیت انسان، بسیار حائز اهمیت است. سلول‌های تحت‌مدت از این طریق، می‌توانند گذشت.

نتیجه‌گیری: نتایج این پژوهش نشان داد که چگونگی انتقال و انتقال و ورود به سطح و رشد در این افراد بیانگر نیازمندی جمعیت به اموزش بهداشت عمومی و بالا رفتن سطح بهداشت است.
PP-36

Risk Factors of Leishmaniosis in Patients Referring to Leishmaniosis Laboratory of Zeidi, Kashan, Iran

Khodabakhsh Sh1, Sehat M2, Arbabi M1, Nazeri M3, Sadeghi H1

1-Department of Medical Parasitology, School of Medicine, Kashan University of Medical Sciences, Kashan, Iran. Sh93.sweet@gmail.com
2-Department of Community Medicine, Kashan University of medical sciences, Kashan, Iran.
3-Medical Parasitology and Mycology Department, Kashan University of Medical Sciences, Kashan, IR Iran.

Background: Cutaneous Leishmaniosis is among the zoonosis and endemic prevalent parasite diseases in Iran with worldwide spread, which affects 15000 people yearly. Therefore, control and prevention seem essential, and current study evaluates the risk factors.

Materials and methods: This cross-sectional study was performed on 378 people, who were suspicious of Leishmaniosis and referred to Zeidi laboratory, during 2016-17. The results of clinical examination and tests were recorded along with the risk factors including age, gender, the number of injuries, injury region, disease history, season, and address in an information form. The data were analyzed by Mann-Whitney test, ANOVA and Chi-square statistical tests using the SPSS16.

Results: 276 people out of 378 referring patient (73%) were affected by Leishmaniosis, (55.1%) of whom were women, (50%) of the patients were of the age range of 14-28 years. Infection of men with urban and rural Leishmaniosis was as (45.4%) and (60.7%) respectively and demonstrates a significant relationship between the gender and Leishmaniosis type (P=0.018). The most common region was the hands. The highest and lowest prevalence was on autumn and spring with (45.7%) and (13.4%) respectively. Considering the residence place type, (68.3%) of the people were from urban areas.

Conclusion: The results of present study with confidence level of 95% are indicative of a significant relationship between Leishmaniosis and residence place, season and also Leishmaniosis type with gender, residence place, season, and injury region.

Key words: Cutaneous Leishmaniasis, Risk Factors, Kashan, Iran.
Seroprevalence of Toxoplasma specific IgG and IgM among Pregnant Women in Tabriz city, Northwest of Iran
Behroz Mahdavi Poor1,*, Nader Mohammad Zadeh2, Jalil Rashedi1, Mohammad Asgharzadeh1, Hossein Bannazadeh Baghi3, Mahdi Edalati1, Nazila Gheitarani4

1Department of Laboratory Sciences, Faculty of Paramedicine, Tabriz University of Medical Sciences, Tabriz, Iran.
2Central Medical Laboratory, Tabriz University of Medical Sciences, Tabriz, Iran.
3Department of Microbiology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran.
4Population and family health group, Health Chancellor, Tabriz University of Medical Sciences, Tabriz, Iran.

*Behroz Mahdavi Poor, Email: Behroz.mahdavi@gmail.com

Toxoplasma gondii is a common protozoan parasite with worldwide distribution. It causes the infection in human and other warm-blooded animals. In the case of primary infection in pregnant women, it can lead to serious complications and fetal death.

In this cross-sectional study, 2604 blood samples were collected from 15-49 year old pregnant women during 2014. The specific Toxoplasma IgM and IgG titers of all samples were measured by chemiluminescent immunoassay (CLIA) method. The correlation between age and the prevalence of the IgM and IgG was evaluated by the Chi-square test.

Among tested samples 761 (29.2%) were seropositive, 753 (28.9%) IgG positive, 36 (1.4%) IgM positive and 28 (1.1%) both IgG and IgM positive. The statistical analysis showed that there was a significant relationship between age and the positivity of IgG (p<0.001), whereas, there was no relationship between age and the positivity of IgM.

This study showed over two third of the studied women were seronegative and were susceptible to the acute infection, which may lead to the congenital toxoplasmosis. As the serologic screening tests of toxoplasmosis are not included in the prenatal care system in Iran, it is recommended to identify seronegative pregnant women who are at risk of acute infection and provide them with the necessary education about the possible transmission routes of the infection.

Keywords: Toxoplasma, Seroprevalence, Pregnant, Women, Iran.
Prevalence of IgG and IgM antibodies and associated risk factors for toxoplasmosis among blood donors in Kerman Province, Iran.

Pardis Bayat¹, Maryam Moslehi Baharanchi¹, Akram Sepahvand², Naser Zia-Ali³, Hossein Mahmoudvand²,*

1. Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran.
2. Department of Medical Laboratory Sciences, School of Allied Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran (dmahmodvand@gmail.com)
3. Research Center for Tropical and Infectious Diseases, Kerman University of Medical Sciences, Kerman, Iran

Background: This prospective cross-sectional study was aimed to evaluate the prevalence of IgM and IgG anti-Toxoplasma gondii antibodies and the associated risk factors among healthy blood donors in Kerman province, south-eastern Iran.

Methods: Structured questionnaires (before the donors gave blood) were used to obtain information on risk factors for infection. Totally, 500 serum samples from healthy blood donors of Kerman Blood Transfusion Organization (KBTO) at Kerman, Iran, were screened for IgG and IgM anti-T. gondii antibodies by enzyme-linked immunosorbent assay (ELISA) and Roche Elecsys Toxo IgM assay. Real-time PCR was used to detect DNA of T. gondii in the IgM-positive samples.

Results: Seroprevalence of IgG and IgM anti-T. gondii antibodies was 28.8% and 3.2%, respectively. In the multiple logistic regression, it could be observed that living in rural regions, having B blood type, being in contact with cats, consuming raw vegetables and raw milk/egg and doing agricultural activities were independent risk factors for Toxoplasma seropositivity. T. gondii DNA was also found in one (9.0%) of IgM-positive samples.

Conclusion: In this study, it was found that T. gondii infection was present among healthy blood donors in south-east of Iran. Therefore, it is suggested to design screening programs for preventing transfusion-transmitted toxoplasmosis.

Keywords: IgG; IgM; PCR; blood transfusion; toxoplasmosis
In vitro antileishmanial effects of methotrexate against sensitive and glucantime-resistant strains of *Leishmania tropica*

Maryam Moslehi Baharanchi¹, Pardis Bayat¹, Akram Sepahvand², Iraj Sharifi³, Hossein Mahmoudvand²,*

1. Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran.
2. Department of Medical Laboratory Sciences, School of Allied Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran (dmahmodvand@gmail.com)
3. Leishmaniasis Research, Kerman University of Medical Sciences, Kerman, Iran

**Background:** The present study aimed to evaluate the effect of methotrexate (MTX) alone and in combination with meglumine antimoniate (MA, glucantime) against sensitive and MA-resistant *Leishmania tropica* stages in vitro.

**Methods:** The effects of MTX alone and along with MA on promastigote and amastigote stages of sensitive (SS) and MA-resistant (RS) *L. tropica* strains have been evaluated using a colorimetric MTT assay and in a macrophage model, respectively.

**Results:** The findings of OD and IC₅₀ showed that MTX plus MA (SS: 16.1 µg/ml, RS: 39.8 µg/ml) had a higher anti-leishmanial effect than MA (SS: 52.2 µg/ml, RS: 170 µg/ml) or MTX alone (SS: 22.2 µg/ml, RS: 51.4 µg/ml) on promastigotes of both strains of *L. tropica*. The MTX plus MA caused a significant decrease (P<0.05) in the mean infection rate (MIR) and the mean number of amastigotes in each macrophage compared with positive control. Infectivity of promastigotes is significantly (P<0.05) reduced when it was preincubated with MTX.

**Conclusion:** This study indicated high potency and a synergistic effect of MTX on MA in inhibiting the growth rate of promastigote and amastigote stages of sensitive and glucantime-resistant *L. tropica*.

Keywords: Leishmania tropica; promastigote; amastigote; Resistance
Efficacy and safety of Bunium Persicum essential oil to Inactivate Echinococcus granulosus protoscoleces during hydatid cyst surgery.

Hossein Mahmoudvand 1,*, Maryam Moslehi Baharanchi 2, Pardis Bayat 2, Akram Sepahvand 1

1. Department of Medical Laboratory Sciences, School of Allied Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran (dmahmodvand@gmail.com)
2. Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran.

Background: This investigation aimed to evaluate the scolicidal effects of Bunium persicum (Boiss) essential oil against hydatid cysts protoscoleces and its toxicity in mice.

Methods: Protoscoleces were aseptically aspirated from sheep livers having hydatid cysts. Various concentrations of the essential oil (3.125-50 mcL/mL) were used for 5-30 min. The viability of protoscoleces was confirmed using the eosin exclusion test (0.1% eosin staining). Further, 48 male NMRI mice were used to determine the acute and sub-acute toxicity of B. persicum.

Results: The results revealed that the essential oil at the concentrations of 25 and 50 mcL/mL after 5 min of exposure killed 100% protoscoleces. The mean mortality rate of protoscoleces after 10 min of exposure to the concentration of 12.5 mcL/mL was 100%. Lower concentrations (6.25 and 3.125 mcL/mL) of essential oil, however, indicated delayed effects. The LD50 value of intra-peritoneal injection of the B. persicum essential oil was 1.96 mL/kg body wt. No significant difference (p > 0.05) was observed in the clinical chemistry and hematologic parameters after oral administrations of B. persicum essential oil at the doses 0.05, 0.1, 0.2, and 4 mL/kg for 14 d.

Conclusion: Our findings demonstrated the potent scolicidal activity of B. persicum with no significant toxicity; it might be used as a natural scolicidal agent in hydatid cyst surgery.

Keywords: Hydatid cyst; in vitro; protoscoleces; essential oil
A study on the biochemical factors in patients with liver hydatid cyst

Seyedehsara Bayesh¹, Gheisar H. Vazini ², Seyedsina Bayesh³, Rahmah Noordin⁴, Zohreh Kazemimoghadam⁵, Fatemeh Ghafrifar⁵

1. Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran
2. Islamic Azad University, Hamadan Branch, Hamadan, Iran
3. Islamic Azad University, North Tehran Branch, Tehran, Iran (presenter)
4. Institute for Research in Molecular Medicine (INFORMM), Universiti Sains Malaysia, 11800 Penang, Malaysia.
5. Department of Parasitology, School of Medical Sciences, Tarbiat Modarres University, Tehran, Iran

Corresponding author and presenter: Seyedsina Bayesh

Background: Hydatid cyst is an important world-wide disease; the incidence of outbreaks is increasing in some areas and can lead to life-threatening complications. The appropriate treatment of a hydatid cyst depends on an adequate diagnosis and a multidisciplinary assessment.

Aims: To evaluate biochemical factors of patients with liver hydatid cysts and compare them with patients with non-hydatid liver diseases and healthy controls.

Methods: In this study, we examined several biochemical factors of 86 patients with liver hydatid cysts who had been admitted from 2013 to 2016 to Emam Hospital, Tehran, Iran. They comprised 46 females and 40 males, and the ages ranged from 15 to 70 years old. In addition, a group of 34 patients affected by other liver diseases (non-hydatid patients) and 20 healthy people as the control groups were included in this study.

Results: Alanine aminotransferase (ALT) and aspartate aminotransferase (AST) in patients with liver hydatid cyst in comparison with healthy people were significantly increased and in comparison with non-hydatid patients were significantly decreased (p<0.05). Meanwhile the values for urea, calcium (Ca), creatinin, sodium (Na), potassium (K), prothrombin time (PT) and partial thromboplastin time (PTT) were not significantly different between patients with liver hydatid cyst and healthy group (p>0.05). Alkaline phosphatase (ALK) and bilirubin (Bil) were significantly decreased in patients with liver hydatid cyst in comparison with the non-hydatid patients (p<0.05) and there was no significant difference in comparison with healthy people (p>0.05). Both parameters were significantly increased in non-hydatid patients when compared with the healthy people (p<0.05).

Conclusions: This study showed that biochemical parameters such as ALT, AST, ALK and Bil are useful for early screening of liver hydatid cyst patients.

Key words: Liver; Cysts; Echinococcosis; Liver diseases
PP-42

The study eosinophilic in parasitic diseases

Seif AliMahdavi

Mazandaran University of Medical Sciences, Amol Faculty of Paramedical Sciences, Sari, Iran

Background and Purpose:

Eosinophilia often has significant role which can be suggesting parasite infection. This phenomenon is more noticed in worm parasites (Helminthes) than protozoa, specially if tissue invasion by parasite accures but the degree and severity differs from patient in fresh infection than chronic infection by may have associated to other factors like allergic diseases or other predisorders, as collagen diseases. The purpose of this study was to investigate the relation between eosinophilic and parasitic infection.

Methods:

In this study, ten percent of population from hill stations and villages of flate area of sari township with direct and flouting methods, intestinal parasites were examined. 539 patients were positive and 161 negative blood samples were collected from the fingertip and examined after fixation with methanol and staining with giemsa.

Results

From 700 people under investigation, blood film was prepared to study eosinophilia, out of these (N=539) cases wew positive and 161 cases were negative, of the 539 positive people 172 has eosinophilic (31.9%) and 367 people were non eosinophilic (68.1%) on the basis of chi-squers equation between eosinophilic and infection with intestinal parasite, there is meaningful reason on the other hand.

Conclusion

The parasitic infection can be one of the reasons of eosinophilic (P<5%). From the studied intestinal parasite the highest rate of eosinophilia (31%-40%) belonged to trichostrongylus but the highest average (70.3%) also the personal eith mixed infection of ascaris plus trichocephal showed more eosinophilia.Eosinophilia can be one of the important diagnostic factors in parasitic infections especially worms. When the worms are immature and have no ability to spawn and Parasitic experiments not possible.

Key words: Eosinophilia, intestina parasites, worms
Investigation of parasitic infections among patients referred to the Bostanabad Central Hospital, East Azerbaijan

Sirous Mehrani Moghaddam1,2*, Arash Fatollahi1,3

1Department of Medical parasitology and Mycology, School of Medicine, Tabriz University of Medical Sciences, Tabriz, East Azerbaijan, Iran
2Student research committee, Tabriz University of Medical Sciences, Tabriz, Iran
3Bostanabad lab of central hospital, Tabriz University of Medical Sciences

Background/Aim: Parasitic diseases are the most common infectious diseases and one of the major health problems in developing countries. These diseases have different prevalence in Iran. Due to no available data on prevalence of parasites contamination among infected people of Bostanabad, we aimed to determine the prevalence of intestinal parasitic infections in during the March to December 2017.

Materials and methods: This descriptive - cross sectional study was carried out on 671 individuals who were evaluated in Bostanabad Central Hospital. During this study, patients were examined by using fecal samples, direct method, wet mount and Scotch test.

Results: In our study 671 patients were attended, 361 (53.8%) men and 310 (46.2%) women. The prevalence of parasites based on recorded data are showing B. hominis 445 (66.3%), Giardia 70 (10.4%), Entamoeba coli 66 (9.8%), Entamoeba histolytica/dispar 44 (6.5%) and Enterobius vermicularis 45 (6.7%); meanwhile, only one infection by Taenia saginata (0.15%) was detected in this group.

Conclusion: Findings of this study show that E. histolytica/dispar and Giardia have the lowest and highest prevalence, respectively. There was no statistical difference between girls and boys regarding the prevalence of pathologic and non-pathologic intestinal parasites. Therefore, more sanitary controls are required and increasing of education will play a crucial role in improving the health of these people.

Keywords: Prevalence, Parasitic infections, Intestinal parasites, Bostanabad.
PP-44

Subtype identification of Blastocystis isolated from humans in Maragheh, North-West of Iran

Lida Panaheian¹, Zahra Jafarpour¹, Mehrdad Rostami¹, Saber Reaghi

¹ Student Research Committee, Maragheh University of Medical Sciences, Maragheh, Iran
² Department of Laboratory Sciences, Maragheh University of Medical Sciences, Maragheh, Iran

*Corresponding Author: email: www.linda.lp7317@gmail.com

Background: Blastocystis sp. is a common parasite of humans and a vast variety of non-human hosts and with a more or less global distribution. In this research, subtypes of Blastocystis sp. in individuals referred to the medical laboratories in Maragheh city, North-West of Iran from Mars 2016 to Mars 2017 were studied.

Materials and Methods: A total of 200 stool samples were collected and examined using direct wet mount, formalin-ether concentration, and culture in Xenic HSre + S medium. Subtypes of positive Blastocystis sp. were obtained by using barcoding method.

Results: 120 (60%) of the referred individuals were male and 80 (40%) were female. Blastocystis sp. was observed in 36/200 (18%) of the studied people. Co-infections with another intestinal parasites were found in 7 cases (3.5%). Subtypes 1, ST2 and ST3 detected in this samples.

Conclusion: Blastocystis sp. was quite common in the study population. The subtype distribution identified in the present study was largely identical to that identified in other studies of Iran with the most common ones being ST1, ST2, and ST3.

Key words: Blastocystis sp., Iran, Subtype, Maragheh
Latest findings in *Leishmania* treatment

Ehsan mohseni\(^1\), Mohammad ghasemi\(^1\), Rezvan dalvand\(^1\), Farshad Hushyar\(^1\), Sahar Hamoon Navard\(^1\), Hossein Rezvan\(^1\)

1. Department of Pathobiology, School of Veterinary Science, Bu-Ali Sina University, Hamedan, Iran

*Leishmania*, which is a zoonotic disease, can be found in various areas in the world such as Iran. This disease exposes itself with symptoms such as skin lesions, visceral and mucocutaneous. Pentavalent antimonials are still the first choice among drugs used for the treatment of leishmaniasis. Alternatively, amphotericin B, pentamidine, miltefosine and paromomycin can be used. Regarding the complications of standard cutaneous leishmaniasis drugs, in recent years, various therapeutic approaches have been under investigation. In these cases, can be noted: as well as recent advances from research on plants and synthetic compounds as source drugs for treating the disease. Researches conducted on these plants have shown that garlic, shallots, wormwood, yarrow, walnuts, thyme, henna plant, mimosa, aloe, wood betony, medlar, periwinkle, yeah, savory, black beans, etc. are effective on cutaneous *leishmania*. New strategies for immunological treatment include using of either IL-12 or anti-TGF-b therapy on the immune response and course of disease in chronically infected CB6F1 mice. Local treatment with IL-12 inoculated into the parasitized lesion at 4 wk of infection induced a marked increase in IFN-\(\gamma\) production but did not result in a significant reduction in numbers of parasite or promote more rapid healing. However, local treatment with an Ab to TGF-b led to both a decrease in parasite numbers and more rapid healing, despite the fact that such treatment did not significantly alter the pattern of IL-4 and IFN-\(\gamma\) production. However, given the importance of this disease; this complication requires more investigation.

**Keywords**

Leishmaniasis, *leishmania*, treatment
Multilocus sequence typing and genetic structure of *Fasciola* isolates from livestock in Kermanshah, Iran

Arezoo Bozorgomid¹, Naser Nazari², Eshrat Beigom Kia³, Homa Hajjaran³, Medi Mohebali³, Mojgan Aryaeipour³, Peiman Heidarian³, Mohamad Bagher Rokni³

¹- Department of Microbiology, Asadabad School of Medical Sciences, Asadabad, Iran
²- Department of Medical Parasitology and Mycology, School of Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran
³- Department of Medical Parasitology and Mycology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

**Background:** Fasciolosis is a parasitic disease caused by liver fluke species of the genus *Fasciola*, *Fasciola hepatica* and *Fasciola gigantica*. There is limited information about the diversity of the genus *Fasciola* in Iran. Implementation of molecular strategies for parasite typing, particularly multilocus sequence typing (MLST) represents an improved approach for genetic variability and population dynamics analyses. For the first time, we introduce a Multilocus Sequence Typing (MLST) method to genetically characterize *Fasciola* species.

**Methods:** Thirty-four *Fasciola* species isolated from livestock and from Kermanshah province were characterized using MLST approach. DNA fragments (500-800 bp) from 5 housekeeping genes were sequenced. A MLST analysis was developed based on the genes Cyt b, ND1, HSP 70, Pold, Pepck. Phylogeny analysis was conducted both on concatenated MLST loci and on each individual locus.

**Results:** A total of 3154 bp were analyzed for each isolate. In all, 52 and 72 polymorphic sites were identified for *Fasciola hepatica* and *Fasciola gigantica*, respectively. The neutrality hypothesis could not be rejected. The overall MLST scheme exhibited a high level of discrimination (Simpson Index = 0.9929) for *Fasciola hepatica* and *Fasciola gigantica*.

**Conclusions:** We suggest that MLST will have a strong impact on molecular epidemiological studies of fasciolosis disease and the phylogenetics of its causative agent.

**Key words:** *Fasciola*, genotyping, livestock, MLST, Iran
**PP-47**

**The gene expression of JBP2 in antimony resistance and susceptible Leishmaniamajor isolates**

Salman Ahmadian\(^1\^2\), Gilda Eslami\(^1\^2\), Saeede Sadat Hosseini\(^1\), Ali Fatahi\(^2\)

\(^1\)Research Center for Food Hygiene and Safety, ShahidSadoughi University of Medical Sciences, Yazd

\(^2\)Department of Parasitology and Mycology, Faculty of Medicine, ShahidSadoughi University of Medical Sciences, Yazd

**Introduction and Objectives**: In recent years, it has been observed in some parts of Iran that people with cutaneous leishmaniasis have shown resistance to the first line therapy, the antimony compounds. So far, the cause and mechanism of this drug resistance has not been identified, but research is under way to find out the cause of this drug resistance. Researchers now believe that several genes play a role in this mechanism, including the JBP2 gene. In this study, we aimed to compare the expression of JBP2 gene in resistant strains of cutaneous leishmaniasis and compare it with treatment-sensitive strains.

**Materials and Methods**: The samples studied in this study were isolated clinical specimens isolated from patients with resistant to cutaneous leishmaniasis referred to Golestan Hospital in Iran. It should be noted that the consent form was completed by the patients before the beginning of the study and the sampling. After preparation of samples, the expression and evaluation of JBP2 gene expression in resistant and susceptible strains of antimony compounds was investigated using SYBR Green Real Time PCR method.

**Results**: After analyzing the results of the experiment, it was observed that JBP2 gene expression was more resistant to treatment with antimony compounds than those susceptible to treatment.

**Conclusion**: Based on the results of this study, one of the mechanisms of resistance of some leishmaniasis strains against antimony compounds is the change in the expression level of some genes, including the JBP2 gene.

**Key words**: Antimonial drugs; JBP2; Drug resistance; Cutaneous leishmaniasis

Yaghob Azadi*1, Bahram Niknafs2, Hasan Didarloo1

1. Department of Parasitology and Mycology, Tabriz University of Medical Sciences, Tabriz, Iran
2. Kidney Research Center, Tabriz University of Medical Sciences, Tabriz, Iran

Background: Trichomoniasis is an infectious disease caused by the *Trichomonas vaginalis*. This protozoan infection in the urinary tract and lower genital system in men and women. This infection is generally asymptomatic in males, and males are thought to be a carrier for the transmission of infection. In this study, our aim was detection trichomoniasis using polymerase chain reaction (PCR) among were referred to a hospital with prostatitis men.

Methods: Urine samples were collected from 68 male patients between 20 to 50 ages, who were referred with suspected urinary system infection to the Urology Outpatient Clinic at Tabriz Valiasr Hospital, between April to September 2017. Direct microscopy and PCR were performed for the investigation of *T. vaginalis* in urine samples.

Results: *T. vaginalis* infection was detected in 11 (16.1%) objects were positive by direct microscopic. These samples were also examined by PCR method, and all cases were positive. Statistical significance was found between prostatitis and PCR positivity for *T. vaginalis*.

Conclusion: According to this study, PCR is one of the most sensitive methods for diagnosis of trichomoniasis in patient male. The diagnosis of *T. vaginalis* infection by PCR is a specific and sensitive method that could be incorporated into a joint strategy for the screening of multiple sexually transmitted disease by using molecular methods. Moreover in cure of sexual disease must be considered *T. vaginalis*.

Keywords: *Trichomonas vaginalis*, Prostatitis, Direct microscopy, PCR
Detection of *Trichomonas vaginalis* among Pregnant Women by PCR method.

Saba Rajabi*, Paria Alizadeh, Hasan Didarloo, Mahnaz Ordibazar, Elnaz Dadashpour

1. Department of parasitology and mycology, Tabriz University of medical sciences. Tabriz. Iran
2. Tabriz Valiaasr Hospital. Tabriz University of medical sciences
3. The Laboratory of Pathology, Tabriz Valiasr Hospital

**Background:** Infection with *Trichomonas vaginalis* is one of the most common sexually transmitted diseases in human beings. This parasite has been identified as a risk factor of HIV transmission and cervical cancer. DNA amplification techniques have become widely used for the diagnosis of sexually transmitted infections. For the detection of *T. vaginalis*, PCR techniques are not yet widely used. The aim of this study was to determine the prevalence of *T. vaginalis* using PCR method.

**Methods:** Self-collected specimens were obtained from symptomatic and asymptomatic among pregnant women Referred to the Tabriz Valiasr Hospital, Iran. Two vaginal specimens were collected, the first one was processed for microscopic examination and the second was processed for PCR analysis. The total, 54 infections were detected by wet mount microscopy, respectively. PCR was positive for 48 samples.

**Results:** Among studied women, the results showed that 17 cases were positive to *T. vaginalis* infection (2.7%). Also, 508 of the participant (81.8%) showed at least one of trichomoniasis symptoms. The least and highest rate of infection was seen in under 20 years and 28-36 years old groups, respectively. Results were analyzed with the chi-square test by using SPSS statistical software, version 16.

**Conclusion:** The prevalence of trichomoniasis was low in the present study. Since trichomoniasis clinical symptoms are similar to other sexually transmitted diseases, laboratory diagnosis is important and necessary. PCR detection of infection has been demonstrated to be highly specific and sensitive, but its availability and cost effectiveness are in question. Thus, PCR could provide an alternative for laboratory diagnosis of trichomoniasis by culture.

**Keywords:** *Trichomonas vaginalis*, PCR, Prevalence, Tabriz
Comparison of antimalarial activity of *Artemisia fragrance* herbal extract with chloroquine current drugs 

*in vivo*

Najm Mehdi

Ramtine Hadighi
[rhadighi@gmail.com]

Alichsan Heydari
[aliehsan2001@yahoo.com]

Saeed Bahadory

**Background:** Investigations were showed that various species on Iranian *Artemisia* genus plants are effective in treatment malaria. The aim of this study was to evaluate the antimalarial effects of *Artemisia fragrance* against *Plasmodium berghei* in comparision with chloroquine current drug *in vivo.

**Material and method:** In this study, the aerial parts of *A. fragrance* were collected. Then were air-dried at room temperature and powdered. The toxicity of herbal extract was assessed on naïve Balb/c mice with high and low doses. Finally, Drug vehicle and (25mg/kg and 75mg/kg) several concentrations of herbal extract was injected (IP) into control and test groups respectively. Parasitaemia was determined using blood smears stained with Geimsa stain from mice. The significance of differences was determined by SPSS and T-test software.

**Result:** The results of this assessment showed that no toxicity even by high concentration of herbal extract. Also the most effective concentrations to be 75mg/kg concentration of *A. fragrance* alcoholic extract, causing a significant reduction of parasitemia in the infected mice on day 7 (p<0.05). Chloroquine drug in reduction of parasitemia was more effective than different concentrations of *A. fragrance*.

**Conclusion:** The findings of this study indicate the potential effect of the alcoholic extract of *A. fragrance* on *Plasmodium berghei*. However, it seems that its potent anti-malarial effect might be due to the presence of terpenoid components.

**Key word:** *A. fragrance- Plasmodium berghei- chloroquine-Malaria*
Survey of Head Lice Infestation, Scorpionism and Dermal Leishmaniasis in Southwestern Iran

School of Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background and aims: Scorpion sting, Cutaneous leishmaniasis and Pediculosis capitis are three of the most important health problems in Iran. This investigation aimed to study epidemiologic features of scorpion stings, patients with cutaneous leishmaniasis and pediculosis capitis cases in Bandar - Mahshahr County, Southwestern Iran, during 2008-2009.

Methods: A descriptive study was conducted on the referred individuals with stung scorpions, pediculosis capitis and cutaneous leishmaniasis attending health centers from Bandar-Mahshahr County in 2008. The patients' medical records with epidemiologic and demographic data were collected. Using SPSS, we have attempted to summarize statistics, namely frequencies and percentages.

Results: A total of 135 scorpion stings patients were studied. Of these, 34.8% were female and 65.2% male. Most of the Scorpion stings were recorded in the 21-30 year age group (37.8%). A total of 82 cases of cutaneous leishmaniasis were studied in this assignment that all cases have been reported from urban health centers. Considering number of wounds on the body the maximum of the patients (37.6%) had only one lesion. In this study, 12 referred patients from the health centers were studied for pediculosis capitis. According to obtained information one of the patients was male and 11 patients were female.

Conclusions: Some important measures, such as education, health promotion and public participation should be implemented for preventing of these diseases.

Keywords: Epidemiology, Scorpion Sting, Cutaneous Leishmaniasis, Pediculosis Capitis, Iran
Pediculosis capitis in Khorram-shahr, Southwestern Iran

Hamid Kassiri, Fahimeh Moeininejad
Health Faculty, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background and Objective: Pediculosis capitis is a continuous common health problem worldwide. Pediculus capitis distribute quickly in overcrowded regions. The goal of the present research was to determine some epidemiological features of head lice infestation in Khorram-shahr County, southwestern Iran. Materials and Methods: This descriptive cross-sectional study was conducted on the patients with head lice infestation who referred to the Khorram-shahr Health Center during 2006 to 2009. The gold standard in the diagnosis of infestation was the detection of living nymphs, adults and/or nits on the scalp and hair. After the visual inspections with using a lens and the aid of an ordinary comb, cases were asked to complete a questionnaire with some questions about demographic and epidemiologic features. The collected information was evaluated using the SPSS software, version 11.5. Results: Totally 1091 cases were infested with pediculosis capitis. The overall prevalence of head lice infestation during this four year period was 0.73%. Females were significantly more infested (87.2%) than males (12.8%). Pediculosis capitis infestations were highest (46.2%) in persons aged 6-10 and lowest in persons aged less than six (6.4%). The majority of cases lived in the rural areas. The percentage of infestation in rural and urban patients was 59.2% and 40.8%, respectively. Nearly 11.8% of the patients with head lice had a history of infestation. Most of the cases were found in autumn (35.8%). Conclusion: Females were more frequently infested with Pediculus capitis than males. It can also be concluded that head lice infestation is not highly prevalent in Khorram-shahr County.

Keywords: Pediculus capitis; Epidemiology; Morbidity; Iran.
Genotyping of Environmental Isolates of *Acanthamoeba* in Hamadan city, 2015-2016

Maryam Khedri, Mohammad Fallah, Masoud Saidijam, Mohammad Matini, Amir Hossein Maghsood

**Introduction:**
*Acanthamoeba*, as the most widespread opportunistic free-living amoeba in the world, can cause life-threatening diseases in immunocompromised patients, and blinding amoebic keratitis in people using contact lenses. The aim of this study was molecular identification of environmental and clinical (ocular) isolates of *Acanthamoeba* in Hamadan during 2015-2016.

**Materials and methods:**
A total of 104 environmental (water, soil, and dust) and 16 corneal scraping samples were cultured on non-nutrient agar medium and isolated amoeba used for DNA extraction with Chelex 100 Sodium (SIGMA, USA). Then in a PCR assay, the fragment of 423-551 bp *Acanthamoeba*-specific amplifier S1 within the 18S rRNA gene was amplified using genus-specific primers (JDP1 & JDP2). For sequencing, primer 892c was utilized, which identifies the DF3 (Diagnostic Fragment 3) from *Acanthamoeba* ASA S1. The nucleotide sequences of the isolates were compared to sequences in the Genbank database and their genotypes were determined using BLAST software.

**Findings:**
*Acanthamoeba* contamination rates in water, soil, and dust samples were 87.5%, 53.1%, and 25%, respectively. From total of 30 dust samples from eight wards of three hospitals, 7 (23.3%) were found to be contaminated with *Acanthamoeba*. But, *Acanthamoeba* was seen in none of the examined corneal scraping samples. Sequencing results revealed that the isolated *Acanthamoeba* strains belonged to T4, T2, and T2/T6, in which T4 genotype was the most prevalent (96.3%) and T2 and T2/T6 were the least prevalent (1.9%). All water samples were contaminated with T4 genotype and a mixed contamination with T4 and T2/T6 was 3.7%. Also, soil samples yielded 94.1% contamination rate with T4 genotype and 5.9% with T2 genotype. Most (90%) of dust samples contained T4 genotype, and the rest (10%) containing T2/T6 genotype.

**Conclusion:**
The widespread occurrence of this opportunistic amoeba in different hospital wards and environmental resources of the region highlights a clear need for increased awareness regarding this ubiquitous amoeba among susceptible individuals, such as immunocompromised patients.

**Keywords:** *Acanthamoeba*, Corneal scraping, Dust, Genotype, Soil, Water
A Faunistic Study on Scorpions and the Epidemiology of Scorpionism in Bam, Southeast of Iran

Mansour Nazari, Mohsen Hajizadeh
Department of Medical Entomology, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran.

Background: Scorpions are arthropods of medical importance which are classified in Arachnida and commonly found in hot and dry environments. Notably, no extensive study has been conducted in Bam County in relation to research involving scorpions.

Methods: The study was piloted from May to November 2013 in the identification of scorpion fauna and epidemiological survey of scorpions sting cases were completed from April 2008 to March 2012. Scorpion specimens were collected at night using UV light.

Results: During the study, 390 scorpions were captured from different areas. The samples were identified and categorized; four identified genus and species belonged to the family Buthidea, namely Mesobuthus eupeus (73.1%), Orthochirus zagrosensis (23.8%), Androctonus crassicauda (1.8%) and Compsobuthus kaftani (1.3%). Accordingly, 512 patients were bitten by scorpion; 56% were male and 44% were female. This study revealed that the highest incidence of scorpion sting cases belonged to the 15-24 age group. The highest rate of scorpion stings cases were recorded in summer. With regards to the place of residence, 269 (52.5%) resided in rural districts and 243 (47.5%) abided in urban settings.

Conclusions: It is highly recommended that it is crucial to evaluate the possible relationship between all the stung patients and dangerous species specific to that region.

Keywords: Scorpion, Scorpion sting, Epidemiology, Faunistic
Study of cytotoxic effect of recombinant Listriolysin o on promastigotes of *Leishmania major* in vitro

- Farzaneh mirzaei

□ Hossein khanahmad (Assistant professor)  
[khanahmad@yahoo.com]

□ Mohammad Ali Mohaghegh (Assistant professor)  
[Mohaghegh.Ali@yahoo.com]

□ vahid raissi (student)

Abstract:
This study was designed to evaluate the effectiveness of different concentrations of recombinant listeriolisin O belonging to the cholesterol-dependent cytolysins (CDCs) family, against Iranian strain of *Leishmania major* (MRHO/IR/75/ER) in vitro for the first time. We expressed the *hlyA* gene (encoding Listeriolysin O) in *Escherichia coli* and purified the recombinant LLO by chromatographic Ni–NTA column. Then Promastigotes were subjected to different concentrations (25, 50, 100, 200, and 400 μg/ml) of the active purified protein LLO. After one hour of incubation at 37 °C, the promastigotes detached from each tube and the final number of viable parasites (with 0.4% trypan blue considered as viable ones) counted with a hemocytometer. The results indicated no effect of LLO on *L. major* promastigote in compression with negative control (*P* values > 0.05). Forasmuch as low levels of cholesterol in the promastigotes that take it up from the surrounding medium (*Leishmania* promastigotes do not synthesize cholesterol), LLO has failed to connect to promastigotes level and thus not to be able to cause cell death. So for evaluated anti-leishmanial activity of LLO, the test should be done in animal models *in vivo* or amastigote form of the parasite in macrophage because *Leishmania* sp. amastigotes are cholesterol derived from the host macrophage.

**Keywords:** *Leishmaniasis, L. major; Listriolysin O, Promastigote, Amastigote, In vitro.*
A study on the biochemical factors in patients with liver hydatid cyst

Seyedehsara Bayesh¹, Gheisar H. Vazini ², Seyedsina Bayesh³*, Rahmah Noordin⁴, Zohreh Kazemi Moghadam⁵, Fatemeh Ghaffarifar⁵

1. Tehran Medical Sciences Branch, Islamic Azad University, Tehran, Iran
2. Islamic Azad University, Hamadan Branch, Hamadan, Iran
3. Islamic Azad University, North Tehran Branch, Tehran, Iran
4. Institute for Research in Molecular Medicine (INFORMM), Universiti Sains Malaysia, 11800 Penang, Malaysia.
5. Department of Parasitology, School of Medical Sciences, Tarbiat Modarres University, Tehran, Iran

Corresponding author and presenter: Seyedsina Bayesh

Background: Hydatid cyst is an important world-wide disease; the incidence of outbreaks is increasing in some areas and can lead to life-threatening complications. The appropriate treatment of a hydatid cyst depends on an adequate diagnosis and a multidisciplinary assessment. We aimed to evaluate biochemical factors of patients with liver hydatid cysts and compare them with patients with non-hydatid liver diseases and healthy controls.

Methods: In this study, we examined several biochemical factors of 86 patients with liver hydatid cysts who had been admitted from 2013 to 2016 to Emam Hospital, Tehran, Iran. They comprised 46 females and 40 males, and the ages ranged from 15 to 70 years old. In addition, a group of 34 patients affected by other liver diseases (non-hydatid patients) and 20 healthy people as the control groups were included in this study.

Results: Alanine aminotransferase (ALT) and aspartate aminotransferase (AST) in patients with liver hydatid cyst in comparison with healthy people were significantly increased and in comparison with non-hydatid patients were significantly decreased (p<0.05). Meanwhile the values for urea, calcium (Ca), creatinin, sodium (Na), potassium (K), prothrombin time (PT) and partial thromboplastin time (PTT) were not significantly different between patients with liver hydatid cyst and healthy group (p>0.05). Alkaline phosphatase (ALK) and bilirubin (Bil) were significantly decreased in patients with liver hydatid cyst in comparison with the non-hydatid patients (p<0.05) and there was no significant difference in comparison with healthy people (p>0.05). Both parameters were significantly increased in non-hydatid patients when compared with the healthy people (p<0.05).

Conclusion: This study showed that biochemical parameters such as ALT, AST, ALK and Bilare useful for early screening of liver hydatid cyst patients.

Key words: Liver; Cysts; Echinococcosis; Liver diseases
Biochemical findings in 150 cases of malaria patient

سیدحسین مجابی
s_hosseinmojsbi@yahoo.com

Malaria, has been a great complication for men and affected millions of peoples all around the world and in some instances killed them. It is a health problem and takes most economic and social powers of nations. Our country is also afflicted by this problem and we have some endemic regions specially in south and south-east area. Due to improvements in health well fare in Iran. The infectious disease is specially seen in foreign emigrants. In this study we compare biochemical findings in 150 patients (Test group) that their disease confirmed by microscopic examination of peripheral blood smear. 150 samples were tested as a control.

1) Hypoglycemia were seen in 30% of patients. In this group the level of blood glucose decreased under 45 mg/dl and even in a patient afflicted by P. falciparum it reached near 30 mg/dl. It is concluded that defect in gluconeogenesis pathway and hyperinsulinemia due to kinine rise in plasma plays a role also glucose intake by the parasite could be interacted.

2) In 7% of cases disturbances in water and electrolytes were observed. Serum Na⁺ level decreased in this group but K⁺ level increased.

3) In 2.5% of patients G6P.D deficiency were detected.

4) Uremia with B.U.N level up to 39 mg/dl were seen in 22% of afflicted cases.

5) Serum transaminases levels increased in 38% of patients. It varies with parasite species.

6) Serum creatinin and uric acid level had no significant changes in comparison with normal group but uric acid level varies slightly more.

7) Serum thyroxin (T4) level decreased in 1% of test group. Intristingly TSH level suppressed in these cases. It supposed that pituitary glands are involved in this disease.

8) Hyperbilirubinemia up to 4 mg/dl in conjunction with jaundice were observed in 20% of patients.

9) Serum calcium (Ca++) and phosphorus (P−) had no changes.

10) Also triglyceride and cholesterol level in plasma had no changes.

On findings tests Hypoglycemia and Hypo Na⁺ are very important. We hope that this study can improve the clinical conditions of the afflicted patients.

Key words: Biochemical- malaria
Comparison between mountain peppermint and combination of Albendazole and Praziquantel tablets in the treatment of hydatid cyst in dogs

1-Saeed Samaeinasab
2-Sulmaz Tarakameh Samani
1-Young Researchers And Elite club, Sabzevar Branch Islamic Azad University, Sabzevar, Iran
2-D.V.S.C in small animal internal medicine, Faculty of Veterinary Medicine, Ahwaz University, Ahvaz, Iran

Background and Aim: Whereas both in Medical and veterinary medicine because of the lower side effects of medicinal plants have been considered again more than chemical kinds and because of the easy availability in our country due to different climates to achieve them together we decided to investigate the therapeutic effects of mountain peppermint as one of the medicinal plants of Tehran as herbal medicine and Albendazole and Praziquantel as antiparasite tablets in the treatment of dogs with hydatid cyst after clinical examination.

Methods: 10 stray dogs in Tehran were randomly selected and then detected and confirmed the presence of hydatid cyst randomly divided into 2 groups. The first group received Albendazole for five days and a single dose of Praziquantel, orally. The second group received twice daily orally every 12 hours, two drops of peppermint oil for 5 days. Results: After 5 days of prescribing these drugs results were as follows: The group that received peppermint oil alone after serologic test had no hydatid cyst but in group that received antiparasite tablets had few hydatid cysts after 5 days treatment. Conclusion: Because of the many advantages of traditional medicine and herbs and its low disadvantages compared to chemical drugs and These drugs are easily accessible in nature, especially plant mountain peppermint in Tehran and This drug lower price than similar chemical drugs better to replace this available drug with recent like chemical drugs by Pharmaceutical companies after more Supplementary researches.

Keywords: Mountain peppermint, Albendazole, Praziquantel, Hydatid cyst, Dog
A huge miss diagnosed renal hydatid cyst: a case report

Reza Gheitasi¹, Mohammad Reza Hafezi Ahmadi², Mosa Motevali Haqi³
1. A. Department of Immunology, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran. B. Student Research Committee, Hamadan University of Medical Sciences, Hamadan, Iran
2. A. Department of Pathology, Ilam University of Medical Sciences, Ilam, Iran. B. Biotechnology and Medical plants research Center, Ilam University of Medical Sciences, Ilam, Iran.
3. Department of Parasitology and Mycology, Student Research Committee, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran.

Corresponding author: Mohammad Reza Hafezi Ahmadi, A. Department of Pathology, Ilam University of Medical Sciences, Ilam, Iran. B. Biotechnology and Medical plants research Center, Ilam University of Medical Sciences, Ilam, Iran.

E-mail: gheitasir@yahoo.com

Hydatid cyst is one of the most important zoonotic disease that is caused by a cestode named *Echinococcus* special *Echinococcus granulosus*. The way of infection is oral-fecal by eating infected foods and vegetables with egg of parasite in stool of dogs. Hydatid cyst can be made in liver, lung and rarely in heart, breast, thyroid, soft tissue of neck and kidney. Hydatid cyst of kidney is a rare disease which may have no symptoms for years. In this case report, the patient has had a typical cyst in left kidney for years. A 26 year woman with ambiguous pain in stomach went to the physician and after complementary examinations a typical cyst in left kidney was reported with size of 120mm*93mm.*
**Nested-PCR assay for detection of *Fasciola* infection in human stool**

Mojgan Aryaeipour, Mehdi Mohebali, Arezoo Bozorgomid, Peyman Heydarian, Mohamad Bagher Rokni

1. Department of Medical Parasitology and Mycology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
2. Department of Microbiology, Asadabad School of Medical Sciences, Asadabad, Iran

**Background:** Fascioliasis is one of the most common parasitic diseases worldwide and is potentially dangerous for humans. The aim of this study was to evaluate *Fasciola* specific deoxyribonucleic acid (DNA) detection by nested-PCR assay in human stool samples by comparing them with antibody detection in serum by ELISA assay for diagnosis of Fascioliasis.

**Methods:** A total 200 clinically suspected cases of fascioliasis, referring to the School of Public Health, Tehran University of Medical Sciences, were enrolled in the study. Blood samples were collected from all the patients, ELISA, using *Fasciola* somatic antigen (SA), was carried out to detect anti *Fasciola* antibodies in the collected sera. DNA was extracted from stool of positive individuals and evaluated by Nested polymerase chain reaction (Nested PCR) method and Nested-PCR results were confirmed by sequencing the 400 bp region of ribosomal ITS1 gene. In addition, stool samples was collected from 5 other parasitic disease controls and 25 healthy controls.

**Results:** *F. hepatica* was detected by ELISA in 26 (13%) of the 200 patients, but *Fasciola* DNA were identified on the stool examination in 25 (12.5%) patients. No cross reactions were described with other parasites (*Trichotrongylous, Strongyloides, Toxocara, Toxoplasma* and *Leishmania*).

**Conclusion:** In conclusion, the sensitivity and specificity of the nested-PCR described in our study is high as ELISA method. These considerations suggest that detection of DNA in stool samples could use for the diagnosis of *Fasciola* infection in human.

**Keywords:** Fascioliasis, Serodiagnosis, Nested-PCR, Human
بررسی میزان آنتی بادی‌های ضد توکسوپلاسماغوندی در لوسمی‌های حاد و لنفوم مراكز درماني تبریز

مهدی ارشدی
فاطمه طباطبایی
(دانشگاه علوم پزشکی اراک)
[tabatabae.f@iums.ac.ir]

مجید خانمحمدی
(دانشگاه علوم پزشکی اراک)
[Majid593@gmail.com]

طاهر علمی
(دانشگاه علوم پزشکی اراک)
[emli1364@yahoo.com]

لامع اخلاقی
(دانشگاه علوم پزشکی اراک)

مقدمه
توکسوپ، سمیگوندی یکی از شیتترین بیماری‌های انگلی مشترک انسان و جانوران خون‌گرم است که در کلیه نقاط جهان در جوامع انسان و حیوان دیده می‌شود.

روش کار:
در این مطالعه تصویفی مقطعی از مهر 1395 تا مهر 1396 از بیماران لوسمی مراجعه‌کننده دانشگاه علوم پزشکی اراک درمانی از 46 بیمار (9/46 درصد) AML (20/46 درصد) IgM، (22/46 درصد) Lymphoma، (30/46 درصد) ALL (22/30 درصد) IgG و (24/30 درصد) IgM، (14/30 درصد) IgG، (11/30 درصد) IgM انتخاب شدند.

نتایج:
در ارزیابی آنتی بادی دی این جامعه IgM، IgG، IgG و IgM، IgG، IgG، IgM، IgG، IgG، IgM، IgG و IgM، IgG، IgG، IgM، IgG، IgG，
PP-63

Frequency of hydatid cyst infection in slaughterhouse in Songhor city, Kermanshah province, Iran (2010-2014)
Naser Nazari1, Homayra Sohrabi1
1- Department of Parasitology & Mycology, Kermanshah University of Medical Sciences, Kermanshah, Iran

Introduction: Hydatid cyst, hydatidosis or echinococcosis is one of the most important of zoonotic diseases. This study is representative of the necessity of more attention about the prevention and controlling of this disease in animals in order to decrease economical damages and possibility of transferring of this disease from animal to man. We have studied the infection conditions of the slaughtered animals in Songhor is a city located in Kermanshah Province in west of Iran from 2010 to 2014.

Material and methods: This study is a kind of descriptive study. Lungs and livers were inspected in routine meat inspection procedures for the presence and number of hydatid cyst. Prevalence of hydatid cyst was calculated as the number of cattle or sheep and goat found to be infected, expressed as a percentage of the total number of cattle slaughtered.

Results: The totally 19487 sheep, goats and cattle were study in the slaughterhouse of Songhor city, Iran. Of all sheep, goats and cattle, 1352 cases, (7.84%) had hydatid cysts and in more studies lung(5.28%) has more infection than liver(2.75) to this parasite

Conclusion: Sheep and goats have more infection(5.2%) than cattle(3.3%) to hydatid cysts. The results indicate that hydatid cysts have high prevalence in Songhor city than other areas.

Keywords: Hydatid Cyst, Liver, Lung, Cattle, Songhor city
Antileishmanial and cytotoxic effects of various extracts of garlic (Allium sativum) on Leishmania tropica.

Payam Sepahvand¹, Hossein Mahmoudvand²*  
¹ Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran  
² Razi Herbal Medicines Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran (dmahmodvand@gmail.com)

Background: Cutaneous leishmaniasis (CL) is a major public health problem in tropical and subtropical countries worldwide. Treatment of CL by pentavalent antimony compounds remains a challenge because of limited efficacy, toxic side effects and drug resistance. Here we evaluated the antileishmanial and cytotoxic effects of various extracts of garlic (Allium sativum) on Leishmania tropica.

Methods: Standard strain of L. tropica (MHOM/IR/2002/Mash2) was kindly prepared from Center for Research and Training in Skin Diseases and Leprosy (Tehran, Iran). In the present study, in vitro antileishmanial and cytotoxic activity of garlic extracts against promastigote forms of Leishmania tropica and murine macrophages was evaluated by colorimetric cell viability (MTT) assay.

Results: The results revealed that the methanolic and aqueous extracts of garlic were effective in inhibiting promastigote growth of L. tropica with IC50 (50 % inhibitory concentrations) values 12.3 and 19.2 µg/ml, respectively. In addition, methanolic and aqueous extracts of garlic showed low cytotoxicity against murine macrophages with CC50 (cytotoxicity concentration for 50 % of cells) values 291.4 and 348.2 µg/ml, respectively.

Conclusion: Findings of present study were the first step in the search for new antileishmanial drugs. However, further works are required to evaluate exact effect of these extracts in volunteer human subjects.

Keywords: Leishmania, In vitro, Macrophage, MTT
بررسی وضعیت انتشار اکینوکوکوس مولتی لوکولاریس در ایران

زهره حیدری
گروه میکروب شناسی و اجتماعی پزشکی، دانشگاه علوم پزشکی اردبیل، اردبیل، ایران

اکینوکوکوس مولتی لوکولاریس یک انگل بسیار پاتوژن زئونوز است که منجر به اکینوکوکوزآلوئولی (AE) در نیمکره شمالی می‌شود. در خاور میانه، ایران به عنوان یکی از مناطق اندمیک این بیماری شناخته می‌شود. 

میزان فطیعی برای انتشار اکینوکوکوس مولتی لوکولاریس در ایران مورد بررسی و تحقیق قرار گرفته است. در ایران، در سال‌های ۱۹۷۱-۱۹۷۱ برونا و همکاران، درآمد ۳۰٪ در حالی که در سال‌های بعد، درآمد ۵۰٪ و در سال ۱۹۹۹ درآمد ۷۵٪ و در سال ۲۰۰۱ درآمد ۸۰٪ از درآمدهای مربوط به این بیماری مربوط به این انگل پاتوژن بوده است. 

در ایران، در سال‌های ۱۹۹۹-۲۰۰۱، در منطقه چنار استان خراسان، با استفاده از روش‌های مولکولی در ۰۰۱-۵۹٪ گوشتخواران (سگ، گربه، گرگ، حیلی، جوندگان صحرایی) اکینوکوکوس مولتی لوکولاریس گزارش شد. 

قسمت‌هایی از قلمرو خاک ایران در منطقه اندمیک این بیماری قرار دارند. در ایران، در سال‌های ۱۹۹۹-۲۰۰۱ در منطقه چنار استان خراسان، با استفاده از روش‌های مولکولی در ۱۵-۵۹٪ گوشتخواران (سگ، گربه، گرگ، حیلی، جوندگان صحرایی) اکینوکوکوس مولتی لوکولاریس گزارش شد. 

پژوهش‌های در ایران نشان داده‌اند که در منطقه‌های اندمیک این بیماری، درآمدهای مربوط به این انگل به طور چشمگیری می‌باشد. در این منطقه، در سال‌های ۱۹۹۹-۲۰۰۱ در منطقه چنار استان خراسان، با استفاده از روش‌های مولکولی در ۱۵-۵۹٪ گوشتخواران (سگ، گربه، گرگ، حیلی، جوندگان صحرایی) اکینوکوکوس مولتی لوکولاریس گزارش شد. 

کلمات کلیدی: اکینوکوکوس مولتی لوکولاریس، میزبان اصلی، میزبان واسط، زئونوز
**Seroepidemiologic Study of Toxoplasmosis in Camel, Golestan Province**

Rabeeh Tabaripour, Mohammad Reza Youssefi, Yaghoob Atabay

1. Student Research Committee, Department of Parasitology and Mycology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran.
2. Department of Veterinary Parasitology, Babol Branch, Islamic Azad University, Babol, Iran.
3. Young Researchers Club, Faculty of Veterinary, Babol Branch, Islamic Azad University, Babol, Iran.

*Toxoplasma gondii* is an obligate intracellular parasitic that causes the disease toxoplasmosis. And the most common parasites between human and animals. Eating oocysts in the environment (such as water and eating contaminated vegetables) as well as eating raw meat (that is, there are parasites in the tissues) is the main route of transmission of parasites to humans and animal. These protozoa cause serious infections in humans and domestic animals. Cats are the definitive host of *Toxoplasma gondii* have an important role in the epidemiology of toxoplasmosis. This study to investigate the Seroepidemiologic study was performed in camels by ELISA in Golestan province.

A total of 69 one-humped camel blood samples were taken which 6 were male and 63 were female that examined by ELISA. Serum titers were determined. 40 positive, 27 negative samples and two samples were suspicious. In this way, for the first time study of *T. gondii* in animals have been used in Iran and we should study more about it.

**Keywords:** Camel, Golestan, Seroepidemiology, Elisa
Zataria multiflora Bioss: lethal effects of methanolic extract against protoscoleces of hydatid cyst

Mojgan Mirzaei¹, Mojgan Saki ¹, Massumeh Niazi¹, Hossein Mahmoudvand ²,*

¹ Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran
² Razi Herbal Medicines Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran (dmahmodvand@gmail.com)

Background: There are several scolicidal agents for inactivation of hydatid cyst protoscolices during surgery, but most of them are associated with adverse side effects such as sclerosing cholangitis and liver necrosis. The present study was aimed to evaluate the lethal effects of Zataria multiflora Boiss (Lamiaceae) methanolic extract against Echinococcus granulosus protoscoleces.

Methods: Protoscoleces were aseptically aspirated from sheep livers having hydatid cysts. Various concentrations of the essential oil (2.5-20 mg/mL) were used for 10-60 min. Viability of protoscoleces was confirmed using eosin exclusion test (0.1 % eosin staining).

Results: Obtained results showed that Z. multiflora extract at the concentration of 20 mg/mL after 10 min of exposure killed 100 % protoscoleces. The mean of mortality rate of protoscoleces after 20 min of exposure to the concentration of 10 mg/mL was also 100 %. Lower concentrations of Z. multiflora extract provoked a delayed scolicidal activity.

Conclusion: The findings indicated potential of Z. multiflora methanolic extract as a natural source for the producing of new scolicidal agent for use in hydatid cyst surgery.
The evaluation of antiparasitic effects of Achillea santolina L and Teucrium polium L against Toxoplasma gondii on in vivo and invitro methods

Ali abbasabadi¹, Saeed mohammadi motamed², Aahmad Reza Esmaeili Rasteghi³*
1. Department of Microbiology, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran
2. Department of Pharmacognosy, Faculty of Pharmacy, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran
3. Department of Parasitology, Pasteur Institute of Iran, Tehran, Iran

Background: Toxoplasmosis is occurred by an intracellular parasite called Toxoplasma gondii, which is capable of contaminating some of the warm-blooded vertebrates and cure of toxoplasmosis seems to be necessary due to its lethal effect in pregnant women and patient with immune system deficiency.

Materials and methods: In this study, after preparation of ethanolic extractions from the plants and their adjacency with the Toxoplasma gondii tachyzoites in certain times and concentrations and in cell-free conditions. In course of toxicity determination, first, 21 white mice have been divided into 7 groups of 3 with specified concentrations of both plants and the control group and the plants extractions have been injected in the form of intra-peritoneal injection for 10 days on alternate days. For in vivo examination, 40 white mice have been divided into 4 groups of 10 mice including negative control, ethanol, concentration 100 of Achillea santolina L and concentration 50 of Teucrium polium L. 24 hours after parasitic contamination, the injection process done for 8 days.

Results: The in vitro results showed that the both plants had 100 % the lethal effect but in concentration 10 of the Teucrium polium L there was no lethal effect and the concentration 10 of Achillea santolina L in the certain times had lethal effect of 0, 9 and 12 per cents respectively. About Hepatomegaly and Splenomegaly, there was no difference between the groups(P>0.9999). So, concentration 100 of Achillea santolina L was selected as the highest concentration and the lowest toxicity, and concentration 50 of Teucrium polium L was selected for in vivo conditions. The in vivo results regarding Hepatomegaly and Splenomegaly showed that, there was no difference, however, about survival there was a meaningful difference between experimental groups(P=0.0005), and concentration 100 of Achillea santolina L and concentration 50 of Teucrium polium L have no effect on Toxoplasmosis.

Conclusion: It was concluded that these extracts has lethal effect on Toxoplasma gondii tachyzoites in in vitro condition, however, they were unable to prevent reproduction and activity of the tachyzoites in in vivo.

Keywords: Toxoplasma gondii, Achillea santolina L, Teucrium-polium L, antiparasitic.
بررسی فراوانی توكسوپلاسماگوندی در افراد مبتلا به لنفوما قبل و بعد از شیمی درمانی در تبریز

طاهر علمی*، مهدی ارشدی*، لامع اخلاقی*، فریبا روژ زاده*، فاطمه طباطبایی*

* گروه انگلیسی و قیرچ شنیسبی، دانشگاه علوم پزشکی ایران، دانشکده پزشکی، تهران، ایران

چکیده

سابقه و هدف: توکسوپلاسما در کناره ای از خانواده کوکسید های اریگید است و 500 میلیون نفر از مردم جهان شواهد سرولوژیک از عفونت را دارند. این انگل فرست طلب قدرت ایجاد عفونت شديد و با سبیره سریع به شکل انسفیلی نکروز، نکروز، نکروز و میکروکاردیت را در مزیانی دارد که مکانیسم دفاعی بدنیان اختلال دارد. لذا به علت اهمیت توکسوپلاسما ویژه در افراد دارای نقش ایمنی در این مطالعه به ارزیابی تغییرات اینوگلوبولین های IgM و IgG ضدعفونتی توکسوپلاسما در بیماران لنفومی پرداختیم.

مواد و روش ها: در یک کارآزمایی بالینی 22 بیمار مبتلا به لنفوما از بیمارستان ها در مراکز درمانی از تیره 1395 تا 1396 مورد از لحیظ وجود IgG و IgM ضدعفونتی توکسوپلاسما قبل و بعد از شیمی درمانی مورد ارزیابی قرار گرفتند.

یافته ها: از بین 22 سرم بررسی شده قبل از شیمی درمانی 1 مورد، بیمار مبتلا به لنفوما دارای تیتر IgM مثبت و 11 مورد دارای تیتر IgG مثبت بودند. بررسی نتایج بعد از شیمی درمانی نشان داد 2 تیر از بیماران دارای تیتر بالای IgM هستند که نشان دهنده بروز عفونت جدید و سرعت IgG به لنفوما بود. بررسی IgG در بیماران بعد از شیمی درمانی نشان دهنده همان 11 مورد مثبت IgM قبل از درمان بود.

نتیجه گیری: مصرف توکسوپلاسما به وسیله ریسک فاکتور اصلی در افراد مبتلا به لنفوما محسوب نمی شود اما به علت احتمال ایجاد عفونت جدید در افراد دارای نقش ایمنی که سرم مفتی دانسته و احتمال جدایی توکسوپلاسما ناشی از افراد سرم مثبت و منعکس آن بر روی عوارض مغزی گزارش گردیده نشود و در افراد مبتلا به لنفوما ممکن است توکسوپلاسما به وسیله ریسک فاکتور اصلی ایمنی ضعیف دارد و تحت شیمی درمانی قرار می گیرد اهمیت بسزایی دارد و نیازی ندارد خروج شود.

کلمات کلیدی: لنفوما، توکسوپلاسما، تک پایه
بررسی اثرات عصاره کلروفرمی گیاه الزی بر بافت کبد موش های بالب سی مبتلا به ژیاردیوز تحت درمان با گیاه الزی

مقدمه: گیاه الزی از لینواده آلیوم دارای ترکیبات شیمیایی متعدد ضد میکروبی، ضد ویروسی، ضد انگلی، ضد سرطانی و آنتی اکسیدانی می باشد. گیاه فوق از جمله گیاهان بومی استان مازندران می باشد که در مطالعه حاضر جهت درمان بیماری زیباردوز در موش های بالب سی آلوده مورد بررسی قرار گرفت. از انگلی که اثرات ضد زیباردوزی گیاه فوق مورد تایید قرار گرفت، بررسی میزان اثرات سوء گیاه فوق بر کبد حیوان امری ضروری به توجه به نظر آن است. لذا در مطالعه حاضر به بررسی اثرات عصاره کلروفرمی گیاه الزی بر پایت کبد موش های بالب سی آلوده به زیباردوز تحت درمان با گیاه الزی پرداختیم.

مواد و روش ها: در این مطالعه تجربی کد 20 سر موش بالب سی آلوده به زیباردوز مورد مطالعه قرار گرفتند و به ترتیب 20، 50 و 100 میلی گرم در سه گروه به اختیار محصولات تولید شده در از دست داده شد. وزن موش ها قبل و بعد از درمان با گیاه فوق مورد اندازه گیری توسط نرم‌افزار SPSS قرار گرفت.

نتایج: بررسی نتایج نشان داد میزان آپوپوز شدید، التهاب موضعی، پرخونی و نکور زیادیت ها در گروه درمانی کننده الزی نسبت به گروه کنترل دریافت دند نکننده در ماده سالمین از لحاظ آماری دارای اختلاف معنی‌دار نبودند (P<0/05). بررسی وزن موش ها قبل و بعد از درمان نشان داد استفاده از گروه الگیه فوق باعث کاهش وزن موش ها نسبت به گروه کنترل شدند (P<0/05).

بحث و نتیجه: با توجه به اثر قابل قبول گیاه الزی بر روی انگلی زیباردوز و عدم انجام اثرات سوء بر روی کبد، گیاه الزی یکی از غذاهای درمانی جدیدی می‌باشد که می‌تواند به عناون یک درمانی گیاهی طبیعی با عوارض جانبی کم و درمانی با معرفی نمود.

کلید واژه ها: زیباردوز، بافت، عصاره
Identification of sarcocystis species in sheep and cattle using PCR-RFLP

Tahereh Kardooni1,2, Mahmoud Rahdar 1,2.

1- Department of Parasitology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
2- 1th Research Institute, Infection and Tropical Diseases Research Center, Jundishapur University of Medical Sciences, Ahvaz, Iran.

Abstract

Background: Sarcocystis species are obligatory intracellular parasites of many vertebrate hosts. Some pathogen species cause major economic loss and hygienic problems in the animal and human population, respectively.

The goal of the current study was conducted to identify Sarcocystis species in meat-producer animals and to evaluate the risk of transmission of parasites after consumption of infected meat by humans.

Materials and Methods: Fifty samples of sheep and cattle muscles were collected from the abattoir. The samples were collected from the heart, tongue, diaphragm, and skeletal muscles. The PCR method was used for amplifying the 18S ribosomal RNA gene for distinguish Sarcocystis species using 2 primers and 3 restricted enzymes including Hinf, Mbo1, and EcoR1.

Results: The results showed that all cattle samples were infected by Sarcocystis cruzi (100%) and sheep samples were contaminated by S. tenella (80%) as well as S. capracanis (20%). No human Sarcocystis species were detected.

Conclusions: Meat-producer animals are infected by S. cruzi as well as S. tenella and the consumption of infected meat is not important for human sarcocystosis in this area.

Keywords: Sheep, Cattle, Polymerase Chain Reaction, RFLP, Sarcocystis
Prevalence of Cryptosporidium parasite in children of Larestan in 2016

Mohammadreza Foroutani ¹, Hannan Kashfi², Zahra Cheraghipoor³

1- Department of nursing, School of nursing, Larestan University Medical Sciences, Larestan, IRAN
2- Department of nursing, School of nursing, Larestan University Medical Sciences, Larestan, IRAN
3- Students research committee, School of nursing, Larestan University Medical Sciences, Larestan, IRAN

“Cryptosporidium” parasite is from Coccidia group, that causes digestive diseases in people who have a weak security system or suffer from AIDS. This parasite has no special host. Although, the infection is usually stopped spontaneously in normal individuals, the quality of self-pollution and extension of this parasite is possible to continue the infection. The parasite can produce acute and chronic digestive infections in children. The continuation and intensity of illness can cause much harm in children. It is certainly influential for the health of the society to know about the ill children.

In this research, we collected 541 samples of feces from eight area of south of IRAN. 64 samples were watery as having diarrhea. We used the colour method (Ziehl-Neelsen’s modified by Henriksen) for diagnosis.

To colour these samples didn’t show any sign of pollution with “Cryptosporidium” in these children. It was probably because either the facet samples were not sufficient or at the time of survey (Autumn and Winter), the rate of pollution had been less.

It is nevertheless a require to continue carefully this research and to find its prevalence which is a real danger for the infants’ health and security.

Keyword: Cryptosporidium, Children, Iran
The comparison frequency of toxoplasmosis in schizophrenia and addicts patients in Ahvaz city, 2017

Tahereh Kardooni¹, Mostafa Albockordi², Mahmoud Rahdar³, Hamzeh Rostami⁴, Shala Shafieenia⁵, Mohammad Hossein Dasthbozorgi⁶.

¹- Ph.D student of parasitology, Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
²- Assistant Professor, Department of Community Medicine, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
³- Associate Professor, Department of Parasitology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
⁴- Assistant Professor, Department of Psychiatry, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
⁵- MSc of Parasitology, Department of Therapy, Therapist, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.
⁶- Medical student, Faculty of Medicine, Dezful University of Medical Sciences, Dezful, Iran.

Background: Schizophrenia is a psychological disorder and the most common cause of psychological disability in the world. Genetic and environmental factors, including infectious agents, are involved in its development. Toxoplasma, with increasing dopamine levels, has a potential role in the development of schizophrenia.

Materials and Methods: The aim of this study was to determine the prevalence of IgG antibodies against Toxoplasma in schizophrenic patients compared to those with psychosis and healthy subjects.

Forty eight patient was selected from each group. The serum of these patients was assessed by ELISA method.

Results: The percentage of infections in schizophrenic patients, addicts and healthy controls were 47.9, 29.1 and 20.8, respectively. There was no significant difference between the three groups using chi square analyzing (P>0.05).

Conclusion: However, the percentage of infection in schizophrenic patients is higher than other groups. Further comprehensive studies should be conducted with more samples to get better results statistically.

Keywords: Schizophrenia patients, Toxoplasma, ELISA test
The detection of fasciola hepatica in mazandaran province

Author: Dr. Seif Ali mahdavi

Mazandaran University of Medical Sciences, Amol Faculty of Paramedical Sciences, Sari, Iran

Email: sa.mahdavi@mazaums.ac.ir

Introduction and aim:

The disease caused by the parasite Fasciola Hepatica is called Fascioliasis or dystomiasis. The parasite is prevalent among the herbivores and is widespread in the world. Human infection usually follows consumption of aquatic plants such as watercress and wild mint or water containing metacercariae. The present study aimed to investigate the cases of infection among human population in Mazandaran from 1378 to 1395.

Material and Methods:
The study was descriptive and used the data kept in the Health Department of Mazandarna Medical University. The data was analyzed in terms of the participants’ gender, age and location. All the patients who visited were given Egatenpills following an infection specialists’ prescription of the medicine.

Results: From 1378 to 1395 the total number of individuals who had been infected with was fascioliasis was 146 including 142 (97.3%) cases in Nowshahr, Challus, Tonekabon and Ramsar which are located in the western parts of the province. Two cases were reported in Sari and Babolsar and Amol. All the infected cases were treated with Aygan and were cured completely. In none of the cases treatment failure or drug resistance were observed.

Conclusion: Consumption of raw vegetables has become customary in Mazandaran and olive with the walnut paste for whose preparation wild vegetables are used is consumed extensively in cities such as Nowshahr, Challus, Tonekabon and Ramsar which are all located in the western parts of the province. The situation accounts for 98.5% of the infected cases. Therefore, the spread of the disease should be controlled by providing health education regarding methods of Fascioliasis prevention through thorough washing and deparasiting of raw vegetables especially the wild ones in addition to avoiding consumption of olive with the walnut paste which has been traditionally prepared by the use of local

Keywords: detection, fasciola hepatica, mazandaran
PP-76

Diagnosis of pediculosis infection in mazandaran province

Author: Dr. Seif Ali mahdavi

Mazandaran University of Medical Sciences, Amol Faculty of Paramedical Sciences, Sari, Iran

Email: sa.mahdavi@mazaums.ac.ir

Introduction and aim: The lice are small and wingless insects. Head, body and pubic lice are regarded as the external parasites in human. In addition to the direct bite, the body louse is able to transmit important diseases such as typhus, trench fever and relapsing fever. The research aimed to study pediculosis in the medical university of Mazandaran.

Material and Methods: The study was descriptive and the data kept in the Health Department of Mazandaran Medical University was utilized. In order to address the issue, the data from 1391 until 1394 was analysed in terms of the total number of the infected cases, age and gender.

Finding: The total number of infected cases from 1391 to 1394 was 104805: 1391(N=17990), 1392 (N=19975), 1393 (23858), 1394 (N=42982). The number of infected cases among women and men with less than 6 years was 8661 and 2502 respectively. The number of women and men between 6-10 years was 36750 and 2502. The number of infected cases of women and men above 11-17 years was 26192 and 3138. The number of infected cases of women and men above 17 years was 21113 and 3685. 19874 of the participants had a previous history of infection while 84931 of them didn’t have a history of infection. The number of cases infected with head, body and pubic lice was 104805, 8 and 1 respectively. The number of the male and female participants which were infected with the disease was 11830 and 92975.

Conclusion: from 1391 until 1394 there was an increasing trend in the rate of pediculosis infection. In 1394 (41%) and in 1391 (17.2%) were infected. In this 4-year study the highest number of infection was found among the female (88/7%). Therefore, educational programs should focus on the prevention and treatment methods of pediculosis (head lice) in schools since the population accounts for 65.4 percent of the infected cases. Education and treatment of students can be interpreted as the education and treatment of families and the education can be made available to the public through the mass media including the TV so that the spread of pediculosis can be controlled.

Keywords: infection, pediculosis, mazandaran
مقدمه:
mهم ترین واقعه در تاریخچه فاسیولیزیس انسانی در ایران اپیدمی بیماری در استان گیلان و مازندران با استفاده از سیستم اطلاعات جغرافیایی می‌باشد.

مواد و روش‌ها:
اطلاعات مربوط به بیماری فاسیولیزیس انسانی در استان‌های گیلان و مازندران از مرکز بیماری های واگیر وزارت بهداشت و داده‌های هوشمند سازمان هواشناسی کشور به‌دست آمده و به‌وسیله نرم‌افزار ArcGIS نسخه 9.3 تحلیل و نقشه‌سازی شد.

نتایج:
شیوع مکانی فاسیولیزیس انسانی در استان‌های گیلان و مازندران در سال 1395

نتیجه‌گیری:
شیوع مکانی فاسیولیزیس انسانی در استان‌های گیلان و مازندران نسبت به شهرستان‌های دیگر استان‌های شمال شرقی کشور، با موارد مشابه شیوع مکانی در استان‌های کشور در میان دوم مورد آماری دارد.

کلید واژگان:
شیوع مکانی فاسیولیزیس انسانی، سیستم اطلاعات جغرافیایی، مازندران، گیلان
PP-79

Study of state of coetaneous leishmaniasis in Shushtar City-khozestan

Seyede Manizhe Heidarnejadi*1, Manoochehr Makvandi2, Tahere Kardooni3

1 Department of Medical Technologia faculty, School of Medicine, Shoushtar Faculty of Medical Sciences, Shoushtar, Iran.

2Virology Department, Infectious and Tropical Disease Research Center, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

3Salamat Hospital, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

Corresponding author: Seyede Manizhe Heidarnejadi, Department of Medical Technologia faculty, School of Medicine, Shoushtar Faculty of Medical Sciences, Shoushtar, Iran. Zip Code: E-mail: reyhane_zn@yahoo.com

Introduction: Zoonotic cutaneous leishmaniosis (ZCL) is one of the most important parasite infectious diseases in Iran and the highest percentage of cases of cutaneous leishmaniasis. The existence of numerous rural areas around Shushtar together with abundance of rodent reservoirs, sand flies and residents who exposed to effective factors caused essential of study on Leishmanisis infection in this region.

Methods: In this study, Smears of patients of Health Center of Shushtar at 2016 and 2017 after the sampling were studied. The specimens were examined by direct method and Giemsa staining regard to investigate Leishmania parasite infection.

Results: The rate of acute leishmaniasis is 40%, 42.4%, at 2016 and 2017 respectively. Regard to the morphological characteristics of identification, 36 leishman parasite isolate from 90 and 22 case from 55 patients refer to Health Center were seen.

Conclusion: The results of this study indicated 40%, 42.4% leishmania major have been seen in two years endemic reign so it is a serious health problem. Thus, it is necessary to further study about human and animal infectious parasites using advanced molecular techniques. Regard to important of infection, the transmission of parasites such as rodents and vector.
Two decades status of *Linguatula* infection among Iranian livestock: a systematic review and meta-analysis

Rabeeh Tabaripour¹, Saeed Hosseini Teshniz², Mahdi Fakhar³, Mohammad Reza Youssefi⁴

¹. Department of Parasitology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran
². Infectious and Tropical Diseases Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran
³. Molecular and Cell Biology Research Center, Department of Parasitology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran
⁴. Department of Veterinary Parasitology, Babol Branch, Islamic Azad University, Babol, Iran

**Background:** *Linguatula serrata* is one of the important zoonotic parasites. The larva existed in mesenteric lymph nodes (MLNs), liver, lungs, etc of intermediate herbivores. Thus, the present systematic review, for the first time, attempted to determine the prevalence of *L. serrata* infection among Iranian livestock.

**Methods:** A comprehensive literature search was done in online English (MEDLINE/PubMed, PubMed, Scopus, Web of Science and Google Scholar) and Persian databases (SID, Barakatns (IranMedex), Irandoc) by two independent reviewers between 1996 and 2017 (22 years). Pooled estimate of prevalence of *L. serrata* were calculated using random effect models. Possibility publication bias was assessed by Egger’s tests. Data were analyzed using Stata version 14.0.

**Results:** After reviewing 134 full texts of studies, finally 47 studies had eligibility criteria to enter meta-analysis. According to results of random effect meta-analysis the pooled prevalence of *L. serrata* among goat (24%, 95%CI:14-35%, $I^2 = 99.4\%$); sheep (24%, 95%CI:14-35%, $I^2 = 97.7\%$); cattle (15%, 95%CI:10-21%, $I^2 = 99.4\%$); buffalo (11%, 95%CI:6-17%, $I^2 = 97.9\%$) and camel (11%, 95% CI:6-16%, $I^2 = 96.3\%$). Egger’s test not indicated potential publication bias among studies (p>0.01).

**Conclusion:** According to the high prevalence of animal linguatulosis in Iran, we conclude that the disease has enzootic status (mostly ovine linguatulosis) in our country particularly in western and north-western areas, and it have pose a risk for general population in the areas.

**Key words:** *Linguatula serrata*, linguatulosis, livestock, systematic review, meta-analysis
PP-81

Isolation and identification of Microsporidia isolated from patients with gastroenteritis in Jahrom and Fasa province.

Abstract:

Introduction: Microsporidia are known as opportunistic pathogens that infect a wide variety of animals which at least 8 genuses of them have been associated with human disease. Microsporidiosis observes across the world, but prevalence data vary mainly due to the diagnostic methods. The present project was carried out, investigating Microsporidia sp among patients suffering from gastroenteritis in Jahrom’s hospitals, using molecular methods.

Material and Methods: Fecal samples were taken from patients with gastrointestinal disorders referring to health centers of Jahrom. Direct spears were prepared from each sample and were examined using light microscope. The genomic DNA was extracted and polymerase chain reaction (PCR) was done to clarify the parasites. The strains were identified by sequencing methods and the highest homology with the NCBI data.

Results: From 395 stool samples, eight samples (2.00%) were positive for intestinal microsporidia infection, using PCR molecular technique. Three samples were characterized and all the three were Entrocytozoon bieneusi. Analyzing data related to the age of positive cases showed a positive correlation with infection rate but other items didn’t.

Conclusion: It seems that the prevalence of these parasites is dramatically higher than previously reported and microsporidia should be considered in immunocompetent people as well as immunocompromised individuals.

Keywords: Microsporidia, gastroenteritis, jahrom, fasa
The study on effect of hydro-alcoholic extracts of *Mattioli incana* and *Mentha pulegium* airy organs on *Leishmania major* in *in vitro* condition

Khalili B*, Babaei M**, Saberi F***, Deris F*** and Rafieian M****

*Associate prof, Shahrekord University of Medical Sciences, Shahrekord, Iran
**MS parasitology student, Shahrekord University of Medical Sciences, Shahrekord, Iran
***Assistant prof., Isfahan University of Medical Sciences, Isfahan, Iran
****Lecturer, Sharekord University of Medical Sciences, Sharekord, Iran

*****Prof, Medical Plants Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran

**Introduction and aims:** Due to side effects of anti-leishmaniasis drugs especially antimonate compound and also recently increase of using herbal medicine by people, the study was designed to investigate effect of hydro-alcoholic extracts of *Mattioli incana* and *Mentha pulegium* airy organs on *Leishmania major* in *in vitro* condition.

**Material and methods:** Extract of two plants were prepared. Concentration of extracts were obtained in 6.5, 12.5, 50, 100, 400 and 800 mg/100. Leishmania major MRHO/IR/75/ER were exposed by different concentrations extracts and were studied in 0, 6, 24, 48 and 72 hours by counting alive parasites.

**Results:** The study showed that all different concentrations extracts had effect on parasite and numbers of live parasites were decreased with exposure to extracts. There was a direct relationship between concentration and time of exposure with live parasites.

**Conclusion:** Our findings suggested that extracts of these two plants would be a candidate of anti-leishmaniasis drug and further studies need to study specific compound of two plants.

**Key words:** *Mattioli incana*, *Mentha pulegium*, leishmania major
Prevalence of intestinal parasites in patients referring to Firouzabadi Hospital in 1395-1396

Shojaeddin Lesan¹, Reza Ghasemi¹, Ebrahim Kouhsari*²

Firouzabadi Hospital, Iran University of Medical Sciences, Tehran, Iran.
Department of medical microbiology, Faculty of medicine, Iran University of medical sciences Tehran, Iran.

Email: Ekouhsari1987@gmail.com

Background: Intestinal parasitic infections as a global public health problem cause of the major morbidity and mortality.

Methods: During the period of March 2016 until September 2017, a total of 4269 faecal samples were examined by formol-detergent (FD) technique and direct examination (lugols iodine) for detection of intestinal parasites from patients, 1848 female and 2421 male of inpatients referring to laboratory Firouzabadi Hospital, Tehran.

Results: The overall prevalence of intestinal parasitic infections was 4/26% (182 cases). There was a significant relationship between intestinal parasitic infection and age (P < 0.05). The total prevalence percentage of parasites for Blastocystis hominis, Entamoeba coli, Giardia lamblia, Entamoeba histolitica, Hymenolepis nana, Chilomastix mesnili, Iodamoeba buetschlii, Dientamoeba fragilis and Taenia saginata were 39.5, 25.2, 14.3, 11, 5.5, 1.6, 1.1, 1.1 and 0.5, respectively.

Conclusion: The results of this study concluded that 182 patients were infected with various intestinal parasites and that age significantly affected the prevalence of parasitic infections.

Keywords: Intestinal parasites, prevalence, Tehran city, Iran
بررسی تنوع زننیکی انگل اکی نوکوکوس گرانولوزوس در بیماران مراجعه کننده به مراکز در مانی شهر کرج در سال 94

دکتر ابوالفضل میانی پور¹. دکتر محمد زیباپور¹. دکتر ساسان رضایی².

¹. گروه انگل شناسی دانشگاه پزشکی دانشگاه علوم پزشکی البرز
². گروه انگل شناسی دانشگاه بهداشت دانشگاه علوم پزشکی تهران

مقدمه: انگل اکی نوکوکوس گرانولوزوس یکی از مهم‌ترین عفونت‌های انسانی در سطح جهان می‌باشد که سیلیی ناوندگی، طرفحی و اقیانوسی در نقیط مخلم یافته‌است. این امر از نظر طبیعی بندی مناطق درگیر به انگل‌های مختلفی مناطق مختلف ایران پیامبرزان حائز اهمیت است. این در آیند مطالعه تنوع زننیکی انگل اکی نوکوکوس گرانولوزوس در نمونه‌های یافته‌شده در شهر کرج مورد بررسی قرار گرفت.

مواد و روش: در این مطالعه از 3 بیمار متلاشی به کیست هیداتیکی که به مراکز درمانی کرج مراجعه کرده بودند و نمونه‌نگرفته‌اند، 2 نمونه نمونه‌سازی کیست کودکی و 1 نمونه نمونه‌برنوی کیست در تدریس بود. نمونه‌های مورد بررسی در این مطالعه، هر 3 نمونه مربوط به کیست هیداتیکی 2 نمونه مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود. همچنین نمونه‌های مربوط به کیست کیدوی 1 نمونه مربوط به کیست مغزی و 1 نمونه مربوط به کیست مغزی بود.

نتایج: در نمونه‌های یافته‌شده در کرج، تعدادی از کیست‌های هیداتیکی به کیست‌های هیداتیکی تعلق داشتند و به کیست‌های تعلق داشتند.

بحث: با توجه به وجود مواد دامی کیست هیداتیکی در استالان البرز و وجود بیماران آلوده به کیست در این استان وجود زننیکی G1 در نمونه‌های انسانی این مطالعه نشان دهنده غالب بودن آلودگی به زننیکی در کرج می‌باشد.
Preventive effect of pioglitazone on reproductive damage by suppression of testicular nitric oxide (NO) level in streptozotocin-induced diabetic rats

Farin Malekifard¹,*, Ali Soleimanzadeh²

¹, Department of Microbiology, Urmia University, Urmia, Iran.
², Department of Theriogenology, Urmia University, Urmia, Iran.
*(Corresponding E-mail: malekifard90@gmail.com)

Background: It has been shown that diabetes mellitus has adverse effects on the male sexual and reproductive functions. Enhanced oxidative stress and changes in antioxidant capacity have important roles in the pathogenesis of chronic diabetes mellitus. Previous studies have demonstrated that pioglitazone is potent inhibitor of inflammatory and potent antioxidants. The purpose of this study was to investigate the preventive effects of pioglitazone on nitric oxide (NO) levels of testicular tissues.

Methods: Induction of experimental diabetes was done using single intraperitoneal injection of Streptozotocin (STZ) (Sigma, Germany) dissolved in citrate buffer (pH 4.5) at the dose of 65 mg/kg to overnight fasted rats. Only rats with blood glucose concentrations above 250 mg/dL were considered as diabetic. Animals were randomly divided into four groups of eight rats: control group, STZ-induced diabetic group (diabetic group) and STZ-induced diabetic groups treated with low or high doses of pioglitazone (Sigma, Germany) of 1 or 10 (mg/kg/day, orally) for 5 weeks. Animals were euthanized on day 35 and one testis was homogenized in ice-cold Tris-HCl buffer (150 mM, pH 7.4). Testicular nitric oxide (NO) level was measured as total nitrite/nitrate, the stable degradation products of NO, by reduction of nitrate into nitrite using copperized cadmium, followed by color development with Griess reagent in acidic medium.

Results: STZ caused marked increase (P < 0.05) testicular NO levels compared with control group of rats. Administration of pioglitazone to diabetic rats, in low and high dosage, ameliorated abnormalities in testicular NO levels when compared with those in diabetic control group (p < 0.05).

Conclusion: In conclusion, these findings indicate that pioglitazone may have a therapeutic effect against the autoimmune destruction of the testicular damage during the development of streptozotocin-induced type 1 diabetes in rats.

Keywords: Type 1 diabetes, Pioglitazone, Nitric oxide
Effect of pioglitazone, aligands of peroxisomeproliferator-activated receptor gamma (PPAR-γ), on Semen Parameters of streptozotocin-induced diabetic rats

فرین ملکی فرد
[malekifard90@gmail.com]

Background: Previous studies have shown that diabetes can perturb spermatogenesis by significantly reducing sperm density, sperm motility and progression, and volume of the ejaculate, while increasing the incidence of deformed sperm cells both in diabetic men and experimental diabetic animals. Pioglitazone (PGZ) is high-affinity PPAR-γ agonists with potent anti-diabetic and antioxidant properties and potential anti-inflammatory effects. The purpose of this study was to investigate the effects of pioglitazone on semen parameters of diabetic rats.

Methods: Induction of experimental diabetes was done using single intraperitoneal injection of Streptozotocin (STZ) (Sigma, Germany) dissolved in citrate buffer (pH 4.5) at the dose of 65 mg/kg to overnight fasted rats. Only rats with blood glucose concentrations above 250 mg/dL were considered as diabetic. Animals were randomly divided into four groups of eight rats: control group, STZ-induced diabetic group (diabetic group) and STZ-induced diabetic groups treated with low or high doses of pioglitazone (Sigma, Germany) of 1 or 10 (mg/kg/day, orally) for 5 weeks. Mice were euthanized on day 35 and testes and epididymis were removed for sperm evaluation.

Results: The results revealed that the number of sperms, sperm motility and viability, sperm with normal morphology and damaged DNA (DNA integrity) were decreased significantly (p < 0.05) in diabetic group compared to control group. Pioglitazone treatments significantly increased these parameters when compared to diabetic rats (p<0.05).

Conclusion: Based on our results, in semen, pioglitazone addition had a positive impact on all semen parameters.

Keywords: Type 1 diabetes, Pioglitazone, Semen Parameters
PPT-03

Cortisone protects lysosomal damage in endotoxin-induced shock in Wistar rats

Shahdokht Rastegar¹, Mohammad Aberomand², Ghorban Mohammadzadeh³

¹ Department of Clinical Biochemistry, Faculty of Medicine, Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
² Toxicology Research Center, Department of Clinical Biochemistry, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
³ Hyperlipidemia Research Center, Department of Clinical Biochemistry, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

*Corresponding author: Shahdokht Rastegare, shahdokht63rastegare@gmail.com

Abstract:

Background: Lysosome, a cytoplasmic organelle present in animal tissues, contains hydrolytic enzymes capable of degrading various cellular constituents. Endotoxin shock (Stress) is frequently associated with multiple organ failure resulting from inducing lysosomal enzymes leakage into circulation. Glucocorticoid drugs with inhibition secretion and decrease activity these enzymes, improve damages.

Aims: The aim of this study was investigated the association between endotoxin shock with change serum and hepatic level beta-glucuronidase enzyme and effect glucocorticoids drugs on liberation lysosomal beta-glucuronidase.

Subjects and methods: In this study 30 rat were equally divided in to control, tolerance and endotoxin groups. The current experimental study was performed on 10 male rats (tolerance) which became tolerance with 12.5 mg/kg body weight intramuscularly injection Cortisone acetate for 3 days and on the 4th day, the intravenous injection 12.5 mg/kg of hydrocortisone 21-sodium hemisuccinate. On 20 male rats (tolerance and endotoxin) which became endotoxin shock with 2.5 mg/kg body weight intravenous injection of endotoxin. Total protein and enzyme activity were determined by Bradford and fishman methods respectively. Liver beta-glucuronidase was partially purified by gel filtration (Sephadex G 75) and Ion exchange (DEAE cellulose) chromatography. The Polyacrylamide Gel Electrophoresis was done.

The results: The present result found significant increases (p<0.05) in the level of serum and liver beta-glucuronidase enzyme in endotoxin group. The most change in the studied beta-glucuronidase enzyme were significant (p<0.05) with increase of beta-glucuronidase enzyme with endotoxin group and decrease of enzyme in tolerance group. The specific activity and activity beta-glucuronidase enzyme in endotoxin group was more than tolerance and control groups in all steps purification.

Conclusions: The results showed that stress plays an important role in the deterioration of cells, with liberation lysosomal enzymes in the cell, also suggest that correction of these particles by injection of glucocorticoid drug can significantly increase resistance to stress.

Keywords: stress, endotoxin shock, glucocorticoid drugs, lysosomes, beta-glucuronidase enzyme
PPT-04

Protective effects of *Origanum vulgare* extract on kidney catalase and superoxide dismutase on paraquat induced nephrotoxicity in rats.

Ali Sharifi Rigi¹, Esfandiar Heidarian², Sayed Asadollah Amini ³

1. Student Research Committee, Shahrekord University of Medical Sciences, Shahrekord, Iran
2. Clinical Biochemistry Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran
3. Medical Plants Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran

Corresponding Author: Ali Sharifi-Rigi

Email: alisharifi1041@gmail.com

Background: Paraquat is a herbicide. Paraquat can lead to kidney injury caused by producing oxidative stress. The aim of this study was to evaluate the effects of *Origanum vulgare* hydroalcoholic extract on kidney superoxidedismutase(SOD) and catalase(CAT) activities in paraquat-administered rats.

Methods: Forty-eight male rats randomly were divided into six groups as followed: group 1, normal control, was treated with distilled water; group 2, received paraquat-only (25 mg/kg body weight per day); Groups 3, 4 and 5, rats receiving paraquat for two weeks and oral treatment with 200, 400, and 800 mg/kg body weight per day of hydroalcoholic extract of *Origanum vulgare*, respectively. Then, kidney CAT and SOD activities were measured.

Results: In group 2 which received paraquat only, a significant decrease (P<0.05) was seen in SOD and CAT activities compared to control group. In group 3, 4 and 5 which received paraquat and treatment with *Origanum vulgare*, remarkable increased (P<0.05) the kidney SOD and CAT activities compared to the test group (group 2).

Conclusion: In this study reveals that hydroalcoholic extract of *Origanum vulgare* protect kidney injury against paraquat induced nephrotoxicity.

Keywords: nephrotoxicity, *Origanum vulgare*, paraquat, CAT, SOD.
Evaluation of anti-cancer effects of *CuscutaEpithymum*crude extract on breast cancer cell lines, MDA-MB231 and T47D.

**Introduction:** According to the high significant incidence and high mortality rate of breast cancer, herbal therapies such as complementary and alternative chemotherapy therapies are now increasing. Plants are source of a valuable component of active ingredients for the treatment of many diseases, such as cancer. Among these plants, there is a parasitic herb called Cuscuta. One of the species of this plant that is considered in this study is *CuscutaEpithymum* Murr. The purpose of this study was evaluation the effects of this plant on the breast cancer cell lines.

**Materials and Method:** *CuscutaEpithymum*Murr was collected from around of Zanjan and extracts of aqueous, ethanol and methanol was prepared. Then, IC50 of the plant extracts and the study of the cell growth process in adjacent compounds using MTT were calculated on MDA-MB-231 and T47D breast carcinoma cells and the results were analyzed by SPSS software.

**Results:** IC50 values for each cell line were calculated that only the aqueous extract of Cuscuta in breast cancer cell lines showed lower toxicity than the normal fibroblast cell line, IC50 for T47D, MDA-MB231 and L929 was 128.9, 141.21 and 181.80, respectively.

**Conclusion:** This study for the first time showed that, the aqueous extract of the *CuscutaEpithymum*murr in in vitro has the potential to kill the cancerous breast cancer cells without affecting normal cells and on the other hand, it has the highest effect on Er + cell lines and Er + cancers are includes 75% of breast cancers, so it could be an appropriate option for in vivo investigations and evaluation of possibly these results for anti-cancer drugs.

**Key words:** CUSCUTA, Breast Cancer, IC50
Susceptibility of Drug-seeking and Taking Behaviors Increases through Dysregulation of Copper and Zinc and Impaired Prefrontal Function in Addiction Period in Male Rats

Hamidreza Famitafreshi¹* and Morteza Karimian²

1 Department of Physiology, Tehran University of Medical Science-International Campus, Tehran, Iran.
2 Department of Physiology, Tehran University of Medical Science, Tehran, Iran.

Introduction: Drug addiction is a condition that in some occasions occurs with relapsing episodes. Reducing these relapsing episodes slows progression of recreational abuse with least adverse effects to everyday abuse with the most debilitating adverse effects.

Materials and Methods: In this study 16 male Sprague-Dawley rats weighing 200 to 250 gram were divided into 2 groups: Control and morphine-received. At the end of experiment sucrose consumption, salt appetite, novelty-seeking behavior, zinc in serum, copper in serum, glutathione in serum and prefrontal cortex stress-oxidative status for MDA (Malondialdehyde) were assessed.

Results: Sucrose and salt consumption were increased in morphine-receiving rats compared to control rats. Also, Novelty-seeking behavior was increased in morphine-receiving rats compared to control rats. Copper in serum was increased in morphine-receiving rats compared to control rats. Zinc in serum was increased in morphine-receiving rats compared to control rats. Oxidative-stress status as assessed for MDA in the prefrontal cortex was increased in morphine-receiving rats compared to control rats. Glutathione in serum was increased in morphine-received rats compared to control rats.

Conclusion: Involvement of prefrontal cortex in morphine-receiving period can be responsible for the occurrence of drug-seeking and taking behavior. In this sense, copper, zinc and antioxidant defense can play a pivotal role.

Keywords: Morphine; sucrose; salt; MDA; prefrontal; glutathione; copper and zinc.
**PPT-07**

**Anti-inflammatory effects of *Portulacaoleracea* aerial extract on human peripheral blood mononuclear cells**

Esmaeil Allahmoradi1,2*, Saeid Taghiloo1,2*, Versa Omrani-Nava1,2, Saeideh Sadat Shobeiri1,2, Mohsen Tehrani1,3, Mohammad Ali Ebrahimzadeh2,4, Hossein Asgarian-Omran1,5

1. Department of Immunology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran
2. Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran
3. Molecular and Cell-Biology Research Center, Mazandaran University of Medical Sciences, Sari, Iran
4. Pharmaceutical Sciences Research Center, School of Pharmacy, Mazandaran University of Medical Sciences, Sari, Iran
5. Immunogenetic Research Center, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran

Corresponding author: HosseinAsgarian-Omran, Ph.D.; Assistant Professor of Immunology, Department of Immunology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran; Tel: +98 11 33543081, Fax: +98 1133543249, Po. Box: 48175-1665, E-mail: asgarianhossein@yahoo.com

**Background:** *Portulacaoleracea* is an annual growing herb with wide distribution around the world and traditionally used to manage several diseases. Different therapeutic properties as an anti-fever agent as well as anti-inflammatory effects have been attributed to *P. oleracea*. The aim of this study was to investigate the effects of *P. oleracea* extract on production of pro- and anti-inflammatory cytokines by PBMCs.

**Methods:** Aerial partsof *P. oleracea* (stems and leaves) were collected and extracted by percolation using methanol. The optimal dose of hydro-alcoholic extract for cell culture
analysis was determined by MTT assay. To assess the anti-inflammatory effects of *P. oleracea*, PBMCs obtained from 12 normal volunteers were cultured in RPMI medium and co-treated with *E. coli* lipopolysaccharide (LPS) and *P. oleracea* hydro-alcoholic extract. Following 18 hours incubation, culture supernatants were harvested for measurement of secreted TNF-α, IL-6 and IL-10 by ELISA.

**Results:** The optimal non-cytotoxic concentration of *P. oleracea* extract was defined 100 μg/ml. *P. oleracea* extract significantly decreased the concentration of both pro-inflammatory cytokines TNF-α and IL-6 in LPS-stimulated PBMCs. However, IL-10 as an anti-inflammatory cytokine did not show any statistically significant difference.

**Conclusion:** Our findings highlighted the potential anti-inflammatory properties of *P. oleracea* in herbal medicine.

**Keywords:** *Portulaca oleracea*, anti-inflammatory agent, tumor necrosis factor-alpha, interleukin-6, interleukin-10
PPT-08

Effect of dracocephalummoldavica extract on hormonal signs of post-traumatic stress disorder (PTSD) induced by electric shock in rat

Zeinab Shaaban, Maryam Yusefi, Fatemeh Jabbari

Student Research Center, Baharestan 1 Education Office, Baharestan, Tehran, Iran

Background and Aim: *Dracocephalummoldavica* is a medicinal plant which has been used in traditional medicine. Traditionally, this medicinal plant has sedative and anti-anxiety effects and has been used to cure different diseases such as migraine, sleep disorders, and etc. The post-traumatic stress disorder (PTSD) is among the most important mental disorders of our century which causes great stress and several complications for the afflicted person. Nowadays, the definition of PTSD comprises not only those affected by the accident, but also those who have witnessed it. Therefore, in the current study, we aimed to investigate the effects of *dracocephalummoldavica* extract on hormonal signs of PTSD caused by electric foot shock.

Methods: Male Wistar rats (250-300 g weight) were used in this study. The animals randomly received electric foot shock (0.1 mA) for 100 seconds over a period of 10 days. After returned to cages to repose for 21 days, the animals were put back into the stress box but received no stress. The animals received different doses of *dracocephalummoldavica* extract (2, 4, 8 mg/kg) intraperitoneally 10 min before placing into the stress box (n = 7-9 rats/group). Control group received saline (1 mg/kg). Plasma corticosterone levels were assessed in control and treated animals.

Results: One-way ANOVA showed that stress elevated plasma corticosterone level (124 nmol/L) concentration in the control animals. Intraperitoneal administration of the *dracocephalummoldavica* extract reduced plasma corticosterone level (87 nmol/L).

Conclusion: These findings indicate that *dracocephalummoldavica* extract can reduce hormonal signs of PTSD and can use as an agency for moderation of PTSD signs.

Keywords: *Dracocephalummoldavica*; Post-traumatic stress disorder; corticosterone
Anethum graveolens L normalized lipid profile, antioxidant status and biochemical factors in Carbon tetrachloride (CCl4)-induced liver damage

Atefeh Pegah¹, Ebrahim Abbasi Oshaghi²
¹Student Research Committee, Hamadan University of Medical Sciences, Hamadan, Iran
²Department of Clinical Biochemistry, School of Medicine, Hamadan University of Medical Sciences, Hamadan, Iran

Background: Carbon tetrachloride (CCl4)-induced liver damage has been used as a model for studies for antioxidant properties of herbal medicine. Carbon tetrachloride leads liver injury and oxidative stress that is recognized by hepatic necrosis and fibrosis. Anethum graveolens L (dill) is famous herbal medicine being as an anti-lipidemic agent. This study aimed to survey the useful effect of this plant against liver injury.

Methods: In this experimental study Male Wistar rats were divided into 4 groups (n = 6) as following for a 10 days experiments. Group1: Normal animals, Group1: normal animals + Carbon tetrachloride 1 ml/kg (1:1 of Carbon tetrachloride in olive oil, by gastric tube), Group1: Carbon tetrachloride-treated animals +100 mg dill /kg, Group1: Carbon tetrachloride-treated animals +300 mg dill /kg. After 10 days, liver markers were determined and antioxidant capacity, thiol group, malondialdehyde (MDA) levels and catalase (CAT) activity were measured.

Results: In Anethum graveolens L treated rats in comparison with carbon tetrachloride group, liver markers such as LDH, ALP, ALT, AST, γ-GT, T- bilirubin, D-bilirubin, as well as total cholesterol and triglyceride levels significantly reduced (P < 0.01). Whereas, the amount of total protein was increased (P < 0.05). Moreover, in Anethum graveolens L treated rats liver lipids, liver MDA significantly reduced while total antioxidant capacity (TAC), thiol group and catalase activity reduced.

Conclusion: The results show that Anethum graveolens L showed significant antioxidant properties against carbon tetrachloride-induced liver injury.

Keywords: Dill, catalase, tetrachloride, catalase, malondialdehyde
Effect of Cichoriumintybus extract on blood parametric in alloxan-induced diabetic rats

Kamand Naderi, Fatemeh Gholamdust, Fatemeh Jabbari

Student Research Center, Baharestan 1 Education Office, Baharestan, Tehran, Iran

Background and aim: Cichoriumintybus is a medicinal plant which has been used in traditional medicine. Traditionally, this medicinal plant has sedative and anti-anxiety effects and has been used for the reinforcement of liver and kidney, and also regulation of blood pressure. Diabetes mellitus results from the autoimmune destruction of the insulin-producing beta cells in the pancreas. Subsequent lack of insulin leads to increased blood and urine glucose. In the current study, the effect of cichoriumintybus extract on the levels of blood glucose, total cholesterol and triglycerides in normal and alloxan-induced diabetic rats were investigated.

Methods: Male Wistar rats (230-280 g) were used in the current study. The effect of cichoriumintybus administration (5, 10 and 20 mg/kg, intraperitoneally) for 15 days consequently on the level of serum glucose, total cholesterol and triglycerides in normal and alloxan-induced diabetic rats were evaluated.

Results: The results showed that administrations of cichoriumintybus significantly decreased blood glucose, total cholesterol and triglycerides in diabetic rats but not in normal rats. The administration of Cichoriumintybus did not change the serum parameters in normal rats. A comparison was made between the action of Cichoriumintybus and glibenclamide (400 mg/kg), the known antidiabetic drug. The antidiabetic effect of the citrus aurantium was more effective than that observed with glibenclamide.

Conclusion: These finding revealed that this plant has hypoglycemic and hypolipidemic activities. It is concluded that the plant can be considered as excellent candidate for future studies on diabetes mellitus.

Keywords: Diabetes mellitus; Cichoriumintybus; blood glucose; cholesterol; triglycerides
Experimental study on safety property of α-L-guluronic acid (G2013) in BALB/c mice after intraperitoneal administration

Fatemeh Hosseini1, Ahmad Mahdian-Shakib2, Hadi Hassannia2

1. Department of Immunology, School of Medicine, Semnan University of Medical Sciences
2. Department of Immunology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly used to treat inflammatory conditions. However, long-term use of these drugs is limited due to their adverse effects. Thus, it is worthwhile to investigate new anti-inflammatory drugs that are safe with more therapeutic effects for long-term use. The small molecule of α-L-guluronic acid (ALG; G2013) is a new anti-inflammatory agent with promising therapeutic effects on inflammatory diseases. In this study, we evaluated the repeated-dose 28-day toxicity profiles of ALG in BALB/c mice after intraperitoneal (IP) administration through its effects on the mortality, body weight changes, gross findings, clinical status, microscopic pathology in selected organs, hematological and biochemical parameters. Our results did not show any death or clinical signs attributable to ALG treatment. In conclusion, our results provide toxicity information of ALG that let us test the use of ALG therapy in future clinical trials with more confidence and no potential health risk in patients.

Keywords: α-L-guluronic acid, 28-day toxicity, NSAIDs, safety pharmacology
Estimation of Lead in chicken meat using Flame Atomic Absorption Spectrophometory

OmolbaninGhasemian 1*, GhasemHoseini 2.

1- Young Reaserchers and Elite Club, Behbahan Branch, Islamic Azad University, Behbahan, Iran*.
2- Agriculture and Natural Resources Research Center, Kohgilouyeh and Boyerahmad province, Yasuj, Iran.

E-mail: Ghasemian1249@yahoo.com*

Background and Aim: Lead (Pb) is persistent in the environment and is subject to bioaccumulation in food chains and is highly toxic to humans, has worldwide distribution and is accumulated in environment by industrial pollution. In this study, concentration of Pb was determined in chicken meat consumed by various categories of the population of Kohgiloye- and Boyerahmad province.

Methods: A total of 25 chicken meat samples were analyzed using Flame Atomic Absorption Spectrophometory following sample digestion by nitric acid/perchloric acid. The statistical analysis of data was done by the Student’s t test.

Results: The concentration range of the Pb was 87.7± 80 mg.kg⁻¹. The concentrations of the Pb in the meat of chickens were found to be statistically significant (p<0.05) and within safe limits for consumption.

Conclusion: In general, the dietary exposure analysis on the studied population revealed low exposure of this metal from chicken meat. The information provided herein will be essential to frame guidelines and standards for Pb in meat chicken in this regions.

Keywords: chicken meat, heavy metals, industrial pollution, Lead (Pb).
PPT-13

Determination of renal Bax in rats induced- doxorubicin

OmolbaninGhasemian¹
1- Department of Veterinary, Behbahan Branch, Islamic Azad University, Behbahan, Iran.

ghasemian1249@yahoo.com

Background & Aims: Doxorubicin (DOX) is an anthracycline antibiotic that is widely used as an anticancer agent. However, its use has been restricted due to the dose-dependent renal toxicity. The mechanisms of Doxorubicin - induced renal toxicity is not entirely clear. The purpose of this study was to investigate the effect of Doxorubicin on Bax gene expression apoptotic index (Bax) of renal tissue of male rats exposed to doxorubicin.

Materials and Methods: In this experimental study Doxorubicin administration, male Wistar rats were exposed to intraperitoneal injections (2 mg/kg, Seven times for 8 weeks, n=18). Animals were randomly assigned to the healthy untreated control (n=8) and to the Doxorubicin treatment groups (n=10). Three weeks after completion of treatment choronic disease, Bax gene expression were investigated by Tanell test with In Situ Cell Detection Kit, POD, 11684817910, Roche and Real Time- PCR analysis respectively. Statistical analysis was performed using the SPSS-16 and independent samples t-test.

Results: Real Time- PCR analysis showed that Doxorubicin increased Bax expression levels (6.36±0.47) in the kidney tissue in compare to control group (0.373±0.04) (P<0.01).

Conclusion: The findings showed that administration of Doxorubicin increase chronic disease and Bax expression level. This study investigates the effect of Doxorubicin on Bax gene expression as key molecule that involve in intrinsic pathway of apoptosis in rat kidney.

Keywords: Doxorubicin, Renal toxicity, Choronic disease, Apoptosis, Bax
Evaluation of effects of *Myrtus communis* L. to Inactivate the Hydatid Cyst Protoscoleces

MassumehNiazi¹, Mojgan Saki ¹, MojganMirzaei¹, HosseinMahmoudvand²,*

¹ Student Research Committee, Lorestan University of Medical Sciences, Khorramabad, Iran
² Razi Herbal Medicines Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran (dmahmodvand@gmail.com)

**Background:** Current scolicidal agents, which have been used for inactivation of protoscoleces during hydatid cyst surgery are associated with adverse side effects. The present study aims to investigate the scolicidal effects of *Myrtus communis* L. essential oil against protoscoleces of hydatid cysts and also its toxicity in mice model.

**Methods:** Protoscoleces were aseptically aspirated from sheep livers having hydatid cysts. Various concentrations of the essential oil (12.5, 25, 50, and 100 μl/ml) were used for 5-30 min. Viability of protoscoleces was confirmed using eosin exclusion test (0.1% eosin staining). Moreover, 48 male NMRI mice were used to determine the acute and sub-acute toxicity of *M. communis* essential oil. One-way ANOVA with Tukey's post-hoc test was used to assess differences between experimental groups.

**Results:** Findings of the present study demonstrated that the *M. communis* essential oil at the concentration of 100 μl/ml after 5 min of exposure killed 100% protoscoleces. Similarly, the mean mortality rate of protoscoleces after 10 min of exposure to concentration of 50 μl/ml was 100%. However, lower concentrations (12.5 and 25 μl/ml) of *M. communis* essential oil provoked a delayed protoscolicidal effects. The LD50 values of intraperitoneal injection of the *M. communis* essential oil was 2.23 mL/kg body wt. No significant difference (p > .05) was observed in the clinical chemistry and hematological parameters following oral administrations of *M. communis* essential oil at the doses 0.05, 0.1, 0.2, and 0.4 mL/kg for 14 days.

**Conclusion:** The results showed potent scolicidal activity of *M. communis* with no significant toxicity, which might be used as a natural scolicidal agent in hydatid cyst surgery.
Astaxanthin as a Potent Therapeutic Agent: A Review

Sajad Fakhri¹, Fatemeh Abbaszadeh², Leila Dargahi², Masoumeh Jorjani¹,²

1. Department of Pharmacology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2. Neurobiology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Astaxanthin (AST) is a potent lipid-soluble and red-orange keto-carotenoid. It has been attributed with extraordinary potential for protecting the organisms against a wide range of diseases and has promising applications in human health with excellent safety and tolerability. Various important health-promoting benefits and potential biological activity in vitro and in vivo models have been suggested for AST including anti-oxidant, anti-cancer, anti-obesity-triglyceride and cholesterol, anti-hypertension, cardioprotective, ophthalmologic benefits, anti-Inflammation, anti-Diabetes, immuno-Modulation, skin and Cosmetic benefits, hepatocellular protection, neuroprotection, Effects on bone, muscle resilience, relief of eye fatigue, effects on reproduction system and some other effects. This review article will focus on the therapeutic applications of AST and its related pharmacological mechanisms of action for the treatment and prevention of the peripheral and central diseases.

Keywords: Astaxanthin, Health-promoting benefits
Spinal cord injury (SCI) has become epidemic in modern society. Despite advances made in the understanding of the pathogenesis, mechanisms and improvements in early recognition and treatment, it remains a devastating event, often producing severe and permanent disability.

SCI causes inflammatory responses through the activation of innate immune responses that contribute to secondary injury, in which MIF, NMDA upregulation, GABA disinhibition are hallmarks.

It is important to understand how macrophages, NMDA and GABA receptors, and other molecular pathways interrelate and interact on the pathophysiological level. This review provides an overview of the pharmacological mechanisms of pain after SCI mainly from the following perspectives: (1) the overview of the pharmacological treatment of SCI, (2) newly developed neuroprotective therapies modulating important pathways in the SCI-pain (3) the roles of MIF, NMDA receptor, GABA receptor and other molecular mechanisms.

Keywords: Spinal Cord Injury, Pain, Pharmacological Mechanisms and Treatments
Evaluation the skin toxicity of *Dorema ammoniacum* gum extractin experimental animals

Amir Kiani¹-², Marziyeh Pandpazir³, Sajad Fakhri¹⁴, Zahra Mousavi³

1. Department of Pharmacology and Toxicology, Kermanshah University of Medical Sciences, Kermanshah, Iran.
2. Regenerative Medicine Research Center (RMRC), Kermanshah University of Medical Sciences, Kermanshah, Iran.
3. Department of Pharmacology and Toxicology, Pharmaceutical Sciences Branch, Islamic Azad University, (IAUPS), Tehran, Iran.
4. Department of Pharmacology, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

**Background:** *Dorema ammoniacum* (*D.a*) by belonging to the Apiaceae family is one of the most important endemic medicinal plants of arid and semi-arid areas in the regions of Iran. Its gum resin is used in Iranian traditional medicine and also usually used in food, cosmetic and detergent industries. In the present study, in vivo skin toxicity of *Dorema ammoniacum* gum extract (DAGE) were investigated in rabbits.

**Method:** In this study, the toxicity level of *Dorema ammoniacum* gum extract was examined on the skin of white laboratory adult male rabbits. Rabbits divided into three groups: 1) test group received topical DAGE; control group received topical water and topical Selenium sulfate as a positive irritant control group to assess the skin toxicity of DAGE. 24 hours following shaving off some of the skin of the animal in dimensions of 2.5 * 2.5 cm and disinfecting the region by alcohol, 0.5 mg of the extract was applied topically. The degree of erythema and edema of the region was measured after 24, 48 and 72 h based on the Draize primary skin irritation test, where the extent of the developed inflammatory reaction was calculated by an index called primary irritation index (PII), the sum of the mean of the erythema and edema of each region during the three time periods. It should be noted that normal saline was used as a negative control and selenium sulfate shampoo was applied as a positive control.

**Results:** The results showed no skin toxicity of DAGE in rabbits.

**Conclusion:** The results and other our finding in the anti-inflammatory effect of DAGE suggest that it possesses biologically active constituent(s) that have significant activity against acute inflammation which supports the ethnomedicinal claims of the use of the plant in the management of inflammation.

**Keywords:** *Dorema ammoniacum* gum, Draize test
Treatment of Ankylosing Spondylitis: A Systematic Review

Andisheh Soleimani¹, Toomaj Sabooteh², Farhad Shahsavar³*

8. Ayatollah Borujerdi Hospital, Lorestan University of Medical Sciences, Borujerd, Iran.
9. Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
10. Department of Immunology, Lorestan University of Medical Sciences, Khorramabad, Iran.

Background: Ankylosing spondylitis (AS) is a chronic rheumatic disease predominantly of the axial skeleton (spine and sacroiliac joints). Only nonsteroidal anti-inflammatory drugs (NSAIDs) and tumor necrosis factor (TNF)-α inhibitors are effective for the treatment of signs and symptoms of active AS with predominant axial involvement. In contrast to rheumatoid arthritis (RA), disease-modifying antirheumatic drugs (DMARDs) play only a minor role in the management of AS and only in case of peripheral joint involvement. At the same time, in AS patients treated with TNF-blockers, about half show a 50% improvement of their disease activity as measured by the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI). In this study we assessed the Treatment of ankylosing spondylitis by performing a systematic review.

Methods: A systematic search was performed. ISI Web of Science, Pubmed and Scopus were searched from 1990 to 2017 using the keywords “ankylosing spondylitis” AND “treatment” with their synonyms and MeSH terms. In addition, a manual search of the reference lists of the articles found was performed.

Results: After research with an adequate combination of keywords in the databases and after a manual search of the literature we found a total of 374 articles. Altogether, 357 articles were excluded for different reasons such as double counting, insufficient description of grading, not well defined AS population, no possibility to calculate sensitivity (eg, only mean values given), case reports only, report focusing on technical details, only letter, comment or editorial. Finally, 17 articles were included in our analysis.

Conclusion: Although surgical treatment is sometimes used, most ankylosing spondylitis patients are treated with medications at nonorthopedic departments. Overall, orthopedic surgeons should make more effort to reduce the economic burden of ankylosing spondylitis and alleviate patients’ suffering from spinal and musculoskeletal pain and deformity via active diagnosis and treatment. Biological agents directed against tumor necrosis factor (TNF) represent therapeutic options for patients with ankylosing spondylitis with high disease activity despite use of non-steroidal anti-inflammatory drugs. Patients treated with anti-TNF agents were more likely to display response after 12/14 weeks compared with controls, which was also true for several other efficacy outcomes. In these studies showed that, Adalimumab, infliximab, etanercept, and golimumab can effectively reduce the signs and symptoms of the axial component of ankylosing spondylitis. Safety outcomes deserve further study, especially with respect to long-term follow-ups.

Keywords: Ankylosing Spondylitis, Treatment.
Production and quality control of $^{99m}$Tc-Rituximab for lymphoma diagnosis applications

Kamal Yavari

Nuclear Science and Technology Research Institute, P.O. Box: 14395–836, Tehran, Iran

**Background:** Lymphomas are the most frequent hematological malignancy. In non Hodgkin lymphomas (NHL), more than 92% of tumour cells express the CD 20 antigen. **Rituximab** is a chimeric murine/human monoclonal antibody (mAb) that targets the CD20 antigen. The aim of this study was to develop a specific radiotracer of NHL CD 20+ cells with $^{99m}$Tc using rituximab.

**Methods:** In this study, anti-CD20 (rituximab) was purified and then reduced by 2-ME (2-mercaptoethanol). Rituximab radiolabeled with $^{99m}$Tc using MDP as chelator. Radiochemical purity and stability in buffer and human blood serum were determined using thin layer chromatography. Biodistribution study of $^{99m}$Tc-retuximab was performed in mice at 2, 4, 8 and 24 hours after injection.

**Results:** The efficiency of antibody labeling was more than 98%. The in vitro stability of the labeled product in human serum after 24h was 93%. The highest %ID/g was observed in the blood.

**Conclusion:** The results hope to strengthen the diagnostic radiopharmaceuticals of lymphoma, and with the completion of the tests and according to its clinical application abroad, a diagnostic kit can be provided in the future.

**Keywords:** Rituximab, $^{99m}$Tc, Lymphoma
Production and quality control of Anti- CD20-⁹⁰Y radioimmunoconjugate

Kamal Yavari
Nuclear Science and Technology Research Institute, P.O. Box: 14395–836, Tehran, Iran

Background:
Radioimmunotherapy method, which is a kind of targeted therapy, is important for the treatment of non-Hodgkin's lymphoma in humans. The main goal of this study was to optimize the radioimmunoconjugation of monoclonal anti CD20 with ⁹⁰Y as a potential molecular tracer for lymphoma radioimmunotherapy (RIT).

Methods:
At first, the anti-CD20 antibody was purified. The antibody was labeled with Y90 after the conjugation with the newly-prepared DOTA-NHS. Labeling efficiency and stability were measured using thin layer chromatography (TLC). Cell tests were performed to control the growth of cancer cells using the MTT method.

Results:
The results showed that the total anti-CD20-DOTA-⁹⁰Y labeling lasted about 1 hour and the radiochemical purity of anti-CD20-DOTA-⁹⁰Y was 84 ± 1%. The anti-CD20-DOTA-⁹⁰Y complex was stable in many conditions, including the human serum, and had high radiochemical purity (greater than 95%). Also, results showed that the anti-CD20-DOTA-⁹⁰Y strongly inhibited the growth of raji cancer cells and the inhibitory effect was far greater than that of the free isotope and antibodies alone.

Conclusion:
This study demonstrates the ability of anti-CD20 as a useful radioactive conjugate for use in the treatment of lymphoma cancer with increased CD20 expression.

Keywords:
Anti- CD20, ⁹⁰Y, Cell growth, Lymphoma, Radioimmunotherapy
Oral acute and sub-acute toxicity effect of *Terminalia chebulare* and *Achillea wilhelmsii* hydro-alcoholic extract in Balb/c mice

Mahnaz Jafari¹, Zahra Lorigooiit², KouroshManouchehriNaeini¹

¹Dept. of Parasitology, Mycology and Entomology Shahrekord faculty of Medicine, Shahrekord University of Medical Sciences, Iran

²Medical Plants Research Center, Basic Health Sciences Institute, Shahrekord University of Medical Sciences, Shahrekord, Iran

**Backgrounds:** Considering the increasing use of medicinal plants for pharmacological studies, and therapeutic purposes for treatment of microbial diseases the determination of toxic dose along with their therapeutic properties are essential. Therefore, this study was conducted to investigate the acute and subacute toxicity of extracts of *Terminalia chebulare* and *Achillea wilhelmsii*.

**Methods:** After preparation of hydro-alcoholic extracts, the total phenol and flavonoid content of the extracts were determined by the spectrophotometry and their antioxidant potency by DPPH method was measured. This study was conducted in two acute and sub-acute phases: in both phases, Balb/c mice were randomly divided into control (normal saline) and intervention groups and the subjects were received the extracts with different doses (10, 156/25, 312/5, 625, 1250, 2500, and 5000 mg/kg of an extract of both herbs) were administered orally. Duration of sub-acute phase was 7 days. After sacrificing the animals, liver and kidney tissues were collected for the histological studies. Data analysis was made by probit regression analysis using SPSS software.

**Results:** Our results showed that a safe dose of both extracts was ≤5000mg/kg. In sub-acute phase, LD₅₀ with 95% confidence interval of *Achillea wilhelmsii* extract ≥5000 mg/kg and *Terminalia chebulare* extract 2754/436 (2438-3114 mg/kg) were determined. The total phenolic content of *Terminalia chebulare* and *Achillea wilhelmsii* were estimated as 276.66±1.45 and 55.07±0.29 mg gallic acid in the extract and the flavonoid content was measured as 39.99±0.19 and 39.14±0.1 mg rutin in the extract respectively. Also, antioxidant potency as was calculated IC₅₀:4.89± 0.1 and 154.54±1.01. Mild histopathological changes were also found in at the highest dose of *Terminalia chebulare* extract.

**Conclusion:** In conclusion, the toxicity data that obtained during this study might be useful to select safe doses in further studies.

**Key Words:** *Terminalia chebulare*, *Achillea wilhelmsii*, Acut toxic, sub-acute toxic
Neuroprotective effect of kaempferol against 6-Hydroxydopamine-induced wistar rat model of Parkinson's disease.

Shahram Darabi

Cellular and Molecular Research Center, Qazvin University of Medical Science, Qazvin, Iran.

Abstract

Background: Parkinson's disease (PD) is the second most common neurodegenerative disorder affecting 1 percent of the population older than 60 years. In the present study, we investigated the neuroprotective effects of kaempferol in the wistar rat model of Parkinson's disease, which was induced by neurotoxin 6-Hydroxydopamine (6-OHDA).

Methods: In this present study, a rat model of PD was created by administration of 6-OHDA in striatum. Here, we have isolated substantianigra (SN) of controls and lesion (6-OHDA) groups of male wistar rats. Kaempferol was orally administered once daily for a period of 1 weeks before and 2 week after the unilateral lesion of left striatum induced by 6-OHDA.

Results: We confirmed that 6-OHDA led to behavioral deficits, depletion of dopamine and its metabolites, reduction in superoxide dismutase (SOD) and glutathione peroxidase (GSH-PX) activity, in the substantianigra. The results showed that Kaempferol markedly improved the locomotor, motor balance, coordination, and apomorphine-induced rotations in 6-OHDA-lesioned rats.

Conclusion: Taken together, we propose that kaempferol has potent anti-Parkinson property. More work is needed to explore detailed mechanisms of action.

Keywords: Parkinson's disease, 6-OHDA, kaempferol
Neuroprotective effect of kaempferol against 6-Hydroxydopamine-induced wistar rat model of Parkinson's disease.
Shahram Darabi
Cellular and Molecular Research Center, Qazvin University of Medical Science, Qazvin, Iran.

Abstract

**Background:** Parkinson's disease (PD) is the second most common neurodegenerative disorder affecting 1 percent of the population older than 60 years. In the present study, we investigated the neuroprotective effects of kaempferol in the wistar rat model of Parkinson's disease, which was induced by neurotoxin 6-Hydroxydopamine (6-OHDA).

**Methods:** In this present study, a rat model of PD was created by administration of 6-OHDA in striatum. Here, we have isolated substantianigra(SN) of controls and lesion (6-OHDA) groups of male wistar rats. Kaempferol was orally administered once daily for a period of 1 weeks before and 2 week after the unilateral lesion of left striatum induced by 6-OHDA.

**Results:** We confirmed that 6-OHDA led to behavioral deficits, depletion of dopamine and its metabolites, reduction in superoxide dismutase (SOD) and glutathione peroxidase (GSH-PX) activity, in the substantianigra. The results showed that Kaempferol markedly improved the locomotor, motor balance, coordination, and apomorphine-induced rotations in 6-OHDA-lesioned rats.

**Conclusion:** Taken together, we propose that kaempferol has potent anti-Parkinson property. More work is needed to explore detailed mechanisms of action.

**Keywords:** Parkinson's disease, 6-OHDA, kaempferol
Bisphenol A Induces Autophagy and cell death in Bone Marrow Mesenchymal Cells.

Shahram Darabi1

1 Cellular and Molecular Research Center, Qazvin University of Medical Science, Qazvin, Iran.

Background: Bisphenol A (BPA) is an estrogenic endocrine disrupting compound used in the production of polycarbonate plastics and epoxy resins in food and beverage plastic containers. Previous studies have demonstrated that BPA induced cell toxicity with the generation of oxidative stress, and there is a potent genotoxic agent and affects the normal physiological functions. However, the molecular mechanisms of the effects of BPA on autophagy and association with cell death are still unknown. The objective of this study was to evaluate whether exposure to BPA induces oxidative stress in Bone Marrow Stromal Stem Cells (BMSCs). In the current study, BPA increased cell death in BMSCs in a dose- and time-dependent manner.

Methods: In this study, after BMSCs were indubated with the BPA, autophagy genes (LC3-II and SQSTM1) were analyzed by RT-PCR and immunofluorescence and BMSCs were counted using Trypan blue dye.

Results: We observed that BPA exposure during BMSCs culture, enhanced the expression and the levels of autophagy LC3-II and SQSTM1 genes. BPA in 2 mM concentration significantly decreased the number of BMSCs cells as compared to those of the control.

Conclusion: These results suggest implication of autophagy against BPA-mediated BMSCs degeneration.

Keywords: Bisphenol A, Bone Marrow Stromal Stem Cells, Autophagy
PPT-25

*Synergistic effect of Carum copticum and Mentha piperita essential oils with ciprofloxacin, vancomycin, and gentamicin on Gram-negative and Gram-positive bacteria*

Gholam-Reza Talei, Mohsen Mohammadi, Mahmoud Bahmani,
Department of Microbiology, Razi Herbal Medicine Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran

**Background:** Infectious diseases have always been an important health issue in human communities. In the recent years, much research has been conducted on antimicrobial effects of nature-based compounds because of increased prevalence of antibiotic resistance. The present study was conducted to investigate synergistic effect of *Carum copticum* and *Mentha piperita* essential oils with ciprofloxacin, vancomycin, and gentamicin on Gram-negative and Gram-positive bacteria.

**Materials and Methods:** In this experimental study, the synergistic effects of *C. copticum* and *M. piperita* essential oils with antibiotics on *Staphylococcus aureus* (ATCC 25923), *Enterococcus faecalis* (ATCC 29212), *Escherichia coli* (ATCC 8739), *Pseudomonas aeruginosa* (ATCC 9027), *Staphylococcus epidermidis* (ATCC 14990), and *Listeria monocytogenes* (ATCC 7644) were studied according to broth microdilution and the MIC and fractional inhibitory concentration (FIC) of these two essential oils determined.

**Results:** *C. copticum* essential oil at 30 µg/ml could inhibit *S. aureus*, and in combination with vancomycin, decreased MIC from 0.5 to 0.12 µg/ml. Moreover, the FIC was derived 0.24 µg/ml which represents a potent synergistic effect with vancomycin against *S. aureus* growth. *C. copticum* essential oil alone or combined with other antibiotics is effective in treating bacterial infections.

**Conclusions:** In addition, *C. copticum* essential oil can strengthen the activities of certain antibiotics, which makes it possible to use this essential oil, especially in drug resistance or to lower dosage or toxicity of the drugs.

**Keywords:** Antimicrobial effect, essential oil, Antibiotics, synergism
Title: Drug toxicity-associated deaths; a three year survey of analytical toxicology results

Mahdi Yousefi Fard1, Maryam Akhgari2*, Zahra Mousavi1

1. Department of Toxicology & Pharmacology, Faculty of Pharmacy, Pharmaceutical Sciences Branch, Islamic Azad University (IAUPS), Tehran, Iran
2. Forensic Toxicology Department, Legal Medicine Research Center, Legal Medicine Organization, Tehran, Iran

Background: Drug poisoning is one of the most important causes of deaths all over the world. Pattern of poisoning is different according to the access to different kinds of drugs, social status, geographical situation of the country and many other factors. Forensic toxicology laboratories are responsible for the detection and identification of different drugs and poisons in postmortem samples. The purpose of the present study was to analyse data from forensic toxicology analysis results of drug poisoning-associated death cases that were referred to forensic toxicology laboratory Qom province, Iran in a three-year study interval, 2014-2016.

Methods: All confirmed cases with the history of drug poisoning associated deaths that had been investigated in forensic toxicology laboratory Qom province, Iran, 2014-2016 were included in the present study. For the confirmation the role of drugs and poisons in death, all postmortem samples were analysed using thin layer chromatography (TLC) as screening test and high performance liquid chromatography (HPLC), gas chromatography/mass spectrometry (GC/MS), headspace gas chromatography equipped with FID detector and headspace gas chromatography equipped with nitrogen phosphorous detector. Demographic data were collected from autopsy reports of all drug poisoning-associated deaths.

Results: Results showed that 195 cases of drug poisoning-associated deaths were investigated during three-year study period, of which 170 (87%) were men. Opium alkaloids were the most detected substances in postmortem samples (115 cases) followed by carboxyhemoglobin in 19 cases and phosphine gas liberated from aluminum phosphide tablets known as rice tablets (10 cases). Other detected drugs and poisons were methadone, tramadol and methamphetamine. The pattern of polydrug use was detected in 12 cases. The majority of cases had used drugs with mixed route of administration such as insufflations plus oral route (30 cases), insufflations plus intravenous injection (24 cases), or insufflations alone (69 cases). Demographic characteristics of decedents showed that about 50% of cases were single; with mean age of 35.25±12.37 (mean±SD) years. The highest rate of drug poisoning-associated deaths occurred in subjects with low educational attainment (73%) (under diploma).

Conclusion: In conclusion drug poisoning-associated deaths were predominant in young population that had used opium alkaloids. It seems that free access to controlled drugs should be restricted. Also information propagation concerning drug toxicity can prevent and reduce all kinds of drug poisoning.

Keywords: Drug toxicity, Forensic toxicology, Laboratory analysis, HPLC, GC/MS
PPT-27

Protective effect of curcumin on learning and analgesic activity on offspring with autism

Forough Aghajani Torshkooh¹, Parvaneh Najafizadeh ²*, Parisa Farzad¹, Soltan Ahmad Ebrahimi², Reza rahimi ²

1. Department of Pharmacology & Toxicology, Faculty of Pharmacy, Pharmaceutical Sciences Branch, Islamic Azad University, Tehran, Iran (IAUPS).
2. Department of Pharmacology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran

Background: Autism is a pervasive neurodevelopmental disorder, diagnosed behaviorally upon early childhood presentation of social impairment, abnormal communication, and inflexible behaviors .induced by prenatal exposure to valproic acid (VPA) has been proposed to study autism. Curcumin play a role in preventing degenerative disease of the brain .recently the role of curcumin have examined in cognitive activity.

Method and material:
In this study 50 female albino Wistar rats (200-240 g) are classified into five groups (10 rat in each groups):
1- Pregnant rat with 400mg/kg valproate in 12.5 day, pregnant rat with carrier in 7-11 day,
2- pregnant with curcumin (50mg/kg/day/ i.p) in 7-11 day and 400mg/kg valproate in 12.5 day,
3- pregnant with curcumin (100mg/kg/day/i.p) in 7-11 day and 400mg/kg VPA in 12.5 day
4- pregnant rat with DMSO in 7-11 day
5- pregnant with curcumin (200mg/kg/day/i.p) in 7-11 day and 400mg/kg VPA

The first, female with male rat in the weight range can be given to pregnant female rat to be done then isolated female rats than male rats and transmitted a separate cage.in each group learning and analgesic activity were tested by shuttle box and hot plate test.

Result: In the shuttle box test The results show that Curcumin (100 and 200mg/kg) in male rats caused significant difference compared to Control groups (p=0.0049) Also hot plate test showed that the groups receiving the curcumin had a significant difference with the negative control group.(p<0.001)

Conclusion: According to our study in the shuttle box test, the curcumin recipient groups learn better than the Autism group. The control group of autism has a higher latency than the control group As compared to the temperature in the hot plate test but curcumin could not reduce the latency time in autism .the results of this study show curcumin may be able to improve cognitive disorders in patients with autism that need to investigate further.

Key words: autism, valproate, curcumin , rat
Antemortem diagnosis of human rabies cases using SYBR Green Real Time PCR for the first time in Iran

Behnoush Khasheii¹, Masoumeh Arab Baferani¹, Rouzbeh Bashar¹, Alireza Gholami¹, Fatemeh Jahanbakhsh¹, Reza Shirzadi², Maryam Fazeli¹*

1. WHO Collaborating Center for Reference and Research on Rabies, Pasteur Institute of Iran, Tehran, Iran
2. Zoonoses Control Department, Center for Communicable Diseases Control, Ministry of Health and Medical Education, Tehran, Iran

*Corresponding author: Maryam Fazeli, Center for Reference and Research on Rabies, Pasteur Institute of Iran, No. 75, 12 Farvardin St., Tehran, Iran. email: m_fazeli@pasteur.ac.ir

Objective: Rabies is an enzootic and fatal disease and Health dilemma. The Fluorescent Antibody Test (FAT) is the "gold standard" diagnostic method for suspected brain samples. For close monitoring of unknown encephalitis, rabies surveillance, and also the limitations for post-mortem diagnosis of rabies in human and performing fast prophylactic measures, antemortem diagnosis based on molecular methods seems to be more reliable.

Methodes: In this study, three saliva samples at intervals up to six hours were collected from any of nine suspected patients with nonspecific symptoms between March 2016 and March 2017. Total RNA extraction, cDNA synthesis and Real Time PCR were performe. Then, we tracked the patients for follow-up and understanding of their status and also performed direct FAT and Mouse Inoculation Test (MIT) on the brain of patients who died.

Results: In this study, the patients were four females and five males, between 8 and 80 years old, from different geographical areas of Iran. The antemortem saliva samples of two than nine patients dead were positive by SYBR Green Real Time PCR. Positive results of FAT test on these samples confirmed the presence of rabies virus infection in their brains and also the antemortem diagnosis results.

Conclusion: The results of this study suggest that SYBR Green real time PCR technique on saliva sample can be used as an applicable method for antemortm diagnosis of rabies to avoid of infect other people as medical staff or Patient's family members.

Keywords: Diagnosis, human, Rabies, Real-Time Polymerase Chain Reaction (PCR)
Association of HHV-6 with Hodgkin and non Hodgkin lymphoma

Hadis Kiani¹, Ali Ramezani¹, Manoochehr Makvandi¹*.

¹Health Research Institute, Infectious and Tropical Diseases Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background and Objectives: Human Herpes 6 virus (HHV-6) could remain latent and chronic in the host cells after primary infection. HHV-6 genome encodes certain transactivation proteins which may result in the development of malignant lymphoma. The association of human herpes six virus (HHV-6) infection and Hodgkin and Non-Hodgkin Lymphomas is strongly supported by epidemiological studies. The aim of this study was to determine the prevalence of HHV-6 among the patients with Hodgkin, Non- Hodgkin’s lymphoma.

Materials and Methods: Overall 44 blocks of formalin-fixed, paraffin-embedded of the patients including 22(50%) Hodgkin and 22(50%) Non-Hodgkin Lymphoma were collected.

Initially the section of 5µm-thickness were prepared from the formalin-fixed, paraffin-embedded tissue blocks. Then the deparaffinization was carried out for each sample. The DNA was extracted, followed by nested PCR for detection of HHV-6. Based on PCR product size and sequencing, the HHV-6 A or B subtypes were characterized.

Results: 12/22(54.54%) cases of Hodgkin and 8/22 (36.36%) Non-Hodgkin’s lymphoma were shown as positive for HHV-6. Out of 12 positive HHV-6 in Hodgkin lymphoma, 10 patients (45.45%) belonged to variant A while 2 cases (9.09%) were found positive for both HHV-6A and HHV-6B. All the Non Hodgkin samples (n=8, 36.36%) showed positive for HHV-6 variant A.

Conclusion: High prevalence of HHV-6 was found among the patients with Hodgkin and Non-Hodgkin’s lymphoma. Two patients with Hodgkin lymphoma had mixed HHV-6A and HHV-6B infections. It is recommended patients with Hodgkin and Non-Hodgkin should be screened for HHV-6 detection before chemotherapy.

Keywords: Nested PCR, Human herpes virus 6, Hodgkin lymphoma, Non-hodgkin Lymphoma
Association of Human Cytomegalovirus with Hodgkin’s Disease and Non-Hodgkin’s lymphomas

Hadis Kiani,1 Hamide Mehravaran,1 Ali Ramezani,1 Sara Khosrav,2 Manoochehr Makvandi1*.  
1Health Research Institute, Infectious and Tropical Diseases Research Center, Ahvaz, Iran  
2Department Medical Microbiology, Faculty of Medicine, Hamadan University of Medical Sciences, Iran

Background and Objective: The human cytomegalovirus (HCMV) can persist lifelong as a latent infection and may result in a series of disorders. Associations with both Hodgkin’s disease and non-Hodgkin’s lymphomas have been reported. Expression of the unique long (UL)138 gene of HCMV is linked with the viral latency phase while that of the immediate-early (IE)1 gene is typical of the viral replication phase in patients. This study conducted to determine the prevalence of CMV latent infection in histological tissue samples from patients with Hodgkin’s and NonHodgkin’s lymphomas.

Material and Methods: A cross sectional study was carried out with a total of 50 paraffin embedded tissues blocks, including 25 samples for Hodgkin’s disease and 25 samples for non-Hodgkin’s lymphomas. After RNA extraction and cDNA preparation, detection of IE1 mRNA was conducted by RTPCR and identification of mRNA UL138 was achieved by nested PCR.

Results: Among 25 cases of Non-Hodgkin’s lymphoma, 5 (20%) were positive for UL138 and 1 (4%) for both IE1 and UL 138. Among 25 cases of Hodgkin only 1 (4%) was positive for UL 138 and all were negative for IE1.

Conclusion: A relatively high 20% rate of expression of UL 138 was detected in patients with nonHodgkin’s lymphoma, so that latent CMV infection may play a role in development of the disease.

Keywords: Human Cytomegalovirus, nested PCR, Hodgkin disease, Non-Hodgkin lymphoma
Low Detection of Hepatitis B and Occult Hepatitis B Infection in Patients with Rheumatic Diseases

Behnam Azizolahi1,2, Elham Rajaei3, Reza Taherkhani4-5, Fatemeh Farshadpour4-5, Manoochehr Makvandi2-*

1Microbiology Department, Paramedical School, Dezful University of Medical Sciences, Dezful, IR Iran.
2Medical Virology Department, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran.
3Rheumatology Department, Golestan Hospital, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran.
4Microbiology and Parasitology Department, School of Medicine, Bushehr University of Medical Sciences, Bushehr, IR Iran.
5Tropical Medicine Research Center, Bushehr University of Medical Sciences, Bushehr, IR Iran.
*Corresponding author: Manoochehr Makvandi
Email: manoochehrmakvandi29@yahoo.com

Aim: A new form of hepatitis B virus (HBV) infection, occult hepatitis B infection (OBI), has been identified as the presence of HBV DNA without detectable HB surface antigen (HBsAg) and with or without HB core antibody (HBcAb)/HBsAb. OBI has been reported among patients with rheumatic diseases. Reactivation of HBV has been described in OBI positive patients with rheumatic diseases who receive treatment with immunosuppressive medication. The aim of this study was to determine the incidence of HBV infection and OBI in patients with rheumatic diseases referred to major hospitals in the city of Ahvaz in Iran.

Methods: In a cross-sectional study, sera samples were collected from 136 patients with rheumatic diseases referred to the rheumatology clinics, Ahvaz Jundishapur University of Medical Sciences, during March to December 2015. Medical records of the patients included the diagnoses of rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and ankylosing spondylitis (AS) as well as undifferentiated connective tissue disease (UCTD). Serological assays for HBV markers (HBsAg, HBcAb and HBsAb) were performed by enzyme-linked immunosorbent assay. All the sera were tested for HBV DNA using nested PCR and real-time PCR. All samples were negative for anti-HCV and anti-HIV antibodies as selection criteria for the research.

Results: The mean age of the patients was 43.5±12.02 years with a F:M 2.24:1. 2 (1.47%) cases with undifferentiated connective tissue disease tested positive for both HBsAg and HBV DNA. Quantitative HBV real-time PCR was carried out for the 134 negative HBsAg samples and only one case (0.74%), a 38-year-old man who had RA, indicated a positive reaction for OBI with viral load HBV DNA 1922 IU/ml. The patient was positive for HBcAb and negative for HBsAb. 14/136 (10.3%) patients showed positive for HBcAb but 12 of them were negative for HBsAg. The results of sequencing and alignment showed that the detected HBV DNAs belonged to the D genotype, ayw2 subtype. The nucleic acid sequence of OBI case revealed substitution changes in amino acids in the positions of the 171-4 of HBsAg gene.

Conclusion: A moderate rate of HBV infection and low detection of OBI is found in patients with rheumatic diseases in southwest Iran. The amino acid substitutions and mutation have been observed at the position of 171-4 in the S gene region of HBV DNA which may affect the detection of HBsAg by commercial immunoassay methods. To prevent the reactivation of HBV infection and improve the treatment and management of rheumatic diseases, HBV serological examinations as well as HBV DNA viral load by highly sensitive molecular approaches such real-time PCR should be recommended for all patients with rheumatic diseases before and during immunosuppressive therapy.

Keywords: HBV, occult hepatitis B infection (OBI), rheumatic diseases, PCR, Ahvaz
The effect of Gamma Irradiation on Poliomyelitis virus suspended in Fresh Frozen Plasma

Amir Mohammad Bahri¹, Zohreh Sharifi², Seyed Masoud Hosseini¹, Elham Rezvani Boroujeni¹

1) Department of Microbiology and Microbial Biotechnology, Faculty of Life Sciences and Biotechnology, Shahid Beheshti University, Tehran, Iran
2) Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran.

Introduction

Blood transfusion organizations are using several different methods to inactivate blood-borne pathogens. One of the new advanced technologies for supplying virus-free Fresh Frozen Plasma (FFP), is gamma irradiation. The efficiency of viral reduction in this method is investigated in this study.

Materials and method

The model virus that used in this study was Poliomyelitis virus. After thawing FFP and suspending Polio virus in that under sterile situation, the plasma bags were irradiated with two different doses of gamma rays. Applying doses used in this study set to inactivate polioviruses was 25 kGyr and 30 kGyr. Initiation titer adjusted to $10^{6.5} \text{ TCID}_{50} / \text{ml}$ and the titer assessed with Reed and Munch method. After irradiation, the virus titer calculated by the same way.

Results

The 30 kGry irradiation demonstrated more efficacy in viral inactivation compared to 25 kGry irradiation. Polio virus titer reduction was 6.5 and 5.0 Logs for 30kGry and 25kGry, respectively.

Conclusion:

The results of this study indicated that gamma irradiation can be an acceptable method for inactivating FFP viral pathogens according to WHO standards.

Keywords: Fresh Frozen Plasma, Gamma irradiation, Viral inactivation
Background: Millions of people in developing countries lose their lives due to acute respiratory infections. Influenza is one of the most important contagious diseases that involve the whole range of respiratory illnesses, causing annual epidemics and periodic worldwide pandemics. Adenoviruses, have the ability to replicate and cause disease of the respiratory system, gastrointestinal tract, and eyes. Given the importance of rapid identification of the virus, in this study we have tried to design a method that enables us to detect influenza A, B and adenoviruses quickly and simultaneously. The Multiplex PCR method is the preferred method for the detection of influenza A, B and adenoviruses in clinical specimens because it is rapid, sensitive, specific and more cost-effective than alternative methods.

Methods: After collecting samples from patients with respiratory disease, the viruses genome was extracted, then Monoplex PCR on positive samples and Multiplex PCR on clinical
specimens was performed. Finally, by comparing the bands from these samples, the type of virus in clinical samples was determined.

**Results:** Through application of Multiplex PCR on 50 samples of breath, flu A: 12.5 %, fluB: 50%, adeno: 27.5 %, negative: 7.5 % and 2.5 % co-infection was detected.

**Conclusion:** Since the viral infection detection is prolonged and costly, a method of detection should be designed that enables us detect the virus infection in the shortest time and with minimal costs. This objective was reached through design of the Multiplex PCR method for detecting respiratory viral infections (influenza A, B and adenovirus).

**Keywords:** Polymerase chain reaction, Influenza A, Influenza B, Adenovirus, Multiplex PCR
PV-10

The correlation of five Human Herpes Viruses in causing spontaneous abortion: a case-control study.

Mr. Javad Charostad
Department of virology, School of medicine,
Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Prof. Talat Mokhtari-Azad
Virology Department, School of Public Health,
Tehran University of Medical Sciences, Tehran, Iran

Dr. Jila Yavarian
Virology Department, School of Public Health,
Tehran University of Medical Sciences, Tehran, Iran

Mrs. Nastaran Ghavami
Virology Department, School of Public Health,
Tehran University of Medical Sciences, Tehran, Iran

Mr. Emad Behbudi
Virology Department, School of Public Health,
Tehran University of Medical Sciences, Tehran, Iran

Dr. Somayeh Jalilvand
Virology Department, School of Public Health,
Tehran University of Medical Sciences, Tehran, Iran

Dr. Nazanin Zahra Shafiei-Jandaghi*
Virology Department, School of Public Health,
Tehran University of Medical Sciences, Tehran, Iran

* Corresponding Author
Tel: +98(21) 88962343, Fax: +98(21) 88962343
E-mail: nz-shafiei@tums.ac.ir
The incidence rate of miscarriage over the past few decades has shown steady or even growing trend. Viral intrauterine infections are one of the probable etiological causes of miscarriage. Pervious evidences showed that human herpes viruses (HHVs) could be considered as potential reasons for intrauterine infections and consequent adverse pregnancy outcomes. The aim of this case-control study was detection of HHV1-5 DNAs in placental tissues and their association with miscarriage during the first 24 weeks of pregnancy in Tehran. To reach this aim, placental tissue from 83 women with spontaneous abortions during the first and second trimesters of pregnancy and 81 women with therapeutic abortions during the same gestational age were collected. DNA extraction was performed by phenol/chloroform method. A part of DNA polymerase gene of HHVs was amplified with multiplex nested-PCR. The PCR products were subjected to sequencing. Analysis of the results showed the presence of HCMV genome in the placenta of both spontaneous (8.4%) and therapeutic (4.9%) abortions, although no statistically significant differences between these two groups were found. The other investigated viruses were not detected here. In conclusion, like some other studies no correlation was detected between HHVs placental infections and increased risk of spontaneous abortion. Divergent results of different studies could be due to different types of specimens, population and assays. In order to find the actual role of HHVs infection in this regard further investigations should be performed on larger sample size populations in different areas.

**Key words:** Spontaneous abortion, Therapeutic abortion, Infections, Human Herpes Viruses.
Hepatitis C virus (HCV) is an infectious agent with no available vaccine. The current routine treatment of HCV infection is expensive with severe side-effects, which is efficient in just 40-60% of infected patients. Herbal treatment has attracted many attentions since they can offer a safe, effective and worthwhile therapeutic option. Besides, many studies have shown that herbal medicine has been effective to treat some other diseases. The aim of the present review is to provide an overview to the anti-HCV properties of herbal medicines and their derivatives.

Method: Scientific literatures from the Google Scholar and PubMed databases between 1989 and 2016 were searched using selected keywords.

Results: Several studies have shown that the extracts of herbs such as Milk thistle, Kampo, LIV 52, SBEEL1, Cinnamoni cortex, Phyllanthus amarus, and curcumin have antiviral effects against HCV and it seems that they can inhibit the replication of the virus.

Conclusion: According to the previous studies, it seems that Milk thistle and Glycyrrhiza glabra have more significant effects against HCV infection.

Keywords: Herbal medicines, Hepatitis C virus, Anti viral effects
PV-12

Prevalence and genotyping of Torque teno virus (TTV) in CHBV patients and control group in Golestan

زهره ناجفی معمار

Background: Torque teno virus (TTV) was the first human Anelloviridae detected in a Japanese patient with unknown hepatitis in 1997. Torque Teno Virus (TTV) was the first single stranded circular DNA virus to be discovered that infects humans. Subsequently, several studies performed to evaluate different aspects of Torque teno virus pathogenesis. The present study aimed to determine dominant genotype of Torque tenovirus in chronic hepatitis B patients and healthy individuals using N22 sequence of TTV N22 genome region.

Methods: TTV DNA extracted from serum of 150 in CHBV patient and 150 uninfected individuals. The presence of Torque teno virus DNA and its genotype in serum was assessed by PCR using two primer sets for 5΄-UTR and N22 regions. Phylogenetic analysis was performed based on N22 region using by MEGA 7 software.

Results: DNA of Torque teno virus was detected in 150 out of 84 (56 %) patients with chronic hepatitis B by the use of 5΄-UTR primer based PCR method and in 150 out of 18 (12%) by the use of N22 primers and control 49.3% and 8% respectively. Based on phylogenetic analysis it was shown that the Dominant genogroup in this study was 2.

Conclusions: The prevalence of Torque teno virus DNA in patients with chronic hepatitis B disease by the use of 5΄-UTR primer appeared to be higher compared to that revealed by N22 primer. We observed four genogroups among in our study.

Keywords: TTV, Genogroup, CHBV, Golestan
Torque Teno Virus UTR and N22 regions intensity correlation with CD4 count

Zahra Najafi Memar1, Alireza Mohebbi1, Fatemeh Sana Askari1, Abdolvahab Moradi2*

1Student Research Committee, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran
2Infectious Disease Research Center, School of Medicine, Golestan University of Medical Sciences, Gorgan, Iran

*Corresponding author: Abdolvahab Moradi E-mail: Abmoradi@gmail.com

Background: The role of Torque Teno Virus (TTV) in Human Immunodeficiency Virus infection and the progression to AIDS is unclear.

Objectives: In this study, the presence of TTV was investigated in HIV-1 infected patients as well as its influence on CD4+ lymphocyte levels.

Materials: Clinical samples of 88 HIV positive patients were tested by Polymerase Chain Reaction (PCR) on N22 and 5΄-UTR regions for TTV infection. CD4+ was counted by flow-cytometer. PCR amplified were run on gel-electrophoresis. The bands intensities were measured by using ImageJ software.

Results: As a result, 44 (50%) patients were positive for the UTR gene. In addition, 16 (18.18%) were positive for the N22 gene. 50% (42/ 84) of patients with CD4+ > 200 were positive for the UTR gene. N22 frequency was 15 (17.9%) in patients with CD4 > 200. The difference was statistically significant (P <0.0001).

Discussion: According to our study, targeting UTR region is good option for determining the prevalence of this virus due to its conservancy. It is also a good target since it can be used to detect almost all TTV genotypes. We also found that there is a relationship between the TTV UTR intensity and low CD4 levels in people with HIV infection.

Keywords: TTV, HIV Co-infection, CD4+
Application of nanostructures in cervical cancer theranostics: a review study

Kiana Ketabi¹
Aida Gholoobi²
Zahra Meshkat¹∗

¹ Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
² Department of Modern Sciences and Technologies, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

Introduction: Cancer is one of the main health problems worldwide and cervical cancer with a high rate of incidence is the second most common cancer in women. Most cases of cervical cancer occur in developing countries. In over two decades, there have been a lot of problems with diagnosis and treatment of this cancer. New molecular drugs have been developed to address these problems. Among these medicines, we can name multi-purpose nanostructures. This review is focused on applications of nanostructures produced in this field.

Method: Key words such as "Diagnostic nanoparticles", "Therapeutic nanoparticles", "Organic nanoparticles", "Inorganic nanoparticles" and "Cervical cancer" were searched in Pubmed, ISI and Google scholar data bases. No time limit was considered for searching. The input data were analyzed qualitatively.

Findings: After reviewing various articles, nanoparticles were considered to be one of the most promising tools for diagnosis and treatment of cervical cancer, simultaneously. Among them, superparamagnetic iron oxide and silver coated gold nanoparticles were the most widely used nanoparticles in the clinical diagnostics field (MRI) in the field of therapy, anticancer drugs encapsulated PLGA nanostructures were the most used nanomedicines to carry chemotherapy drugs to the tumor tissue.

Conclusion: Generally, super paramagnetic iron oxide nanoparticles and PLGA nanoparticles are among the appropriate nanostructures for diagnosis and treatment of cervical cancer.

Keywords: Cervical cancer, Nanotechnology, Organic nanoparticles, Inorganic nanoparticles, Diagnostic nanoparticles, Therapeutic nanoparticles.
PV-15

**Mutual effect of autophagy and apoptosis on HCV-induced type 2 diabetes mellitus**

Aref Movaqar¹, Ehsan Aryan¹, Asghar Abdoli², Mohsen Abdoli¹, Zahra Meshkat¹*

¹Antimicrobial Resistance Research Center, Mashhad University of Medical Science, Mashhad, Iran

²Department of Hepatitis and AIDS, Pasteur Institute of Iran, Tehran, Iran

HCV infection leads to glucose metabolism disorder and contributes to the development of type 2 diabetes mellitus (T2D). The aim of this study is to review the development of T2D in HCV infection and the crosstalk between autophagy and apoptosis. HCV infection reduces AMPK activity by phosphorylating a conserved site on this enzyme, so HCV disrupts the liver uptake of blood glucose. In Some study, inhibition of AMPK raises HCV replication and it was found to have an important role in preventing HCV proliferation. T2D increases glucose level in blood and some studies showed that high glucose level reduces AMPK activation. On the other hand, AMPK also activated TSC1 and TSC2 protein which inhibits mTOR pathway and indirectly impacts PI3K activation in autophagy pathway. Moreover, activates antiapoptotic proteins in apoptosis, we know anti apoptotic proteins have a key role in crosstalk between autophagy and apoptosis. Actually, AMPK promotes communication between apoptosis and autophagy processes and HCV replication and T2D development. In this review we will more discuss the mutual effect between these agents.

**Key words:** HCV infection, AMPK, type 2 diabetes mellitus, autophagy, apoptosis
Chronic hepatitis B infection might have a protective role against metabolic syndrome and abnormality in its components: finding from a meta-analysis with 138,994,999 subjects.

Bahman Razi¹, Shahab Alizadeh²

1- Department of Hematology and Blood Banking, School of Allied Medical Sciences, Tehran University of Medical Sciences (TUMS), Tehran, Iran
2-Department of Cellular and Molecular Nutrition, School of Nutritional Sciences and Dietetics, Tehran University of Medical Sciences (TUMS), Tehran, Iran

Introduction: Observational studies evaluating the association between chronic hepatitis B (CHB) and risk of metabolic syndrome (MetS) have yielded inconclusive results.

Objective: The current meta-analysis was conducted to identify whether CHB infection plays a role in the risk of MetS and its components.

Methods: The electronic search of MEDLINE, PubMed Central, and EMBASE databases was systematically performed from their inception until February 2017 to identify all eligible studies. The most adjusted risk estimates and their corresponding 95% confidence intervals (CIs) for the associations of chronic hepatitis B with MetS and its components were collected and analyzed.

Results: A total of 13 studies, with a total sample size of 138,994,999 subjects and 35,481,231 individuals with MetS were included in this Meta-analysis. The results of pooled analysis revealed that CHB infection is related to reduced risk of MetS (OR = 0.83, 95%CI = 0.71–0.79, random effects), with evidence of significant heterogeneity (I² = 89%, P < 0.001). This association was an age, gender, and ethnicity-dependent relationship. Moreover, CHB was associated with reduced risk of elevated blood pressure, reduced HDL-cholesterol, increased fasting glucose, and, most strongly with increased triglycerides in some subgroups. The sensitivity analyses confirmed the stability of the results.

Conclusions: This meta-analysis suggests that CHB is associated with decreased risk of MetS and some of its single components.

Keywords: Metabolic syndrome, Hepatitis B, HBs Ag, Meta-analysis
Investigation of the antiviral effects of curcumin nano particles at the early stage of hepatitis C infection

Sajad Naseri¹, Majid Darroudi², Ehsan Aryan¹, Aida Gholoobi³, Mojtaba Meshkat⁴, Zahra Meshkat¹*  

1. Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran  
2. Nuclear Medicine Research Center (NMRC), Ghaem Hospital, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran  
3. Department of Modern Sciences and Technologies, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran  
4. PhD candidate, Department of Biostatistics, School of Paramedicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran  

*Corresponding Author: Zahra Meshkat: Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran. Tel: +98-5138012453, Fax: +98-5138002960, E-mail: meshkatz@mums.ac.ir

Background and goals: Curcumin is an active ingredient of turmeric and many of its health benefits have been proven, so far. Hepatitis C is one of the most important infectious problems in the current century and the treatment is very difficult and expensive. These days herbal medicines have been attracted attentions as they are cost-effective and their side effects are much less bothersome compared to chemical medicines. The goal of this research was to investigate the effects of curcumin nanoparticles in the early stage of hepatitis C infection.

Method: The cytotoxicity curcumin nano particles were determined in Huh7.5 cells. Then, anti-viral effects of these compounds were compared with peg interferon on HCV replication in cell culture system.

Results: Curcumin nano particles could decrease the viral load in cell culture compared to peg interferon, but the differences was not statistically significant.

Conclusion: According to the results of this research, it can be suggested that curcumin nanoparticles can be examined in other stages of hepatitis C replication or even invivo studies could also be examined in the future.

Keywords: Hepatitis C virus, Curcumin, herbal medicines
Prevalence of positive HBsAg in pregnant women referred to maternity section of Urmia private hospitals in 2016

Javid Eghbal¹, Arian Eghbal²

¹. Assistant professor., Department of pathobiology, Urmia Brabch, Islamic Azad University, Urmia, Iran
². Student of dentistry, Urmia University of Medical Sciences, Urmia, Iran

Background and Aim:

Hepatitis B virus (HBV) is one of the most popular causes of chronic liver diseases through the world. Perinatal transmission is one of the most common routes of hepatitis B virus (HBV) transmission in the worldwide. This research aimed to determine positive HBsAg prevalence in pregnant mothers referred to maternity section of Urmia private hospitals.

Methods:

This cross sectional study was done on 1770 pregnant women referred to maternity section of private hospitals in Urmia, during 2016-17. Demographic and epidemiological data were collected. Blood samples were screened for HBsAg using ELISA method.

Results:

The number of 12 (0.677%) positive HBsAg were detected from pregnant mothers in this research. Positive HBsAg showed a significant relationship between history of hepatitis in relatives, but there was no significant relationship between variables such as age, occupation, place of residence, educational level, history of surgery, addiction and blood transfusion. Also, there was no significant difference in the number of pregnancies, number of deliveries, abortion history between the two HBsAg positive and negative groups.

Conclusions:

The prevalence of hepatitis B virus in pregnant women in Urmia is less than that in the whole country. According to the WHO guidelines, if the incidence of HBsAg in a population is more than 0.06%, the screening of pregnant women will be valuable for this infection. Considering the prevalence of hepatitis B in this study, the need for general education, especially during marriage, as well as the education of pregnant mothers, is necessary.

Keywords: HBsAg, Hepatitis B, pregnant women, Urmia

Presenter Author: Javid Eghbal

Corresponding Author: Javid Eghbal

Email: javid_egbal@yahoo.com
PV-19

Determination of the Effect of PEG interferon loaded iron oxide nanoparticles on hepatitis C virus replication in cell culture system
Kiana Ketabi

Aida Gholoobi

Hamed Gouklani

Zahra Meshkat*

1 Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
2 Department of Modern Sciences and Technologies, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
3 Molecular Medicine Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran

Introduction: Hepatitis C virus is a virus from Flaviviridae family that can cause a variety of liver diseases, such as cirrhosis and liver cancer, which if left untreated, lead to death. The main drugs for treating this infection are PEG interferon and ribavirin. These drugs have limited use due to their side effects on other organs of the body. Regarding the superparamagnetic properties of iron oxide nanoparticles, and their low cell toxicity, in this study, PEG interferon was loaded on iron oxide nanoparticles, to determine the effect of this compound on hepatitis C virus replication in cell culture.

Method: After culturing hepatocellular carcinoma Huh7.5 cells, hepatitis C virus was inoculated into these cells and incubated at 37°C. In the next step, PEG interferon loaded iron oxide nanoparticles with 1IC50 values was added to the virus infected cells and incubated at 37°C. In the last step, the load of viruses encountered by the PEG interferon loaded iron oxide nanoparticles compared to control (without ant treatment) were measured using the real time PCR assay. The results of real time PCR showed that PEG interferon loaded iron oxide nanoparticles reduced the load of hepatitis C virus compared to virus control in cell culture.

Conclusion: According to the results of this study, it can be suggested to determine the effect of PEG loaded different nanoparticles on hepatitis C virus replication. It is also suggested to investigate hepatitis C viral load in HCV infected laboratory animals after treatment with PEG interferon loaded iron oxide nanoparticles.

Keywords: Hepatitis C virus infection, PEG interferon, Iron oxide nanoparticles, Hepatitis C virus treatment.
PV-20

Prevalence and Genotyping of Torque Teno Virus in HBV/HIV and Chronic HBV Patients in Iran

Background: Torque teno virus (TTV) was the first human Anelloviridae detected in a Japanese patient with an unknown type of hepatitis in 1997. TTV is by far the first known single-stranded circular DNA virus infecting human. In spite of its widespread nature in human population, its pathogenesis is still unclear. In addition, information regarding TTV infection in Iranian population is limited. Therefore, we attempted to determine the prevalence and genotype of TTV in three groups: HIV/HBV patients, chronic hepatitis B patients, and healthy individuals.

Methods: The presence of TTV DNA in sera was investigated using PCR. The primer sets encompassing two 5'-UTR and N22 regions were used, and the positive products were collected for sequencing. Phylogenetic tree was generated based on N22 region and using the MEGA 7 software.

Results: TTV DNA was detected in 452 patients with HIV/HBV and chronic hepatitis B, as well as in healthy control groups. The results from PCR indicated positive rates for these three groups, 48%, 54%, and 49.3% using 5'-UTR primer and 15.1%, 12%, and 8% using N22 primer, respectively.

Conclusion: Five genogroups were observed, which the second group was found to be the most frequent. The results of 5'-UTR primer showed more prevalence of TTV DNA comparing to N22 primer in patients and healthy control.

Keywords: TTV, HIV, CHBV, IRAN.
PV-21

Frequency of Bovine Leukemia virus in raw milk samples of Zanjan dairy farms by PCR

Hossein Barzegar¹, Hessam Mirshahabi², Masoud yavarmanesh³, Nima mootamed⁴

1- MSc Student of Food Microbiology, Microbiology and Virology, Zanjan University of medical science
2- Assistant Professor of medical Virology, Microbiology and Virology, Zanjan University of medical science
3- Assistant professor of Food Science Industry, Faculty of Agriculture, university of ferdowsi mashhad
4- Assistant professor of social medicine, Biological statistics and Epidemiology, Zanjan University of medical science

Introduction and Aim:

BLV is one of the Retroviridea family that has been shown to be capable of causing cancer. The presence of BLV in raw milk, dairy and other food from infected trap, and the ability of the virus to transmit to humans and The probable role of the BLV in the development of breast cancer has led to an examination of the prevalence of this virus in raw milks in Zanjan.

Material& Methods:

419 milk samples from Iranian and foreign hybrids of dairy cows in industrial, semi-industrial and traditional dairy farms of Zanjan city were directly fed from each cow manually and without using The milking machine was collected in a sterile Falcon tubes. samples centrifuged at 4800 rpm for 30 minutes. from sedimentation phase, were tested by Nested PCR after DNA extraction.

Results:

Of 403 acceptable samples, 42 samples (10.4%) were detected after the Nested PCR test and were diagnosed with BLV virus.

Discussion:

In addition to microorganisms that cause foodborne infectious and acute infectious diseases, some microorganisms such as BLV play a role in creating more severe diseases such as breast cancer. Protecting food from animal contamination seems to be necessary by public health community organizations.

Key words: virus BLV- pcr- raw milk- breast cancer
PV-22

Frequency of Human Papillomavirus (HPV) 16 and 18 Detection in Parafn- Embedded Laryngeal Carcinoma Tissue

Background and Objective: Human papilloma virus (HPV) 16 and HPV18 have been detected in head and neck squamous cell carcinomas (HNSCC) and there is evidence that detection of HPVs would have better prognostic value than patients with HNSCC negative for HPVs. Thus, this study was conducted to evaluate frequency of HPV 16 and HPV 18 genotypes in patients with laryngeal carcinoma. Materials and methods: Fifty formalin-xed, parafn-embedded (FFPE) tissue blocks of laryngeal cancers were collected. Sections were prepared at 5 µm and DNA was extracted from each sample and subjected to the polymerase chain reaction (PCR) to detect HPV-16/18 DNA s. Results: All samples were squamous cell carcinomas (SCCs). Overall 14/50 (28%) were positive for HPV16 and 8 (18%) with HPV18. Additionally, 2 (4%) mixed infections of HPV 16 and 18 genotypes were observed among these cases. Conclusions: Overall, 28% of HNSCC samples proved positive for HPV16 and HPV18 genotypes, two high-risk HPV types. It is important to further assess whether such viral infection, could be a risk factor in HNSCC progression. Keywords: Laryngeal carcinoma- HPV16- HPV18- PCR
Investigation of the antiviral effects of curcumin nanomicelles on attachment and entry of hepatitis C infection

Sajad Naseri¹, Majid Darroudi², Ehsan Aryan¹, Aida Gholoobi³, Hamid Reza Rahimi³, Zahra Meshkat¹*  
¹. Mashhad, Iran  
². Nuclear Medicine Research Center (NMRC), Ghaem Hospital, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran  
³. Department of Modern Sciences and Technologies, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran  
*Corresponding Author: Zahra Meshkat: Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran. Tel: +98-5138012453, Fax: +98-5138002960, E-mail: meshkatz@mums.ac.ir

Background and goal: Hepatitis C virus is a virus of Flaviviridae family. It is estimated that 500,000 people die due to it, annually. Hepatitis C virus infection treatment is associated with significant adverse effects. Curcumin is an active ingredient of turmeric and it has therapeutic effects on many diseases including infectious diseases. Although curcumin is not soluble in water, but if it is synthesized in the form of nanomicelles, it will be water soluble and it is able to be absorbed in GI tract.

In this study, the antiviral effects of curcumin nanomicelles on attachment and entry of hepatitis C infection were investigated.

Method: First, the cytotoxicity of curcumin nanomicelles were determined in Huh7.5 cells. Then, their anti-viral effects on attachment and entry of hepatitis C infection were investigated in a cell culture system.

Result: Curcumin nanomicelles could decrease the viral load in cell culture compared to virus control.

Conclusion: According to the results of this research, we can examine the mechanism of antiviral effects of curcumin nanomicelles in other stages of hepatitis C virus replication.

Keywords: Hepatitis C virus, Curcumin, Herbal medicines, Nanomicelles
بررسی ویروس ابشتین بار در کودکان زیر ۵ سال مشکوک به مونونکلوئوز عفونی شهرستان سنندج:

پژمان شریفی۱، وریا پاکاحمدیان۲

۱) کارشناس ارشد میکروب شناسی، مرکز تحقیقات گوشت و کبد، دانشگاه علوم پزشکی کردستان، سنندج;
پژمان.sh7@gmail.com
۲) کارشناس ارشد میکروب شناسی، سازمان انتقال خون ایران، کردستان، سنندج

مقدمه: ابشتین بار و ویروس از خانواده هرپس و ویروسهای زیرخانواده هرپس و ویروس ابشتین از شاخه‌هایی دارند که در کشورهایی در حیطه توسعه نیش در حدود ۹۰ درصد کودکان تا سن ۶ سالگی از آن آلوده می‌شوند. ویروس ابشتین بار احساس مونونکلوئوز عفونی (IM) می‌کند که با درگیری لنفوسیت‌های B و علائم نظیر سرد دیر، بیقراری، خستگی و گلودر در فروز و میکروبلند. این بار و ویروس انجام مشکوک به مونونکلوئوز عفونی در شهرستان سنندج خونگیری شد و سرم آنها به سمت IgM anti-VCA (ایکس‌وی‌کی‌دی) در سال ۱۵ میلادی بالا رفت. سپس برای آنها تست IgM anti-VCA (ایکس‌وی‌کی‌دی) و تست IgG anti-VCA (ایکس‌وی‌کی‌دی) انجام شد. نتایج به‌طور کلی نشان داد که در موارد مشکوک به مونونکلوئوز عفونی در شهرستان سنندج میزان IgM anti-VCA (ایکس‌وی‌کی‌دی) بیش از ۹۰ درصد شد. در نتیجه به‌طور کلی میزان IgM anti-VCA (ایکس‌وی‌کی‌دی) در موارد مشکوک به مونونکلوئوز عفونی در شهرستان سنندج بالا بود.

مواد و روشها: از ۱۸ کودک با علائم مشکوک به مونونکلوئوز عفونی در شهرستان سنندج و سرم آنها به سمت IgM anti-VCA (ایکس‌وی‌کی‌دی) و تست IgM anti-VCA (ایکس‌وی‌کی‌دی) انجام شد. نتایج به‌طور کلی نشان داد که در موارد مشکوک به مونونکلوئوز عفونی در شهرستان سنندج میزان IgM anti-VCA (ایکس‌وی‌کی‌دی) بیش از ۹۰ درصد شد. در نتیجه به‌طور کلی میزان IgM anti-VCA (ایکس‌وی‌کی‌دی) در موارد مشکوک به مونونکلوئوز عفونی در شهرستان سنندج بالا بود.

بحث: همچنین که مشاهده می‌شود در این سنگین‌ترین سن‌های بهار در هر کودک بود. تست سرولوژیک مونونکلوئوز در این کودکان در تمامی موارد ثابت شد و IgM anti-VCA (ایکس‌وی‌کی‌دی) در این کودکان در تمامی موارد ثابت شد.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.

۳.۲ سلول‌های اپتیک در هر میکرو پارس.
A Review of Animal biting in Shush, Southwestern Iran

Hamid Kassir, Masoud Lotfi, Babak Shahkarami

School of Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Background and Objective: Animal bites are a significant threat to human health because of fatality of subsequent infections such as rabies. The aim of this study was to determine the epidemiology of animal bites during a five-year period in Shush County. Materials and Methods: In a descriptive cross-sectional study, all cases of animal bites referred to the health centers in Shush County were investigated during 2004-2008. The necessary data were recorded on the special questionnaire that contains questions about bite animal, age, sex, occupation, treatment, the bite site on the body and so forth. Results: Out of a total of 2283 cases, 1771 people (77.6%) were male. Most cases were related to age groups 10-20 (33.4%). The average incidence rate of animal bite during these years was determined as 2.82 cases per 1000 people. Almost 86.5% and 13.5% of the cases occurred in rural areas and urban areas, respectively. Nearly 30% and 20.4% of cases were students and farmers, respectively. A total of 2155 (94.4%) and 86 (3.8%) bites occurred by the dog and cat, respectively. The greatest bite place on the body was in the feet (81.4%). During the study period, 2162 cases (94.7%) were treated with an incomplete regimen, and 120 cases (5.3%) were treated with a complete regimen. Conclusions: Because the cost of prevention after biting for the health system is high, so, preventive programs must be concentrated on public health instruction, particularly in villagers, students, farmers and the owners of the domestic animals.

Keywords: Animal Bite, Incidence Rate, Rabies, Iran
PV-26

Animal Bites: Epidemiological Considerations in the east of Ahvaz County, southwestern Iran

Hamid Kassiri, Atefeh Ebrahimi

School of Health, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran.

**Background and Objectives:** Animal bite is an emerging public health problem. The aim of this study was to investigate the epidemiology of animal bites during 2011–2013 in the east of Ahvaz County to prevent them in population of the county that can be helpful in preventive attempts.

**Materials and Methods:** During a three-year period, through a questionnaire-based study, 2493 bitten persons were enrolled into our research. In this respect for all cases, demographic and epidemiological data, such as, treatment, biting animals, age, gender, occupation, residential place, month, season and biting site on the body were recorded. The descriptive statistics, including frequency distribution and percentage were used to analyze the data. The analysis was performed using SPSS version 18.

**Results:** The highest number of bitten individuals were in 2012. Out of 2493 bitten persons, 76.6% were male and 23.4% were female. Bites were most frequent among the age group of 21-30 years. Most cases (24.7%) were self-employed. Totally 65% of animal-bite incidents were in the city and 35% had experienced it in the rural areas. The cases were mostly related to dog bites (78.4%) and cat bites (17.3%), respectively. Moreover, 100% of cases were vaccinated within the first 24 hours, 61.4% had incomplete while 38.6% had complete vaccination. Lower extremities were the most frequent bite site (46.9%) followed by upper extremities (41.6%), head and neck (5.7%) and trunk (5.8%). Animal bites were more common in spring (26.7%) and autumn (25.2%). Maximum number of incidents were reported during the month of April (9.2%) and July (9%).

**Conclusions:** Dogs were the commonest animal causing this problem. Control of stray dog population by animal birth control and domestic animal vaccination needed. Meanwhile, training the people at risk can play an important role in reducing the incidence of animal bites and rabies cause death.

**Key words:** Animal biting, Epidemiology, Iran
PV-27
Milad Azami(MD)¹, Gholamreza Badfar(MD)²
¹. Medical Student, Student Research Committee, Ilam University of Medical Sciences, Ilam, Iran
². Assistant Professor, Department of Pediatrics, Behbahan Faculty of Medical Sciences, Behbahan, Iran
*Corresponding author: Milad Azami(MD). Student Research Committee, Ilam University of Medical Sciences, Ilam, Iran. Email: MiladAzami@medilam.ac.ir.

Background: Human T-Cell Lymphotropic Virus (HTLV-1) is a virus with worldwide distribution. Contaminated blood products are one of the important ways of transmission. This meta-analysis aims to provide a general assessment of prevalence of HTLV-1 in Iranian population of the endemic region.

Method: The present study was conducted based on PRISMA guidelines for systematic review and meta-analysis studies. We searched eleven national and international online databases including Magiran, Medlib, IranDoc, SID, Iranmedex, Scopus, DOAJ, Science Direct, PubMed, Web of Science, and Google Scholar without time limit up to April 2017. The data were analyzed using Comprehensive Meta-Analysis Ver.2.

Results: In 5 studies involving 4,763 individual, the prevalence of HTLV-1 in general population living in endemic region of HTLV-1 (Khorasan) was estimated 2.5% (95% CI: 1.3-4.7) and this prevalence in males and females was estimated 2.4% (95% CI: 0.8-7.1) and 3.4% (95% CI: 2.0-5.7), respectively.

Conclusion: The present study provides informative information in the prevalence of HTLV-1 in Iranian population of the endemic region of Iran. Considering the high prevalence of HTLV-1 in endemic region of Iran, continue prevention programs are necessary for blood transfusion centers in the endemic region of Iran.

Keywords: Prevalence, HTLV-1, Iran, Meta-Analysis
PV-28

Anoikis resistance and oncoviruses

Ehsan Kakavandi¹², Ramin Shahbahrami¹, Hossein Goudarzi³, Gita Eslami³, Ebrahim Faghihloo³*.

1 Department of Virology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran.
2 Students' Scientific Research Center, Tehran University of Medical Sciences, Tehran, Iran.
3 Department of Microbiology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

* Correspondence: Ebrahim Faghihloo, Department of Microbiology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran. E-mail: faghihloo@sbmu.ac.ir

Abstract:

Anoikis is known as a special type of programmed cell death which occurs in response to loss of correct cell-extracellular matrix (ECM) connections. This process could be as pivotal event in normal development and tissue homeostasis and found as important mechanism in cancer invasiveness and metastasis. The persistent infection with oncoviruses including EBV (Epstein Bar virus), HPV (Human Papillomaviruses), HBV (Hepatitis B virus), KSHV (Human herpesvirus 8), HTLV-1 (Human T-lymphotropic virus-1), and HCV (Hepatitis C virus) accounted as one of main risk factor for cancer progression. Some of them play critical roles in metastasis, especially in anoikis resistance which could contribute to metastasis of tumor cells. The better understanding of effects of oncoviruses on anoikis could contribute to finding of effective therapeutic platforms for treatment of virus-associated cancers. This paper highlighted effects of these oncoviruses on anoikis protection in cancer.
Low Detection of Hepatitis B and Occult Hepatitis B Infection in Patients with Rheumatic Diseases

Behnam Azizolahi1,2, Elham Rajaei3, Reza Taherkhani4,5, Fatemeh Farshadpour4,5, Manoochehr Makvandi1,2,*

1 Infectious and Tropical Disease Research Center, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran
2 Medical Virology Department, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran
3 Rheumatology Department, Golestan Hospital, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran
4 Microbiology and Parasitology Department, School of Medicine, Bushehr University of Medical Sciences, Bushehr, IR Iran
5 Tropical Medicine Research Center, Bushehr University of Medical Sciences, Bushehr, IR Iran

*Corresponding author:
Manoochehr Makvandi
E-mail: manoochehrmakvandi29@yahoo.com

Background: A new form of hepatitis B virus (HBV) infection, occult hepatitis B infection (OBI), has been identified as the presence of HBV DNA without detectable HB surface antigen (HBsAg) and with or without HB core antibody (HBcAb)/HBsAb. OBI has been reported among patients with rheumatic diseases. Reactivation of HBV has been described in OBI positive patients with rheumatic diseases who receive treatment with immunosuppressive medication. The aim of this study was to determine the incidence of HBV infection and OBI in patients with rheumatic diseases referred to major hospitals in the city of Ahvaz in Iran.

Methods: In a cross-sectional study, sera samples were collected from 136 patients with rheumatic diseases referred to the rheumatology clinics, Ahvaz Jundishapur University of Medical Sciences, during March to December 2015. Medical records of the patients included the diagnosis of rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and ankylosing spondylitis (AS) as well as undifferentiated connective tissue disease (UCTD). Serological assays for HBV markers (HBsAg, HBcAb and HBsAb) were performed by enzyme-linked immunosorbent assay. All the sera were tested for HBV DNA using nested PCR and real-time PCR. All samples were negative for anti-HCV and anti-HIV antibodies as selection criteria for the research.

Results: The mean age of the patients was 43.5±12.02 years with a F:M 2.24:1. 2 (1.47%) cases with undifferentiated connective tissue disease tested positive for both HBsAg and HBV DNA. Quantitative HBV real-time PCR was carried out for the 134 negative HBsAg samples and only one case (0.74%), a 38-year-old man who had RA, indicated a positive reaction for OBI with viral load HBV DNA 1922 IU/ml. The patient was positive for HBcAb and negative for HBsAb. 14/136 (10.3%) patients showed positive for HBcAb but 12 of them were
negative for HBsAg. The results of sequencing and alignment showed that the detected HBV DNAs belonged to the D genotype, ayw2 subtype. The nucleic acid sequence of OBI case revealed substitution changes in amino acids in the positions of the 171-4 of HBsAg gene.

**Conclusion:** A moderate rate of HBV infection and low detection of OBI is found in patients with rheumatic diseases in southwest Iran. The amino acid substitutions and mutation have been observed at the position of 171-4 in the S gene region of HBV DNA which may affect the detection of HBsAg by commercial immunoassay methods. To prevent the reactivation of HBV infection and improve the treatment and management of rheumatic diseases, HBV serological examinations as well as HBV DNA viral load by highly sensitive molecular approaches such real-time PCR should be recommended for all patients with rheumatic diseases before and during immunosuppressive therapy.

**Keywords:** HBV, occult hepatitis B infection (OBI), rheumatic diseases, PCR, Ahvaz
Background: Cervical cancer is the fourth most common cancer in women that is occurred by combination of a plethora of different factors, but the main reason is still unknown. Persistent infection with high-risk Human papillomaviruses (HPVs), as a major cause of cervical cancer occurrence, modulate a numerous of cellular signalling cascades and proteins. Among them, Sine oculis homeobox homolog 1 (SIX1) play a crucial role in various human malignancies. This study aimed to evaluate the expression level of SIX1 in normal and cancerous cervical tissues.

Methods: This work is a hospital-based case-control study. Cases consisted of 19 newly diagnosed cervical cancer patients from the Department of gynecology at Imam Khomeini hospital in Tehran, Iran and controls were 19 women with no cervical problems that referred to hospital owing to other gynecological diseases like ovarian cancer. Quantitative real-time PCR was used to evaluate SIX1 mRNA expression level in fresh surgically obtained cervical biopsies. Also, cervical specimens were tested for human papillomavirus (HPV) DNA detection by MY09/11, GP5+/6+ nested polymerase chain reaction (PCR) method.

Results: The expression level of SIX1 in cervical cancer was significantly higher than in normal cervical tissue (p<0.0001). Moreover, HPV DNA was detected in 100% of cases and 21.05% of controls.

Conclusion: This finding indicates that increased SIX1 expression might be of relevance to the pathogenesis of cervical cancer. Perhaps, studies to find agents that specifically target SIX1, develop novel and successful anti-cancer and anti-metastasis drugs. This idea has to be investigated in future clinical studies.

Keywords: Cervical cancer, SIX1, Real-Time PCR
PV-31

Detection of Hepatitis C Virus Genotypes in Plasma and Peripheral blood Mononuclear Cell Specimens of Iranian Patients with Beta-thalassemia Major

Roya Kahyesh-Esfandiary¹, Zohreh-Azita Sadigh², Maryam Esghaei³, Mohammad-Navid Bastani³, Tahereh Donyavi⁴,⁵, Alireza Najafi⁴, Atousa Fakhim⁶, and Farah Bokharaei-Salim*³,⁴

¹Razi Vaccine and Serum Research Institute, Karaj, Iran
²Human Viral Vaccine Department, Razi Vaccine and Serum Research Institute, Agricultural Research, Education and Extension Organization (AREEEO), Karaj, Iran
³Department of Virology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
⁴HIV Laboratory of National Center, Vice Chancellor for Health, Iran University of Medical Sciences, Tehran, Iran
⁵Vice Chancellor for Health, Iran University of Medical Sciences, Tehran, Iran
⁶Department of Architectural Engineering, Faculty of Engineering, Islamic Azad University, South Tehran Branch, Tehran, Iran

Roya Kahyesh-Esfandiary: Master of Science Student of Virology, Razi Vaccine and Serum Research Institute, Karaj, Iran
Zohreh-Azita Sadigh: PhD of Virology, Human Viral Vaccine Department, Razi Vaccine and Serum Research Institute, Agricultural Research, Education and Extension Organization (AREEEO), Karaj, Iran
Maryam Esghaei: Assistant Professor of Virology, Iran University of Medical Sciences, Tehran, Iran
Mohammad-Navid Bastani: Master of Science of Virology, Iran University of Medical Sciences, Tehran, Iran
Tahereh Donyavi: MD, MPH, PhD of Medical Biotechnology, HIV Laboratory of National Center, Deputy of Health, Iran University of Medical Sciences, Tehran, Iran, and Vice Chancellor for Health, Iran University of Medical Sciences, Tehran, Iran
Alireza Najafi: Master of Science of Immunology, HIV Laboratory of National Center, Deputy of Health, Iran University of Medical Sciences, Tehran, Iran
Atousa Fakhim: Student of Architectural Engineering, Islamic Azad University, South Tehran Branch, Tehran, Iran
Farah Bokharaei-Salim*: Assistant Professor of Virology, Iran University of Medical Sciences, Tehran, Iran, and Technical Assistant, HIV Laboratory of National Center, Vice Chancellor for Health, Iran University of Medical Sciences, Tehran, Iran

*Correspondence to: Farah Bokharaei-Salim, Department of Virology, Iran University of Medical Sciences, Tehran, Iran

E-mail: bokharaei.f@iums.ac.ir and bokharaeifarah@gmail.com

Abstract

Introduction: Beta (β) thalassemia major is a genetic blood disorder with deficiency in the haemoglobin beta chain. Patients with β-thalassemia major need blood transfusion therapy. Multiple blood transfusions increase the risk of transmitting blood-borne infections. The aim of the present study is to determine the frequency of HCV infection in Iranian individuals with β-thalassemia major.

Patients and Methods: In a cross-sectional study, a total of 164 Iranian patients with β-thalassemia major were recruited between March 2015 and July 2016. The viral RNA from plasma and PBMC samples was isolated, and HCV-RNA was amplified with RT-nested PCR method using primers from the 5′-NTR. Consequently, The HCV genotyping was conducted on HCV-positive specimens by RFLP assay. In order to confirm the HCV genotyping, the PCR products of two different region of HCV (5′-NTR and NS5B) were amplified and sequenced.

Results: Out of 164 patients, 29.3% were positive for anti-HCV antibodies, and HCV-RNA was detected in the plasma specimens of 13.4% patients and in the PBMC samples of 15.2% participants. The most frequent HCV subtypes were subtype 1a (72.7%) followed by subtype 3a (22.7%) and mixed HCV subtypes (4.5%). Also, the frequency of HCV subtypes detected in PBMC samples were subtype 1a (64.0%) followed by subtype 3a (24.0%), mixed HCV subtypes with 1a/3a (8.0%), as well as mixed HCV subtypes with 1a/1b (4.0%). Interestingly, the subtypes of HCV in the plasma and PBMC samples of three participants were not identical.

Conclusion: The result of this study revealed that HCV infection is somewhat high in Iranian participants with β-thalassemia major (29.3%); it should be noted that such patients may hold different HCV subtypes in their plasma and PBMC samples.

Keywords: Hepatitis C virus (HCV), β-thalassemia major, HCV subtypes
Evaluation of FMD and BVD virus contamination in cattle serums from Qazvin and Alborz provinces slaughterhouses

Mohammad Amir karami, Majid Tebianian, Mahrouz Dezfulian

The bovine serum is important factor in human and animal vaccine production. Thus, the absence of microbial and virological agents has critical role in serum quality and exclusion of research errors. Two important agents which must be absent in serum are Foot and Mouth Disease Virus (FMDV) and Bovine Viral Diarrhea Virus (BVD).

For evaluation quality of bovine serum produced in RAZI institute, we investigated the infection rate of serum with these two viruses.

A panel of 13 sera has been assembled in bulk quantities from healthy cattle from Alborz and Qazvin province slaughterhouses. Firstly, the RNA contents of these samples were isolated and after CDNA synthesis, the presence of FMD and BVD viruses was evaluated by specific primers in PCR method.

The results showed that 8 from 13 sera (61.5%) were infected by FMD and 6 (46.1%) samples infected by BVD viruses. All of samples had been free for both viruses after filtration process.

This research has emphasized on the importance of viral infection tracking in bovine serum samples.

Based on these data, for production of safe and good quality serums with no viral agents in vaccine production process, appropriate filtration methods could be used

KEYWORDS: Bovine Serum, PCR, FMD, BVD
A Survey on Xenotropic Murine Leukemia Virus-Related Virus (XMRV) Correlation with Human T-cell Leukemia Virus Type-1 (HTLV-1) infection in Iran

Abstract

Background: Xenotropic murine leukemia virus-related virus (XMRV) is a gammaretrovirus that was primarily detected from human prostate cancer. Further studies need to clarify potential role of this virus in human diseases. The aim of this study was to determine the XMRV correlation with HTLV infection in Iranian patients for the first time.

Materials and methods: HTLV suspected patients from April 2012 to October 2016 referred to hospitals affiliated to Iran University of Medical Sciences, Tehran, Iran enrolled as trained practitioners diagnosed. Genomic DNA/RNA from PBMCs/CSFs extracted by High Pure Viral Nucleic Acid Kit (Roche, Germany). After cDNA synthesis, conventional RT-PCR used for detection of HTLV or XMRV infected patients.

Results: of 291 HTLV suspected patients 123 (42.3%) were male and mean age of the patients was 38±15 years. HTLV RNA was found in 93 (31.9%) specimens, including 40 males (41.3%) and 53 females (56.9%). Of the 93 HTLV positive patients, one sample (1%) was positive for XMRV env gene.

Conclusion: The lack of detection XMRV in HTLV positive patients suggests that XMRV could not associated with HTLV complications. However, further studies are needed to demonstrate the actual prevalence of XMRV infection by geographical distribution and various populations.

Keywords: Xenotropic Murine Leukemia Virus-related Virus (XMRV), Human T-cell Leukemia Virus Type-1 (HTLV-1), RT-PCR.
Prevalence of Parvovirus B19 infection by Serology and PCR in Pregnant Women

Karami Afsaneh 1, Moetamed Nima 2, Ramezani Ali 3, Gholami Hamideh 4, Hosseini Seied Mahdi 5

1. Associated professor of infectious disease. Zanjan University of Medical Science, Zanjan, Iran
2. Assistant professor of Epidemiology, Zanjan University of Medical Science, Zanjan, Iran
3. Department of Biotechnology, School of Pharmacy, Zanjan University of Medical Sciences, Zanjan, Iran
4. Assistant professor of gynocology, Zanjan University of Medical Science, Zanjan, Iran
5. Infectious disease specialist, Zanjan University of Medical Science, Zanjan, Iran

Email: dr.akarami@yahoo.com

Abstract

Background: Parvovirus B19 infection is prevalence worldwide. Although infection by this virus will not result in any specific problems, it could have serious results for the fetus. Serologic and PCR methods are among the available methods for diagnosis of infection. This study is aimed to investigate the prevalence percentage of Parvovirus B19 by these two techniques in pregnant women of Zanjan.

Methods: this cross sectional study investigated 110 pregnant women referring to Zanjan Mousavi Hospital for serology and PCR methods. The rate of positive IgG and IgM were determined in women and PCR results were reported.

Results: 18.2% of participants were above 35 years old and 4.5% were younger than 18. 41 (44.1%) and 2 (1.8%) cases had positive IgG against Parvovirus B19 and IgM against Parvovirus B19. PCR results were negative in all the studied samples.

Conclusion: based on the findings of this study, prevalence of acute Parvovirus B19 was 0 based on PCR and 2% according to IgM test. About 40% of pregnant women had experienced infection by this virus before.

Keywords: Parvovirus B19 serology PCR pregnancy
PV-35

Distribution of rotavirus genotypes circulating in Ahvaz, Iran in 2016

Azarakhsh Azaran2,3, Manoochehr Makvandi1,2, Ali Teimoori 2

1 Infectious and Tropical Diseases Research Center, Health Research Institute, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
2 Virology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
3 Aboozar Children’s Hospital, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

Corresponding Author:
Azarakhsh Azaran, Virology Department, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran. Tel +98 6113738313, Fax +98 6113738313
E-mail: manoochehrmakvandi29@yahoo.com

BACKGROUND: Group A rotavirus (RVA) mainly causes acute gastroenteritis exclusively in young children in developing countries. The prevalence and determination of the molecular epidemiology of rotavirus (RV) genotypes will determine the dominant rotavirus genotypes in the region and provide a strategy for the development of vaccine to prevent morbidity and mortality in children.

METHODS: A total of 100 faecal samples were collected from children below 5 years with acute gastroenteritis referred to Aboozar Children’s Hospital of Ahvaz city during October 2015 to March 2016. All samples were screened by latex agglutination for the presence of rotavirus antigen. Rotavirus-positive samples were further analyzed by the semi-multiplex RT-PCR and the sequencing was done for the determination of G/P-genotyping.
RESULTS: thirty-two finding showed that 32% of the specimens were RVA-positive. Among the 32, VP7 genotyped strains, the predominant G genotype, was G9 (37.5%) followed by G2 (21.9%), G1 (12.5%), G12 (9.4%), G4 (9.4%), G2G9 (6.3%) and G3 (3.1%). Among the 31 VP4 genotyped strains, P [8] genotype was the dominant (62.5%) followed by P [4] (31.3%) and P [4] P [8] (3.1%). The genotypes for G and P were identified for 31 rotaviruses (96.87%) but only one strain, G9, remained nontypeable for the P genotype. The most prevalent G/P combination was G9P[8] (28.5%), followed by G2P[4] (18.8%), G1P[8] (9.4%), G12P[8] (9.4%), G4P[8] (9.4%), G2G9P[4] (6.3%), G9P[4] P[8] (3.1%), G3P[8] (3.1%), G9P[4] (3.1%) G2P [8] (3.1%), and G9P [untypeable] (3.1%). A novel rotavirus strain, G12, was, for the first time detected in patients from south-west Iran.

CONCLUSION: The emergence of a new human rotavirus strain, G12, was identified in this region and sequenced in Iran for the first time, but comprehensive investigations are needed to evaluate its emergence.

Key words: Rotavirus, Genotype, Emergence, Novel, Iran
PV-36

Investigating affinity of syncytin-1 to MBP, MOG and PLP by in-silico techniques

Aramideh khouy Reza¹Kakavandi Naser²

1. Department of virology, School of medicine, Iran university of medical sciences
2. Department of biochemistry, school of medicine, Iran university of medical sciences

Introduction:

Multiple sclerosis (MS) is a chronic and progressive inflammatory disease, causing demyelination, axonal loss and atrophy of the central nervous system, and its etiology is unknown (Nazem Ghasemi, 2017). The most important proteins of myelin are Myelin Basic Protein (MBP), Myelin proteolipid protein (PLP) and Myelin Oligodendrocyte Glycoprotein (MOG). Which are antigens to the host immune system (Richard H. Quarles, 2006). Syncytin-1 is a protein found in humans and other primates that is encoded by the ERVW-1 gene (endogenous retrovirus group W envelope member 1). Antibodies to Syncytin-1 have been found in MS patients (Malgorzata trela, 2016). The aim of study is to evaluate syncytin-1 by in-silico techniques in order to interaction to MBP, MOG and PLP.

Method:

The chemical structures of MBP (PDBID:2PXY), MOG (PDBID:1PY9) and PLP (PDBID:2XPG) proteins were obtained from PDB (www.RCSB.org/pdb). The chemical structures of the syncytin-1 were obtained from the ligands PDB (www.rcsb.org/pdb/download/download.do#Ligands) in sdf format. The graphic program ADT version 4.2.6 was used to prepare ligand and proteins. In the final stage, we used Autodock vina version 1.1.2 to predict ligand affinity to receptors.

Results:

In the present study, the affinity of ligand (syncytin-1) to the MBP, MOG and PLP receptors was investigated by using docking analysis. Myelin Basic Protein, Myelin proteolipid protein and Myelin Oligodendrocyte Glycoprotein receptor had the affinity rating $\Delta G = -7.3$, $\Delta G = -5.9$ and $\Delta G = -5.1$ respectively.

Conclusion:

Syncytin-1 has the most affinity to the MBP. Sothe interaction between syncytin-1 and MBP may lead to immune response and myelin degradation.
Molecular identification of papillomavirus type 16 and 18 isolated from women with cervical cancer

Maryam Shabani MSc¹, Mojtaba Sadeh ², Kumarss Amini PhD³

¹ Department of Microbiology, School of Basic Sciences, Saveh Branch, Islamic Azad University, Saveh, Iran.
² Mojtaba Sadeh Department of Microbiology, Islamic Azad University, Tehran Medical Branch, Iran.
³ Assistant Professor, Department of Microbiology, School of Basic Sciences, Saveh Branch, Islamic Azad University, Saveh, Iran.

Corresponding Author's Email: msade110@gmail.com

Background: Women with human papillomavirus (HPV)-associated with cervical and breast cancer have a higher mortality than the general female population. The purpose of this study was to identification HPV-16 and HPV-18 genotypes in patients with cervical cancer or breast cancers by multiplex-PCR.

Results: In this experimental study, after collecting of samples from malignant cervical cancer, the viral DNA was extracted by SinaClon kit and PCR was done by specific primers for HPV-16 and HPV-18 gene of human papillomavirus in all samples. After the analysis of PCR products by 2% agarose gel electrophoresis. Among 60 patient samples, 19 cases were confirmed to be positive for HPV infection and 41 cases were negative, showing high frequency of HPV in this patient population (about 31.6%).

Conclusion: The frequncy of HPV-16 and HPV-18 were 8(42/1%) and 11 (57/9%) cases, respectively. This study showed that PCR by specific primers for HPV-16 and HPV-18 gene of human papilloma virus is a proper and accurate method for detection of this virus and the results confirm the previous reports of correlation between HPV and cancer samples.

Keywords: Cervix cancer, Human Papilloma Virus, M-PCR.
PV-39

Inhibition of Herpes Simplex Virus Type 1 Infection by Gold Nanoparticles Capped with Rheum Ribes

Zeynab Nasiri Taj Abadi 1, Zahra Meshkat 2

1- MSc in virology, School of medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2- Associate Professor of Medical Virology, Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

Background: Today, the treatment of diseases caused by Herpes Simplex Virus Type 1 (HSV-1) with chemical drugs is facing challenges due to the emergence of drug resistance and latent period of the virus. Therefore, examination and evaluation of new medicinal compounds seems to be necessary in order to achieve novel therapeutic methods. The aim of this study was to investigate the antiviral effects of gold nanoparticles and Rhubarb (Rheum ribes) plant extract on HSV-1.

Methods: Toxicity of the prepared extract of Rhubarb and Rhubarb-bound gold nanoparticles was first investigated on Vero cells by MTT method. The antiviral effects of the drugs (Rhubarb plant extract and Rhubarb-bound gold nanoparticles (RBGN), respectively) were then evaluated by adding an IC50 level of each compound to the test wells. The supernatants were collected after 4 days and exposed to Real-Time PCR.

Results: According to the results of MTT test, IC50 values for (RPE) and (RBGN) were calculated as 135.4 and 56.7 mg/ml, respectively. Results of real-time PCR showed that both (RPE) and (RBGN) had complete inhibitory effects on HSV-1 replication.

Conclusion: According to the experiments, (RPE) and (RBGN) have inhibitory impacts on the proliferation of HSV-1. Therefore, both (RPE) and (RBGN) can be suitable candidates for further investigations in order to obtain new antiviral agents.

Keywords: Herpes Simplex Virus, Gold Nanoparticles, Rheum Ribes, MTT, Real-Time PCR
PV-40
Evaluation of sero epidemiology HCV on patients for surgery artery sclerosis refereed to section of open heart surgery of qazvin city from 21th mar. 2017 to 1 jun. 2018

Background: Viral Hepatitis including A, B, C, D, E,… are prevalent in several Societies with varying degrees. They cause many kind of liver damages. Among ethiological agents of viral Hepatitis, HCV are more notified due to producing more several liver diseases such as cirrhosis and Hepatocarcinoma. The most important route of transmission of these viruses is vial blood and blood product transfusions the kind of surgery especially artery sclerosis so these Diseases are frequent among Hemo dialyzed, thalassemic & Hemophilia patients. specially in our research patients hemo dialyzed. Several laboratory tests can detect infection of HCV including HCV-Ab, RIBA, and the confirmatory Genomic detection of HCV called HCV-RNA.

The main objective of this study cross-sectional was to investigate the Sero epidemiology on patients for surgery artery sclerosis refereed to section of open heart surgery 400 boualisinahospital of Ghazvin city from 21th mar. 2017 to 1 jun. 2018

Methods: sera were separated rapidly at first cross-section study, Blood of 408 patients were analyzed for HCV-Ab detection by all sera In a ELISA method

Result: were 2 positive Riba

Conclusion: HCV infection due to contamination of Disposable connections is mandatory, also other Preventive routes must be considered. because of False positive results of HCV-Ab detection tests, It is recommend to confirm every positive test With RIBA method and finally in suspicious Cases they must confirmed by RT-PCR.
PV-41

Human parvovirus B19 and parvovirus 4 among Iranian patients with hemophilia

Davod Javanmard¹, Masood Ziaee², Hadi Ghaffari¹, Mohammad Hasan Namaei², Ahmad Tavakoli¹, Mohsen Moghoofei³, ⁴, Seyed Hamidreza Monavari¹,*

1. Department of Virology, School of Medicine, Iran University of Medical Sciences, Tehran, Iran
2. Infectious Diseases Research Center, Birjand University of Medical Sciences, Birjand, Iran
3. Department of Microbiology, Faculty of Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran
4. Student Research Committee, Iran University of Medical Sciences, Tehran, Iran

Background: Human parvovirus B19 (B19V) is one of the smallest DNA viruses and shows great resistance to most disinfectants. Therefore, it is one of the common contaminant pathogens present in blood and plasma products. Parvovirus 4 (PARV4) is a newly identified parvovirus, which is also prevalent in parenteral transmission. In this study, we aimed to evaluate the prevalence of B19V and PARV4 DNA among patients with hemophilia in Birjand County in eastern Iran.

Methods: This was a cross-sectional epidemiological study comprising nearly all people with hemophilia in this region. Whole blood samples were taken after patient registration and sent for plasma isolation. After nucleic acid extraction, B19V was detected with real-time polymerase chain reaction; PARV4 DNA was then detected using sensitive semi-nested PCR.

Results: In total, there were 86 patients with hemophilia, with mean age 28.5±1.5 years. Of these, 90.7% were men and 9.3% women; 84.9% had hemophilia A and 7.0% had hemophilia B. We found 11 patients (12.8%) were positive for B19V DNA and 8 were positive (9.3%) for PARV4 DNA. The prevalence of B19V was higher in middle-aged groups rather than younger people, whereas PARV4 infection was more common in younger patients (P<0.05).

Conclusion: There was a high prevalence of B19V and PARV4 infection in this high-risk group of patients with hemophilia. Due to the clinical significance of the B19 virus, imposing more precautionary measures for serum and blood products is recommended.

Keywords: Parvovirus B19, PARV4, Hemophilia, Prevalence, Iran
PV-42

E6-Specific Detection and Typing of Human Papillomaviruses in Oral Cavity Specimens from Iranian Patients

Hadi Razavi Nikoo1,2, Mehdi Ajorloo3, Mina Hassanpour1,2, Ali Safarzadeh4, Kimia Azarbayjani4, Mahdi Mohamadi4, Mehrdad Ravanshad*5

1- Laboratory Science Research Center, Golestan University of Medical Sciences, Gorgan, Iran.
2- Department of Microbiology, Faculty of Medicine, Golestan University of Medical Sciences, Gorgan, Iran.
3- Hepatitis Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran.
4- Student Research Committee, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
5- Department of Virology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran.

Background: Detection and quantification of human Papillomavirus (HPV) genome in oral carcinoma play an important role in diagnosis, as well as implications for progression of disease.

Methods: We evaluated tissues from 50 esopharyngeal cancers collected from different regions of Iran for HPV E6 using the two type-specific Primerssets. E6 gene of HPV genotypes was amplified by specific primers. The sensitivity of PCR assay was analyzed and determined using HPV-DNA-containing plasmids. Real-time PCR was utilized to determine the prevalence and HPV viral load in patients with oral cavity squamous cell carcinoma.

Results: Eighteen (36%) specimens were positive for HPV. Among the 18 positive specimens, 10 showed HPV-18 (55.55%), and 8 specimens were positive for HPV-11 (44.44%). Of the 18 infected specimens, 6 (33.32%) and 12 (66.65%) were identified as high-titer and low-titer viral load, respectively.

Conclusions: The PCR-based assay, developed in the current study, could be used for HPV detection, quantification, and genotyping in epidemiological and clinical studies.

Keywords: Real-time PCR, Genotyping, Iran
PV-43

Phylogeny study of some vaccinal strains of rabies virus and comparing their antigenic glycoprotein specificity with the wild type

Mehdi Ajourloo\(^1,2\), Masomeh Moradi\(^3\), Bahareh Rahimian Zari\(^4\), Ashkan Alamdary\(^5\), Ali Safarzadeh\(^6\), Mahdi Mohamadi\(^6\), Kimia Azarbayjani\(^6\), Alireza Gholami\(^3\)*

1. Hepatitis Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran.
2. School of Allied Medical Sciences, Lorestan University of Medical Sciences, Khorramabad, Iran.
3. Human Rabies Vaccine Unit, Production and Research Complex, Pasteurs Institute of Iran, Tehran, Iran.
4. Dept. of Biology, Sanandaj Branch, Islamic Azad University, Tehran, Iran.
5. Dept. of Biology, Science and Research Branch, Islamic Azad University, Tehran, Iran.
6. Student Research Committee, Faculty of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.

Corresponding author:
Alireza Gholami
E-mail: a.gholami@pasteur.ac.ir

Rabies is a viral disease causing acute encephalitis in human or animals. Rabies virus belongs to the genus Lyssavirus, family Rhabdoviridae. The virus has a single, negative-stranded RNA genome encoding five structural proteins, including nucleoprotein (N), phosphoprotein (P), matrix protein (M), glycoprotein (G) and RNA-dependent RNA polymerase gene (L). All of the provinces of Iran are infected with rabies. Although there is no cure for rabies, it is totally preventable by proper vaccination. Effective vaccine can be used for pre- and post-exposure prophylaxis. Glycoprotein has a main role in pathogenicity and immunogenicity thus variation in genetic sequence of this gene leads to variation in antigenic and pathogenic properties of rabies virus. Therefore, in this study, we analyzed the antigenic sites of the glycoprotein from rabies virus strains used in vaccine manufacture and compared their epitope sequences with wild type strain. We have used RT-PCR technique to determine the genetic sequence of these strains. Phylogenetic analysis showed that the wild type street virus isolate found in Iran were related to genotype 1 (classical rabies virus) and shared a high homology with the vaccine strains. Furthermore, comparison of amino acid sequences of major and minor antigenic sites between the wild type and several vaccinal strains showed that the virus had a higher homology with the vaccinal strain PV that is used to manufacture vaccines in the country.

**Key words:** Rabies Virus, Glycoprotein, Antigenic site, Phylogenetic Analysis
PV-44

Alteration of miR-27a, miR-150 and miR-335 gene expressions by HCV NS3 protein

Sayyad Khanizadeh¹, Mehdi Ajourloo², Seyed Younes Hosseini³

1. Department of Virology, School of Medicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
2. Faculty of Paramedicine, Lorestan University of Medical Sciences, Khorramabad, Iran.
3. Department of Bacteriology and Virology, Shiraz University of Medical Sciences, Shiraz, Iran.

Background: Chronic Infection with the hepatitis C virus (HCV) is considered as one of the most important agents of chronic liver diseases such as liver fibrosis. Modulation of gene-regulatory networks such as microRNAs by HCV proteins plays an important role in the pathogenesis of chronic liver diseases. The aim of this study was to investigate the effect of the HCV NS3 protein on expression profile of miR-150, miR-194, miR-335 (three antifibrotic microRNAs) and miR-194, miR-27a (two pro fibrotic microRNAs).

Methods: during a cell culture model the plasmids expressing the full length of the HCV NS3 protein were transfected into the LX-2 cell line, while at the same time a LX-2 cell line was treated by leptin hormone to induce fibrosis as positive control group and a plasmid expressing empty GFP was used as a negative control. Subsequently, genomic RNA was extracted and real-time PCR was performed to evaluation of microRNA expression levels. Also, the trypan blue exclusion test was performed to examine the effect of the expressing NS3 protein plasmid on cellular viability.

Results: The analysis of microRNA gene expression in LX-2 cells by real-time PCR indicated that the NS3 protein, which is endogenous to HCV, can significantly increase the expression of miR-27a and decrease the expression of miR-335 and miR-150 in comparison with the control groups and normal cells (p < 0.01).

Conclusion: our data suggest that the HCV NS3 protein may play a role in the pathogenesis of liver fibrosis via modulation of cellular microRNA expressions.

Keywords: NS3, microRNA, LX-2, Liver Fibrosis, HCV
Seroepidemiological study of HBV, HCV and HTLV1 among the student of Sabzevar University of Medical Sciences (2015-16)

Mojtaba Fattahi Abdizadeh¹*, Maryam Latifnia²

¹. * Department of Microbiology, Faculty of Medicine, Sabzevar University of Medical Sciences, Sabzevar, Iran.
². Department of Gastrointestinal medicine, Faculty of Medicine, Sabzevar University of Medical Sciences, Sabzevar, Iran.

Background: hepatitis B virus (HBV), hepatitis C virus (HCV) and Human T-lymphotropic virus type 1 (HTLV-1) are blood borne viruses and they are predicted that about 2%, 0.3% to 1.6% and 0.5% of people in Iran have been infected to these viruses respectively. Because of occupational reasons, medical science students are more susceptible to expose to these diseases than other members of society. This study aimed to study prevalence of HBV, HCV and HTLV-1 among students of Sabzevar university of medical sciences.

Methods: This study is a descriptive-analytic study and 570 students of Sabzevar University of Medical Sciences were randomly selected and sampled. Then, the surface antigen of hepatitis B virus (HBs-Ag), HCV–Ab and HTLV-Ab were measured using ELISA (Enzyme linked immunosorbent assay) method and the results were analyzed using the software Stata 12 after recording the demographic results and information.

Results: Out of 570 cases, 63.2% were female (360 Cases) and 36.8% (210 Cases) were male. 0.66% had antibody against HTLV-1 and 0.33 % of individuals showed the HBs-Ag in their serums. However, nobody had antibody against HCV. There was no significant relationship between major, sex and marital status with the all infections (P>0.05).

Conclusion: In comparison with similar studies, the prevalence of HBV, HCV and HTLV-1 infections among students of Sabzevar university of medical sciences are low.

Keywords: HBV, HCV, HTLV
The study of complete sequence of Large T Agin patients receiving a kidney transplant in Ahvaz.

Gholam Abbas Kaydani1, Manoochehr Makvandi1, Heshmatollah Shahbazian2, Maryam Labibzadeh3

1Department of Virology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

2Golestan Hospital, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

3Infertility Research and Treatment Center of Jahad, Ahvaz, Iran

Backgrounds: BKV infection is one of the most common infections in renal transplant recipients, and BK polyomavirus-associated nephropathy (BKVPN) is seen in about 10% of patients who have had kidney transplants, which causes renal dysfunction and even rejection of the transplanted organ. Large T Antigen is the most important regulatory protein in the virus and plays an important role in replicating the virus.

Aim: In this study, we determined the sequence of the Large T Ag gene isolated from five patients who received kidney transplantation and were admitted to hospital due to fever and increased creatinine.

Materials and Methods: Conventional PCR method with specific LTAg primers was used. Then, purified fragments were cloned and LTAg regions of each sample were compared with homologous sequences in the Gene bank.

Results: Comparing the gene LTAg with reference strains of Dunlop, MM and SJH-LG-253, we found that the nucleotide difference was significant in the LTAg gene (Respectively 0, 52 and 16 nucleotides).

Conclusions: In this study, the complete sequences of Large T Ag were aligned and compared to the standard strains of Dunlop, MM and SJH-LG-253. They were significantly different in the LTAg region. Also considered one of the major site for determining polymorphism as the LTAg gene.

Key words: BK virus, LTAg, Kidney transplantation, Ahvaz.
Generation of HCV NS3 protein fused to small heat shock protein 27 as an antigenic candidate

Sina Alizadeh1, Azam Bolhassani2*, Shiva Irani1, Seyed Mehdi Sadat2, Elnaz Agi 3

1. Department of Biology, School of Basic Science, Science and Research Branch, Islamic Azad University, Tehran, Iran
2. Department of Hepatitis and AIDS, Pasteur Institute of Iran, Tehran, Iran
3. Iranian Comprehensive Hemophilia Care Center, Tehran, Iran

Background: Heat shock proteins (HSPs) known as stress proteins are multifunctional and highly conserved proteins in all cells of organisms. They are molecular chaperones which play key roles in folding and unfolding proteins, cell signaling, translocation across membrane and protect the cells against stress or apoptosis. In addition, HSPs play a key role in protein or peptide vaccines as an antigen or adjuvant, because they are involved in autoimmunity, immunity of infections and tumor immunology. In the present study, in order to improve the potency of NS3 protein as an antigen in HCV vaccine development, small heat shock protein 27 (Hsp27) was linked to NS3 as an adjuvant and the expression of this fusion protein was evaluated in prokaryotic expression system.

Method: At first, the NS3-Hsp27 fusion protein was subcloned from pUC-NS3-Hsp27 into pET-23a expression vector. The protein was expressed in Rosetta competent cells using IPTG inducer and confirmed by SDS-PAGE analysis. HSP27 protein was purified by affinity chromatography using Ni-NTA resin. The purified fusion protein was identified by western blotting using anti-His antibody.

Results: The expression of the fusion NS3-Hsp27 protein was confirmed as a clear band of ~60 kDa in SDS-PAGE. In addition, this recombinant protein was purified by affinity chromatography under denaturing conditions and identified by western blotting as a clear band of ~ 60 kDa.

Conclusion: Generally, our data indicated that the recombinant NS3-Hsp27 protein was successfully generated in E.coli expression system for improving HCV protein vaccine in Future.

Keywords: HCV, NS3, Hsp27, Prokaryotic expression system
PV-49

Frequency of human papillomavirus infection among suspected patients referred to the Mashhad diagnostic laboratories (during 2006-2015)

Seyed Muhammad Yahyazadeh Mashhadi¹,², Ehsan Aryan³, Arash Arashkia³, Monireh Kazemimashesh⁴, Kayhan Azadmanesh⁴, Mojtahed Meshkati⁵, Hamed Gouklani⁵, Aida Gholoobi⁶, Zahra Meshkat⁷.

1. Production Expert at Samaandaroo 8 (Biotech Pharmaceutical) Co, Mashhad, Iran.
2. Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.
3. Department of Virology, Pasteur Institute of Iran, Tehran, Iran.
4. Department of Biostatistics, School of Paramedical Sciences, Shahid Beheshti University of Medical Sciences, Tehran, Iran.
5. Molecular Medicine Research Center, Hormozgan Health Institute, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
6. Department of Modern Sciences and Technologies, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Background:

Human papillomavirus (HPV) is the most common virus transmitted through sexual contact. Studies show that the prevention and treatment of diseases associated with HPV cost about 8 billion dollars annually, in the United States and the bulk of this, about 6.6 billion dollars, is spent on cervical cancer screening.

Methods:

In this study, all the diagnostic laboratories listed in the "Vice-Chancellor for Treatment of the Mashhad University of Medical Sciences" were contacted and ultimately, 13 laboratories are found to perform the HPV-PCR test. After correspondence with them, three laboratories were willing to cooperate. Then, HPV-PCR were performed for suspected HPV patients referred to these three laboratories. The ratio of HPV-positive-to-total number of patients referred to the laboratories was analyzed in each year by gender and age, separately.

Results:

According to the data of the collaborated laboratories, the number of HPV suspected patients (2604 cases) referred to the labs and the number of confirmed HPV positive subjects (1028 cases) increased during the studied years. It is also noteworthy that there is an increase in the frequency percent (more than 1.6 times) of the HPV positive patients to the HPV suspected patients indicating an increase in the virus carriers during the studied years. These findings show that due to the importance of the HPV involvement in cervical cancer development, the number of female subjects referred for HPV-PCR test (%90.5) was much more than male ones (%9.5). The study also showed that the highest frequency was among the 30 to 39 years old group both for the suspected HPV subjects and confirmed HPV patients.

Conclusion:

In this study, to prevent the spread and the occurrence of papillomavirus-associated cancers the implementation of vaccination program, as well as the early detection and prevention of cervical cancer in the region, is much needed.
PV-50

Frequency of human papillomavirus genotypes among from individuals referred to diagnostic laboratories of Mashhad during 2006 to 2015

Seyed Muhammad Yahyazadeh Mashhadi123, Ehsan Aryan2, Arash Arashkia3, Monireh Kazemimanesh3, Kayhan Azadmanesh1, Mojtaba Meshkat1, Hamed Gouklani5, Aida Gholoobi6, Zahra Meshkat2*.

1. Production Expert at Samandaroo 8 (Biotech Pharmaceutical) Co, Mashhad, Iran.
2. Antimicrobial Resistance Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.
3. Department of Virology, Pasteur Institute of Iran, Tehran, Iran.
4. Department of Biostatistics, School of Paramedical Sciences, ShahidBeheshti University of Medical Sciences, Tehran, Iran.
5. Molecular Medicine Research Center, Hormozgan Health Institute, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.
6. Department of Modern Sciences and Technologies, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Background:

Human papillomavirus (HPV) is a worldwide spread virus with over 150 genotypes and is the most common sexually transmitted virus. HPV is the cause of various diseases, especially more than 99% of cervical cancer cases. The genotypes that infect mucosal areas are classified into two categories: high risk and low risk, of which high risk genotypes including 16, 18, 31, 33, 35, 39 and 45, are the main cancer associated ones. This study investigated the frequency of HPV genotypes among HPV-positive patients in Mashhad.

Methods:

The results of tests of HPV-PCR positive specimens whose genotypes were determined in three laboratories in Mashhad between 2006 and 2015, were studied and genotype frequencies were calculated.

Results:

According to data obtained from the laboratories, among 1028 HPV-PCR positive specimens whose genotypes were determined, the genotypes 16 with 413 cases, 6 with 387 cases, 11 with 233 cases, 18 with 148 cases, 45 with 134 cases and 53 with 129 cases were found. In addition, genotypes 52, 39, 44, 56, 31, 66, 58, 51, 68, 59, 73, 35, 82 and 33 with 111, 84, 81, 80, 75, 71, 65, 62, 58, 54, 33, 32, 28 and 17 cases, respectively, were in the next ranks of frequency for various genotypes of HPV.

Discussion:

The results of the present study on the prevalence of HPV genotypes can be effective in planning vaccination against the virus and molecular epidemiology studies of this virus.

Keywords:

Human papillomavirus; genotypes frequency; Mashhad
Relation of between breast cancer and Bovine leukemia virus

Dr.taravat bamdad¹,pedram attaredegosha²

14. Department of medical virology University of Tarbiat modares.(professor)

15. Department of medical virology University of Tarbiat modares.(master of science)

Background: Is there relation of between breast cancer and Bovine leukemia virus?

Methods: The studies demonstrated that the DNA of retrotranscribed bovine leukemia virus (BLV) was present in breast tissue of women in the United States and associated with breast cancer.

The techniques such as PCR and DNA sequencing enabled detection of BLV in human breast tissue, and determination of its significant association with breast cancer in a US population. Using similar techniques to study 96 Australian women, we report here detection of retrotranscribed BLV DNA in breast tissue of 40/50 (80%) of women with breast cancer versus 19/46 (41%) of women with no history of breast cancer, indicating an age-adjusted odds ratio and confidence interval of 4.72 (1.71–13.05). These results corroborate the findings of the previous study of US women with an even higher odds ratio for the Australian population. For 48 of the subjects, paired breast tissue samples, removed 3–10 years apart in two unrelated procedures, were available. For 23/31 (74%) of these, in which the first specimen was diagnosed as nonmalignant (benign or premalignant) and the second as malignant, BLV was already present in benign breast tissue years 3–10 years before the malignancy was diagnosed. This is consistent with the supposition of a causative temporal relationship between BLV infection and subsequent development of cancer.

Results: Specimens were scored positive for the presence of BLV DNA amplicons only if all the following conditions were met: 1) positive and negative cell line controls had the appropriate reactions, confirmed and pictured in our previous publication 2) cellular reactions were ≥ 2+ rating; 3) BLV amplicons were found in mammary epithelium; and 4) the background control for non-specific tissue reactions (an adjacent section from the same tissue reacted with ISH reagents minus the labeled probe) was negative for the corresponding area. Specimens were scored independently by two us (GCB and HMS), blinded to breast cancer status. For sequencing, DNA was extracted using the QiAmp DNA mini kit (Qiagin). Primer sequences, below, were from the LTR region of the BLV genome as shown below, with bp numbering according to GenBank accession:

Outer primers:
Forward (bp 23–38): TAGGAGCCGCGCCACCGC
Reverse (bp 352–336): GCGGTGTCTCAGCCCGA
Inner primers:

Forward (bp 41–59): CGTAAACCAGACAGAGACG

Reverse (bp 331–312): CACCCTCCAAACCGTGCTTG

There was no conspicuous morphologic difference between individual BLV-infected versus uninfected mammary epithelial cells within breast tissues of any diagnosis. Regardless of the pathology of the mammary epithelial cells in a specimen, BLV-positive cells were almost exclusively found as part of a population of like cells in an area such as duct or a lobule, rather than as single cells scattered among BLV-negative cells.

**Conclusion:** Bovine leukemia virus is significantly associated with breast cancer in a population of Australian women, and was present in some breast tissues 3–10 years before the cancer was diagnosed and it is possible that BLV associated with breast cancer in a population of Iranian women. While the population of breast cancer in Iran is increasing, only about 5-10% of the cancer is a hereditary one and 90-95% is foreign factors.

**Keywords:** BLV, Breast cancer, Pcr
PV-52

Comparison of Diagnostic Methods for Genotyping of Hepatitis C Virus

Safa Tahmasebi¹, Maryam Erfanmanesh², Sousan Ghasemi³, Abdolreza Esmaeilzadeh⁴,5*

¹Department of Immunology, Faculty of Health, Tehran University of Medical Sciences, Tehran, Iran.
²Young Researchers Club, Zanjan Branch, Islamic Azad University, Zanjan, Iran.
³Shaheed Beheshti Medical laboratory Hospital, Zanjan University of Medical Sciences, Zanjan, Iran.
⁴Department of Immunology, ⁵Cancer Gene Therapy Research Center, Zanjan University of Medical Sciences, Zanjan, Iran.

Background:
HCV infection is a major cause of chronic liver disease. Dose and duration of treatment directly are influenced by each HCV genotype and subtype. Since genotype distribution is different in various geographical regions, genotypes diagnosis is a great of importance. There are many detection methods which applied in all around the world, such as RFLP PCR, real-time PCR, RT PCR, nested PCR, multiplex PCR, direct sequencing, hybridization and reverse hybridization assay like INNO-LiPA, Liquid Microarray, LAMP.

Methods:
This systematic review was conducted to outline comprehensive studies published in science direct, PubMed, Elsevier and google scholar data bases. A total of 62 titled HCV genotyping were extracted for different studies, and some global articles about HCV genotyping were also searched.

Results:
HCV genotyping is significant issue. For that reason studies were investigated to select applicable method for HCV genotyping method. There is growing demand for application of easy, economical and reliable methods. Hybridization assays are performed with PCR step taking from several hours up to a day and need to control conditions. Direct sequencing is expensive and time consuming and needs to complicated instruments. Currently applied commercial kits including widely used INNO-LiPA and Abbot real-time PCR genotype assay.

Conclusion: Each method has its certain benefits and drawbacks. To select a proper diagnostic method is critical in remedial trials.

Keywords
HCV, genotype, genotyping method, Iran, world
Challenges among virus an Nrf2 signaling pathway

Ali ramezani¹, Mehdi parsahad¹, Sara mahmoodi², Nahid omidi¹, Milad Zandi³, Ali ghamari⁴, Mona fani¹, Hadis kiani¹, Hojatollah Nikravesh², Ebrahim faghihol³

¹Department of Medical Virology, School of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, IR Iran
²Dept. of Pharmacology and Toxicology, School of Pharmacy and Toxicology Research Center, Jundishapur University of Medical Sciences, Ahvaz, Iran
³Department of Virology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran
⁴Department of Medical Mycology, School of MedicineAhvaz Jundishapur University of Medical Sciences Ahvaz Iran
⁵-Department of Microbiology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Abstract

The nuclear factor erythroid 2 related factor 2 (Nrf2) is a major regulator of intracellular inducible defense systems against harmful endogenous and exogenous substances in the body. Under normal conditions NRF2 is mainly binds to keap1 and located in the cytoplasm. However, in response to oxidative and electrophile stress, NRF2 translocated to the nucleus and link to anti-oxidant response elements to induce the transcription of cytoprotective genes. Most viruses cause oxidative stress and increase the activity of radicals and reactive oxygen species (ROS), subsequently, the cellular protection system activates the Nrf2 and increases the expression of cytoprotective genes. However, in some cases, the activation of Nrf2 is not ROS-dependent, and is carried out directly via the ROS-independent pathway. Many viruses cause the activation of nrf2, which is involved in the pathogenesis and the progression of the virus infection and even in its chronic form. However, some viruses inhibit the activation of nrf2, in which case the virus also benefits from this mechanism to maintain the homeostasis of the cell. However, the challenge between the Nrf2/ARE signaling pathway of and viral infections is unknown in some cases, and in order to know more details in this regard, a more detailed seems necessary.

Key words:Nrf2, virus, oxidative stress
PV-54

Deliberation of Hepatitis consultation center of Jiroft’s efficiency during 2013-2016

Fatemeh Akbari Mahni * 1, Hamideh Daneshi 2, Fatemeh Ranjbar 3, Zahra Rusi Zeidabad 4, Mahla Jafari 5

1_ Graduate student of Laboratory Science and Youth and Elite Research Club, Department of Laboratory Sciences, Islamic Azad University, Zahedan Unit, Iran
missakbarimehni@gmail.com

2,3,5_ Graduate student of Laboratory Science and Youth and Elite Research Club, Department of Laboratory Sciences, Islamic Azad University, Zahedan Unit, Iran

4_Undergraduate Student, Midwifery, Islamic Azad University, Zahedan Unit, Iran

Introduction: Hepatitis is a viral infection that usually infects the liver. It is considered as one of the most important health problems of the whole world. This study aims toward Deliberation of Hepatitis consultation center of Jiroft’s efficiency in Kerman province during 2013-2016.

Materials and Methods: this study is descriptive analytic and it was done during 2013-2016. The statestical society includes patients referring with Hepatitis B and C to of Hepatitis consultation center of Jiroft. 2204 people came to the center meanwhile. Data was collected from Ghaem hospital of Jiroft and then, statestical analysis was done by SPSSV21 application on the collected data.

Results: 1912 people were referred to the labratory for Hepatitis test. 303 Hepatitis B and 38 Hepatitis C were identified. 341 positive tests were referred to the spacialist. 196 cases of Hepatitis B and 23 Hepatitis C were recovered.

Conclusions: Hepatitis B was more found than Hepatitis C among those who were referred to the labratory. It is recommended that the health center should put more time on awaring people about Hepatitis prevention principles. The most important way for prevention is to vaccinate on time.

Keywords: Efficiency, Consultation center, Hepatitis
PV-55

The prevalence of herpes simplex virus type 1 and 2 in CSF samples in Golestan Province

Masoomeh Rezanezhad M.Sc. 1, Hamid Reza Josghaghan, Ph.D. 2*

1-cellular and molecular division, kavosh medical laboratory, Gorgan, Iran,
2-Medical Laboratory Research Center, Golestan University of Medical Sciences, Gorgan, Iran

Background: Herpes simplex virus (HSV) is a member of Herpesviridae. Infections with herpes simplex virus type 1 (HSV-1) and type 2 (HSV-2) are among the most common human viral infections worldwide. The viruses cause lasting and recurrent infections throughout life. Data on prevalence of HSV-1 and HSV-2 infections are limited in Asia, especially in Iran. This study aims to estimate the prevalence of HSV infection in CSF fluid of patients in Golestan province, Iran.

Methods: In this study, 212 patients with HSV infection were recruited. Demographic data were collected. HSV-DNA extracted from CSF samples and Real-Time PCR was performed for HSV detection.

Results: There were 94 (45%) male and 118 (55%) female individuals with age range 1-75 years and mean age 35 years. The HSV genome was detected in 4 (0.02%) patients by PCR. HSV-1 detected in CSF samples without any HSV-2 infections.

Conclusion: According to the findings of the present study, the prevalence of HSV-1 in the CSF samples is significantly greater than of HSV-2.

Keywords: HSV, CSF, Iran.
Investigation of HAV genome among blood donors in Golestan province.

Shahla Shiukhi1*, Ameneh Elikaei1, Zohreh Sharifi2

1. Department of Microbiology, Faculty of Biological Sciences, Alzahra University, Tehran, Iran
2. Department of Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran
* Responsible author: E-mail: sh.shiukhi@yahoo.com

Background: Hepatitis A is a virus with linear and positive strand RNA. It is nonenveloped virus and very resistant to environmental stress such as heat, drugs and chemical agents. The infection is usually transmitted through the feces infected with the virus.
HAV infection is acquired usually by the fecal-oral route and in adults, it can leave very serious complications, including fulminate hepatitis. In the acute phase of the disease, when the virus is present in the bloodstream, it is possible to transfer through blood and blood products. The virus is infectious for one to two weeks in the bloodstream before symptoms appear. Choosing the right donor causes people who have an active virus in the blood sample will be exempted from blood donation. Our assumption is that blood donors in Iran are properly selected and there is no danger of blood recipients in Iran.

Methods: Sera of 400 blood donors in Golestan province who were negative for anti-HIV, HBs Ag and anti-HCV were tested for HAV RNA. HAV RNA was extracted from plasma by "High Pure Nucleic acid Kit" (Roche©). Then from extracted RNA, cDNA was synthesized using "First strand cDNA Synthetic Kit" (Roche©). HAV RNA was detected by nested RT-PCR.

Results: No viral genome was found in serum samples of donors.

Conclusion: The selection of blood donors in Iran is done correctly. And the blood donors are safe in terms of virus transfer.

Keywords: Hepatitis A virus (HAV), Golestan province, Blood donors
PV-57

Investigation of parvovirus B19 genome among blood donors in Golestan province

Ameneh Karimnia¹*, Ameneh Elikaei¹, Zohreh Sharifi²

1. Department of Microbiology, Faculty of Biological Sciences, Alzahra University, Tehran, Iran  
2. Department of Blood Transfusion Research Center, High Institute for Research and Education in Transfusion Medicine, Tehran, Iran

* Responsible author: E-mail: Ameneh.Kma@gmail.com

Background: Human parvovirus B19, a member of the parvoviridae family, with single-stranded DNA and non-enveloped virus. Human parvovirus B19 causes a number of clinical illnesses including infectious erythema (fifth disease), hydrops fetalis, transient aplastic crises, arthropathy and congenital aplasia. The virus transmitted via respiratory tract, blood products, From maternal to fetus, and blood transfusion. Parvovirus B19 DNA is detectable through molecular techniques such as PCR. The aim of this study was whether the selection of donors in Golestan province has been done correctly.

Methods: In this study, By random sampling method sera of 400 blood donors in Golestan province who were negative for HIV, HBsAg and HCV were tested for presence of B19 DNA through semi-nested PCR. Extraction of B19 DNA from blood donors was performed using a high pure nucleic acid extraction kit (Roche©).

Results: No viral genome was found in serum samples of donors.

Conclusion: Considering that no viral genome was found in the donor serum sample, we conclude that the selection of blood donors in Iran has been done correctly. on the other indicate of the low risk to be transfusion transmittable.

Keywords: Blood donors, Parvovirus, Golestan province
PV-60

Evaluation of the role of Nocardia spp in sinusitis by molecular method

Sepideh Khodamoradi¹, Mohammad Hassan Shahhosseiny¹,², Mahsa Malekmohammadi kalahroudi¹

¹Iranian Gene Fanavar Institute (IGF), Tehran/Iran
²Department of Microbiology – shahr-e-Qods Branch – Islamic Azad University –Tehran / Iran

Background: Nocardia is an opportunistic bacterium which can cause a wide range of diseases, including a local or diffuse infection, especially in people with a problem with the immune system. Sinusitis is one of the most common health problems in communities that the huge budget is spent on the diagnosis and treatment of this problem every year. The study of the role of Nocardia in sinusitis is negligible. The aim of this study is to diagnosis of fast and accurate Nocardia spp in sinusitis samples by PCR method.

Methods: Using the reference Nocardia brasiliensis and extraction of DNA from it, PCR test optimized on the basis of 16S rRNA gene, and then specificity and sensitivity evaluated by standard methods. A total of 70 specimens were collected by the surgeon from Rasoul Akram Hospital. DNA samples were extracted by DNG method and optimized PCR assay for Nocardia diagnosis.

Results: Using agarose gel electrophoresis, the product of 595 bp of observed in 1.5% gel. In the specificity test, a positive response was obtained only with DNA of Nocardia spp. Limit of detection (LOD) was achieved 10 copy/reaction. Out of 70 samples, 7 (10%) were positive by PCR test.

Conclusion: Due to the involvement of several factors in the development of sinusitis and test in this study, Nocardia can be a contributing factor in the development of sinusitis in humans. The PCR technique can also be an effective and efficient for rapid identification in order to quickly diagnose this factor.

Keywords: Sinusitis, Nocardia spp, PCR, Diagnosis.
Hepatitis C Virus Nonstructural 5A Protein (HCV-NS5A) Inhibits Hepatocyte Apoptosis through the NF-kb/miR-503/bcl-2 Pathway

Somaieh Nasereslami 1, Taravat Bamdad 1 *, Asghar Abdoli 2

1 – Department of Virology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran
2 - Department of Hepatitis and AIDS, Pasteure Institute, Tehran, Iran

Corresponding Author*: Taravat Bamdad, PhD; -Tel: (+98) 21 82882545 -E mail: bamdad_t@modares.ac.ir

Background: The nonstructural protein 5A (NS5A) encoded by the human hepatitis C virus (HCV) RNA genome is a multifunctional phosphoprotein. To analyse the influence of NS5A on apoptosis, we established an Huh7-NS5A cell line (Huh7 cells that stably express NS5A) and induced apoptosis using tumor necrosis factor TNFa. Chronic hepatitis C virus (HCV) infection results in progressive liver fibrosis leading to cirrhosis and liver cancer. According to 2015 statistical data from the 130–150 million people are infected with HCV, and 500,000 people with an illness associated with HCV die every year. To date there is no effective HCV or hepatitis B vaccine that can be widely used. Current therapy relies on a combination of different types of drugs. reported that a fixed-dose combination of daclatasvir and sofosbuvir alone or with ribavirin has the potential to cure most patients with genotype-1 (GT-1) HCV. reported that the combination of daclatasvir, sofosbuvir and ribavirin administered for 12 weeks produced high rates of SVR12 (sustained virological response at 12 weeks) in patients with advanced liver disease, including those with decompensated cirrhosis before and after liver transplantation.

MicroRNA (miRNA), is a kind of non-coding short-chain RNA widely found in animals and plants. Recently, studies have showed that miR-122, miR-49, miR-146-5p and miR-130a are involved in HCV-induced fibrosis and HCV replication. It has been reported that miR-503 is abnormally expressed in various type of cancers, including oral cancer, unicellular carcinoma, parathyroid carcinoma and nonidentical carcinoma. This suggests that miR-503 might play a complicated and tissue-specific role in cancer. Moreover, NF-kB-dependent miR-503 was found to be a pro-apoptotic gene, and NS5A was reported to inhibit hepatocyte apoptosis and NF-kB activation, speculating that miR-503 may be involved in NS5A-inhibited hepatocyte apoptosis.

The present study aimed to study the mechanism of NS5A on TNF-α-induced hepatocyte apoptosis. It demonstrated that NS5A inhibited TNF-α-induced NF-κB activation in a
dose-dependent manner. NF-κB controlled miR-503 transcription and down regulated bcl-2 expression, which led to cell apoptosis. Thus, these findings provide a potential mechanism for HCV infection.

Methods: We utilized the MTT assay to detect cell viability, real-time quantitative polymerase chain reaction and Western blot to analyze gene and protein expression, and a luciferase reporter gene experiment to investigate the targeted regulatory relationship. Chromatin immune precipitation was used to identify the combination of NFkb and miR503.

We found that overexpression of NS5A inhibited TNFα induced hepatocellular apoptosis via regulating miR-503 expression. The cell viability of the TNFα induced Huh7 cells was significantly less than the viability of the TNFα induced Huh7-NS5A cells, which demonstrates that NS5A inhibited TNFa induced Huh7 cell apoptosis.

Under TNFα treatment, miR-503 expression was decreased and cell viability and B-cell lymphoma 2 (bcl-2) expression were increased in the Huh7-NS5A cells. Moreover, the luciferase reporter gene experiment verified that bcl-2 was a direct target of miR-503, NS5A inhibited TNFα induced NFkb activation and NFkb regulated miR-503 transcription by combining with the miR503 promoter.

Results: After the Huh7-NS5A cells were transfected with miR-503 mimics, the data indicated that the mimics could reverse TNFα induced cell apoptosis and bcl-2 expression.

1: NS5A inhibited TNF-α-induced Huh7 cell apoptosis
2: The effect of NS5A and TNF-α on cell viability and apoptotic-related protein expression
3: NS5A inhibited TNF-α-induced NF-κB activation
4: The effect of NS5A and TNF-α on miR-503 expression by NF-κB binding to the miR-503 promoter and regulating its transcription
5: Upregulated miR-503 reserved TNF-α-induced Huh7-NS5A cell apoptosis
6: Bcl-2 was a direct target of miR-503

Conclusion: Collectively, our findings suggest a possible molecular mechanism that may contribute to HCV treatment in which NS5A inhibits NFkb activation to decrease miR-503 expression and increase bcl-2 expression, which leads to a decrease in hepatocellular apoptosis.

Key words: NS5A, Daclatasvir, HCV, Apoptosis, NF-kb/miR-503/bcl-2
عنوان مقاله: بررسی انواع خطاهای آزمایشگاه بیمارستان آیت الله حجت کوهکمری مرند در 6 ماهه دوم 96

طیبه رضائی 1, فرندو آقازاده 2, غلامرضا کیانیان 3, زینب فدائی 4, کیرشنیس ارشد پرس یریی دانشگاه علوم پزشکی تکر زی م  مت آموزش عیلب س،مت مرندی کیرشنیس پژوهش

مقدمه:
یکی از روش های اصلی افزایش ایمنی بیمار، استفاده از سیستم گزارش دهی و فرآیند کردن امکانات برای آنتیزی و پیشگیری از بروز خطاهای. خطاهای آزمایشگاهی یکی از انواع خطاهای پزشکی است که تاثیر تسریحی در تشخیص و امر درمان بیمار دارد. لذا این مطالعه با هدف بررسی انواع خطاهای پزشکی و علل آن در بیمارستان آیت الله حجت کوه کمری شهرستان مرند انجام گردید.

روش کار:
این پژوهش یک مطالعه توصیفی-تحلیلی است. خطاهای گزارش شده در قالب فرم گزارش خطاهای، در 6 ماهه اول 96, از طریق صندوق گزارش خطاهای جمع‌آوری شده از این تعداد خطاهای 25 مورد(9/15%) مربوط به خطاهای آزمایشگاهی بود. از این 25 مورد، 16% خطاهای مربوط به اشتباه در تعیین گروه خونی بیمار، 44% مربوط خطای مرحله ثبت نتایج، 20% اشتباه در شناسایی صحیح، 15% اشتباه در آزمایش و دادن نتایج مثبت و 5% خطای مربوط به عدم کلیپریون تجهیزات این واحدها. بیشترین خطای رخ داده در شیفت شبکاری و کمترین خطای در صبح کاری بود. از این تعداد خطاهای 6/0% خطاهای منجر به ایمنی بیمار شده بود. بیشتر خطاهای در اسکر وقت شناسایی و از اسبب پیشگیری شده بود.

بحث و نتیجه گیری:
با توجه به لزوم افزایش ایمنی، یکی از راهکارهای ارتقای ایمنی شناخت خطاهای و تحلیل ریشه ای آن می‌باشد. نهایت با ارائه راهکارهای مناسب از خطاهای پزشکی حمایت گرایی نمود. این امر مستلزم برگزاری کارگاه‌های مربوط در زمینه ایمنی و خطاهای، افزایش فرهنگ ایمنی و تشکیل کارگاه به گزارش خطاهای است.

کلمات کلیدی: خطای آزمایشگاهی, تحلیل ریشه ای (RCA), ایمنی آزمایشگاه
PKP-02

Review principles of radiation protection and safety of radiation imaging in medical centers

Amir Mohammadzadeh¹, Atena Sarbazi Arasi¹, Mahbubeh Sobhi², Ramin Hosseinzadeh³*

1- BSc student of Laboratory Sciences, Tabriz Faculty of Medical Sciences, Tabriz, Iran
2- BSc student of Radiology, Tabriz Faculty of Medical Sciences, Tabriz, Iran
3- BSc student of Laboratory Sciences, Sarab Faculty of Medical Sciences, Sarab, Iran

* raminhz44@gmail.com

abstract

Background: Ionizing radiation causes genetic changes, lens opacity and create a variety of cancers. For protection against the radiation safety regulations must be observed. The aim of this study is safety and radiation protection imaging in medical centers in order to protect public health and the future generations.

Methods: This study is the result of search Electronic databases of English (PubMed, Google Scholar, Scopus) and Persian language databases (MagIran, Scientific Information Database [SID]) By Keyword "Imaging techniques", "Nuclear Medicine" & "Radiation protection" That a total of 123 articles were found that article 24 of them were analyzed.

Results: During radiography, to protect other patients in the room must lead the shovel used, The video history radiography increased exposure in patients. Use monitoring (film badge) in the center where it is necessary radiographs, Because by using the principle of conservation is well established.

Conclusion: Non-compliance with the principles of radiation protection imaging is associated with inadequate knowledge. The most important way to reduce radiation to patients, knowledge and skills related to X-ray imaging and inspection equipment.

Keywords: Protection against radiation, Radiology, Ionizing radiation
PKP-06

Application of stable isotopes in environmental pollution studies

Kamal Yavari*, Javad Karimi Sabet

Nuclear Science and Technology Research Institute, P.O. Box: 14395–836, Tehran, Iran

The environment is a collection of physico-chemical, biological, social, and economic factors that relate to the individual, community and population in various forms. The presence of one or more pollutants in the environment as the amount and duration of a change in the quality or natural cycle that is harmful to human beings, animals, plants, or buildings and buildings is considered as environmental pollution. "Management", "monitoring" and "controlling pollutants" are the major strategies for the detection of environmental pollution. The use of new technologies in monitoring environmental pollutants and measuring specific pollutants, such as carbon monoxide, isotopes, heavy metals, etc., can be one of the main pillars of enforcement policy in the contamination monitoring. Stable isotopes today are one of the most important technologies that used in many studies of various sciences, especially water and environment. In this paper, we try to explain the importance of important environmental isotopes involved in environmental pollution and how to use them.

Keyword: stable isotopes, environmental pollution
PKP-07

Medical Laboratory Director Competencies: State of the Basic Medical Sciences and Global Perspective

Mohammad ErfanZare¹, RezaMeshkani², MojtabaAbbas³, FarhadShaveisiZadeh⁴, AtefehNasir Kansestani⁵

1. Master of Science in Clinical Biochemistry, Medical Biology Research Center, Student Research Committee, Kermanshah University of Medical Sciences, Kermanshah, Iran.
2. Professor, Clinical Biochemistry Department, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran.
3. Graduate of Veterinary Medicine, Faculty of Veterinary Medicine, Shahrekord Branch, Islamic Azad University, Shahrekord, Iran.
4. Ph.D in Medical Genetics, School of Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran.
5. Master of Science in Medical Immunology, Nosocomial Infection Research Center, Kermanshah University of Medical Sciences, Kermanshah, Iran.

Background: There has been a long-lasting debate among medical laboratory-associated specialists about required competencies and educational background to qualify for directing medical laboratories in Iran. The aim of this study was to provide a comprehensive review regarding required training and competencies for becoming a medical laboratory director in Iran and all around the world.

Methods: A thorough search of the literature was carried out in scientific databases including Web of Science, Science Direct, Springer Link, Wiley Online, PubMed, Scopus, SID and web-based search engines such as Google and Google Scholar.

Results: The results revealed detailed required competencies for directing medical laboratories in the United States of America, Canada, European Federation of Clinical Chemistry and Laboratory Medicine (EFLM) and its many affiliated European countries.

Conclusion: Our results indicate that in all assessed countries, specialists of basic medical sciences and also physicians, after passing certifying examinations, are equally qualified to direct medical laboratories. Indeed, Iran is the only country within the evaluated ones, in which basic medical sciences specialists (which have their own specific curriculum and are educated as clinical majors) have been eliminated from directing medical laboratory and the position has almost exclusively been available for graduates of pathology and it is important to revise this approach.

Keywords: Basic Medical Sciences, Medical Laboratory, Medical Laboratory Director, Medical Laboratory Specialty, Medical Laboratory Personnel
Differentiation and Viability of Human Adipose-Derived Stem Cells into Schwann-Like Cells at the presence of Laminin

Giti Zarinfard¹ & Shahnaz Razavi¹ (correspondent)

1. Department of Anatomical Sciences, School of Medicine, Isfahan University of Medical Sciences

**Background:** Regeneration of peripheral nerve injuries (PNI) is a complicated process. Schwann cells (SCs) play an important role in nerve regeneration but obtaining SCs is limited, therefore, stem cell transplantation is a promising strategy for PNI. Human Adipose-Derived Stem Cells (hADSCs) are multipotent specific stem cells that are suitable case, also, many factors are critical for nerve repair including growth factors production and extracellular matrix (ECM) molecule. Laminin is an essential protein in ECM synthesized by SCs and necessary for increasing proliferation and regulating the morphology of SCs.

**Methods:** hADSCs are induced into neurospheres and then re-plated in present and absent of laminin flasks with differentiation medium and then MTT assay is run to examine the viability of SC-like cells after induction.

**Results:** The phenotype of the differentiated ADSCs are converted to bi-polar or spindle shape in the absence and presence of laminin. The survival rate of SC-like cells on a laminin matrix is significantly higher than that of the cells grown on a plastic surface (P < 0.05).

**Conclusion:** This phenomenon suggests that the stem cells harvested from adipose tissue in presence of laminin can induce appropriate microenvironment for nerve repair and the potential of being applied in neurodegenerative diseases.

**Keywords:** Schwann cell, Adipose-derived stem cells, Laminin
Pre-gestational stress increased susceptibility to seizure in offspring

Maryam Mahmoodkhani¹, Negar Azizi², Ehsan Saboory³, Shiva Roshan-Milani⁴

¹Student Research Committee, Urmia University of Medical Sciences, Urmia, IRAN; maryam.mahmodkhani@gmail.com
²Department of Physiology, School of Medicine, Urmia University of Medical Sciences, Urmia, Iran; negarazizi94@yahoo.com
³Neurophysiology Research Center, Urmia University of Medical Sciences, Urmia, Iran; saboory@umsu.ac.ir
⁴Neurophysiology Research Center, Urmia University of Medical Sciences, Urmia, Iran; shiva_muk@yahoo.com

Many studies have found that stress during pregnancy is linked to an increased incidence of epileptic behaviors. However, few studies have investigated the effect of pre-gestational stress on seizure susceptibility in offspring. We investigated the effect of pre-gestational stress on epileptic behaviors in offspring.

The female rats were randomly divided into two groups to form a combination of control and stressed groups. The female rats were predatory stressed (exposed to a cat) twice per day for 15 consecutive days. At the end of the stress procedure, the rats coupled as follows: male and female control (Mc-Fc), male stressed and female control (Ms-Fc). Then, the puppies born from these groups were evaluated for pentylentetrazole (PTZ)-induced seizure.

The data that were normally distributed were analyzed using parametric techniques; Independent t-test was performed to analyze the data related to epileptic behaviors (except Duration of tail rigidity and latency of Tonic-Clonic). Data related to Duration of tail rigidity and Duration of immobility were analyzed using two-way ANOVA for two factors of stress and sex. There was not a significant difference between male and female pups in each identical group on epileptic behaviors except Duration of tail rigidity and Duration of immobility.

Onset of first epileptic behavior and tonic–clonic seizure significantly decreased in stressed groups (P=0.001). Number of immobility significantly increased in stressed group (P=0.023). Number of tail rigidity significantly increased in stressed group (P < 0.001). There was a significant difference on Duration of immobility in male rats between control and stressed group (P=0.015). There was a significant difference on Duration of tail rigidity in female rats between control and stressed group.

These data emphasize the impact of pre-gestational stress during spermatogenesis on epileptic behaviors in offspring.

predatory stress; pre-gestational period; epilepsy
Differentiation and Viability of Human Adipose-Derived Stem Cells into Schwann-Like Cells at the presence of Laminin

Giti Zarinfard¹ & Shahnaz Razavi¹ (correspondent)

¹.Department of Anatomical Sciences, School of Medicine, Isfahan University of Medical Sciences

**Background:** Regeneration of peripheral nerve injuries (PNI) is a complicated process. Schwann cells (SCs) play an important role in nerve regeneration but obtaining SCs is limited, therefore, stem cell transplantation is a promising strategy for PNI. Human Adipose-Derived Stem Cells (hADSCs) are multipotent specific stem cells that are suitable case, also, many factors are critical for nerve repair including growth factors production and extracellular matrix (ECM) molecule. Laminin is an essential protein in ECM synthesize by SCs and necessary for increasing proliferation and regulating the morphology of SCs.

**Methods:** hADSCs are induced intoneurospheres and then re-plated in present and absent of laminin flasks with differentiation medium and then MTT assay is run to exam the viability of SC-like cells after induction.

**Results:** the phenotype of the differentiated ADSCs are converted to bi-polar or spindle shape in the absence and presence of laminin. The survival rate of SC-like cells on a laminin matrix is significantly higher than that of the cells grown on a plastic surface (P < 0.05).

**Conclusion:** This phenomenon suggeststhat the stem cells harvested from adipose tissue in presence of laminin can induce appropriate microenvironment for nerve repair and the potential of being applied in neurodegenerative diseases.

**Keywords:** Schwann cell, Adipose-derived stem cells, Laminin
PKP-11

Fetal Bovine Serum (FBS) case study, Advantages and disadvantages of using it

Arghavan Hosseinpouri¹, Hamid Reza Ghafari², Narges Obeidi³

¹. Department of Cellular and Molecular Sciences, Faculty of Siences, Khalijfars University, Bushehr, Iran.
². Hematology graduate student, Member of research committee, Bushehr University of Medical Sciences, Bushehr, Iran.
³. Hematology graduate student, Member of research committee, Bushehr University of Medical Sciences, Bushehr, Iran.

Background: The use of cell cultures in tissue engineering, stem cell technology and cell-based therapy has become very important, and suitable for growth and proper metabolic function of cell culture. FBS is a complex combination of biomolecules with different molecular weights and promoting growth and growth functions, carrier, stabilizing and detoxifying factors.

Methods: In a cross-sectional study, we compared the effect of two type of FBS on the cell line of NB4, while other conditions of the culture medium were constant. Viability and survival of all cells were estimated.

Results: After several cultures, the results showed that NB4 with the type I of FBS was unable to grow properly and did not replicate. In the presence of type IIFBS, the cells returned to their normal state and multiplied.

Conclusion: In terms of cell biology, the FBS deficiencies are complementary to the culture medium. Serum types of each lot number have shown quantitative and qualitative changes in their composition, which have been remarkable and effect on cell growth in the absence of oxygen. Therefore, the serum groups should be screened for the necessary permanent factors in the medium.

Key Words: FBS, Cell Culture, Culture Medium.
PKP-12

Design of a Commercial kit containing an enzyme as a Convenient Diagnostic and Prognostic Marker for Breast Cancer

Gholamabbas Dinarvand

Faculty Member at Abadan School of Medical sciences, Abadan, IRAN

Ab55di@gmail.com

According to the definition by the National Institutes of Health of USA, a biological marker (biomarker) is a characteristic that is objectively measured and evaluated, as an indicator of normal biological processes, pathogenic processes or pharmacological responses, to a therapeutic agent. Several studies have reported that a decreased regulating gene expression of biotinidase (BTD) is associated with breast cancer. On the basis of these evidences, we hypothesize that in the serum of breast cancer patients, with different pathological grades, reductions in serum BTD enzyme activities, there are significant differences. The use of this marker, as a diagnostic and prognostic marker for breast cancer, is a promising perspective for the clinical field.

Keywords: Biotinidase; Biomarkers; Breast Neoplasms
Diversity of fungi in hot springs of central province in Iran

Ali Ghajari*1, Alireza Latifi2, Ensieh Lotfali1, Maryam Niyyati1, Maryam Norouzi1

1Department of Medical Parasitology and Mycology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

2Department of Parasitology and Mycology, Faculty of Health, Tehran University of Medical Sciences, Tehran, Iran.

Abstract

Background: Pools of hot springs are places for recreation and therapeutic purposes especially, in summer. Water of these pools could be carriers for transmission of various fungal diseases. The objective of this study was to survey of opportunistic fungi and pathogenic agents in these recreational pools of the city of Mahallat in order to justify the necessary actions to reduce and prevent the infections.

Materials and Methods: In this descriptive study, 87 samples were collected from 5 hot springs, 24 pools and small pools in summer 2016. The collected samples were filtered and cultured on SC (Sabouraud’s dextrose agar with Chloramphenicol) and SCC (Sabouraud’s dextrose agar with Chloramphenicol and Cyclo-hexamide). The plates were incubated at 25°C for 1-3 weeks, and examined at regular time. The grown fungi in the plates were identified by macroscopic and microscopic methods.

Results: Out of 87 samples, 23 samples (26.43%) were positive. A total of 353 colonies observed, 150 colonies (42.49%) were filamentous fungi and 203 colonies (57.50%) were yeasts. The isolated fungi were Rhodotorulaspp. 125 colonies (35.41%), Penicillium spp. 101 colonies (28.61%), Candida spp. 78 colonies (22.09%), Aspergillusniger 30 colonies (8.49%), Aspergillusflavus 8 colonies (2.26%), Aspergillusfumigatus 3 colonies (0.84%), Cladospporium spp. 3 colonies (0.84%), Alternaria spp. 2 colonies (0.56%), Fusarium spp. 1 colony (0.28%), Geotrichum spp. 1 colony (0.28%), Unknown Black Mold 1 colony (0.28%). In this study no dermatophytes fungi were found.

Conclusions: The presence of pathogenic fungi species in the waters could be hazardous to human health. Based on the results obtained in this study, the predominant fungi genera associated with the hot spring were Rhodotorulaspp, Penicilliumspp., candida spp, and Aspergillus spp. some of the hot springs as a water source of pools, due to lack of proper protection and exposure to environmental factors were contaminated to fungi.

Keywords: Fungal, Water Pollution, Hot springs
In vitro effects of Different Co2 concentration on Aspergillus fumigatus and Aspergillus flavus

1Sima Darabian, 1Sassan Rezaie, 2Hamid Badali and 1Sadegh Khodavaisy.

1Division of Molecular Biology, Department of Medical Mycology and Parasitology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran.

2Department of Medical Mycology and Parasitology, Invasive Fungi Research Center (IFRC), Faculty of Medicine, Mazandaran University of Medical Sciences, Sari, Iran.

Corresponding Author: Sima Darabian
Division of Molecular Biology, Department of Medical Mycology and Parasitology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran.

Email: dsima2004@yahoo.com

Background and Purpose: Aspergillosis is one of the most common opportunistic fungal diseases in immunocompromised and neutropenic patients. Aspergillus fumigatus is the most common cause of aspergillosis in the world and Aspergillus flavus is the second and the most prevalent agent in Iran. Due to changes in CO2 concentration that some pathogens face during the infection process and for understand roles of CO2 as a carbon basic, in this study the effects of variable CO2 concentration as one of the environmental factors were examine in the morphological changes and pathogenicity of A. fumigatus and A. flavus.

Materials and Methods: Strains used in this study, an A. fumigatus wild-type strain (IFRC 278) and an A. flavus wild-type strain (IFRC 87) were obtained from Department of Medical Mycology, Invasive Fungi Research Center (IFRC), Mazandaran University of Medical Sciences, Sari, Iran. Samples were cultured on Potato Dextrose Agar (PDA) and were incubated at 35°C for 1, 2 and 4 weeks under the 1%, 3%, 5% and 12% of CO2 concentrations. Control culture was maintained for 1 week without CO2 concentration. We examined morphological changes of induce by CO2 concentrations and then obtained results were compared whit control growth of strains mentioned.

Results: The results of this study showed that the maximum changes in concentration of 1, 3, 5 and 12% of the CO2 concentration were in the maximum incubation period (4 weeks), and the examination of morphological changes, showed different variations in the CO2 conditions.

Conclusion: Our results showed that morphological changes such as, decrease in mycelial growth, increase sporulation and the development of chlamydia spore under effect of CO2 concentrations induced in A. fumigatus and A. flavus, which could increase the pathogenicity and survival in the environment.

Keywords: Aspergillus fumigatus, Aspergillus flavus, Morphological, Carbon dioxide
In Vitro Activity of Silver and Selenium Nanoparticles against Azoles Resistant Isolates of Candida species

Ensieh Lotfali, Ali Ghajari, Maryam Norouzi

1Department of Medical Parasitology and Mycology, school of medicine, ShahidBeheshti university of medical sciences, Tehran, Iran

Background: Recently, resistance to conventional available antimicrobial agents by pathogenic fungi has been increasing and it has become a serious problem. Nano-science has been emerged as a powerful tool to develop new approaches in the field of designing new antimicrobial drugs. Microorganisms are often pathogenic and cause severe infections in human. The aim of this study is to investigate the effect of silver nanoparticles (Ag-NPs) and selenium nanoparticles (Se-NPs) with fluconazole (FLU) and itraconazole (ITR), respectively on resistant Candida species.

Materials: Ten resistant Candida sp. to antifungal agents were used in this study. Reference antifungal susceptibility tests were done by the broth micro dilution method according to CLSI guidelines (M27-S4).

Results: Minimum Inhibitory Concentration (MIC) of standard and resistant strains were different alone and in combination antifungal agents with NPs. The growth of yeast was inhibited by Ag-NPs at concentrations as low as 7μg /mL against FLC and 5270μg /mL against ITR. Antifungal activity testing of Se-NPs revealed that it can inhibit the growth of yeasts at concentrations as low as 4μg /mL against FLC and 520 mg/mL against ITR.

Conclusion: Onychomycosis is a clinical fungal infection, treatment of which can be difficult with current antifungals. Double-blind randomized clinical trials are further suggested based on the results of this study, to confirm the efficacy of these agents in routine practice. Totally, our results demonstrated that Se-NPs had lower activity than Ag-NPs, but both of them (Se-NPs and Ag-NPs) had more activity than antifungal agents. It needs to further studies in vitro and in vivo.

Keywords: Candida species, Nanoparticles, Drug susceptibility
PM-04
A retrospective study of fungal infections in patients referred to Shafa laboratory of Isfahan from March 2016 to March 2017

اصغر حیدریان

Dr Mostafa Chadeganipour (Isfahan University of Medical Sciences)
Dr Parvin Dehghan (Isfahan University of Medical Sciences)
Amirreza zahiv Mirdamadi
Maryam Mokhtari
Mahmoud Sadeghi
Elham Heidari

The Shafa clinical and Mycology lab is the major referral mycology laboratory in the diagnosis of suspected cases of fungal infection in Isfahan province. We can find a model of fungal infections and its causes in Isfahan by evaluating suspected cases of fungal infections that refer to this lab. In this study, patients referred to the laboratory were reviewed during one year from March 2016 to March 2017. From suspected patients, a direct Smear with 20% KOH was prepared and were examined for the presence of fungal elements under the microscope, if they had a request for fungal culture, it was cultured on a Sabouraud Dextrose Agar medium and kept for at least one month at room temperature, if any fungal colony grows on the medium, this colony identified by morphological and biochemical characteristics. Of the 2384 patients referred to this laboratory in this period, 1289 were women and 1095 were men in the range of 1 to 90 years old, with a positive percentage of about 33%. The most frequent fungal agents included: Candida with 185 cases, Trichophyton mentagrophytes with 88 cases, Aspergillus with 63 cases and Epidermophyton floccosum with 41 cases, most of them separated from the following areas: isolated Candida included 132 cases from hand nail, 4 cases of groin and 3 body skin, isolated T. Mentaincluded 33 cases from foot nail, 32 foot skin and 6 hand skin and isolated Epidermophyton floccosomaincluded 18 cases from the skin of the hands and 13 from the skin body.

A remarkable point in this study in compared with a study conducted on samples of a 10-year period from 2003 to 2012 in this laboratory is a change in the dominant species of dermatophytes isolated from Trichophyton verrucosunto Trichophyton mentagrophytes. The most frequent suspected patients in that period was related to Tinea Capitis, while in this period the most commonly suspected patients is related to Tinea Pedis.
Aflatoxin M1 detoxification from infected milk using Fe3O4 nanoparticles attached to specific aptamer

Fatemeh Javani Jouni1 · Jaber Zafari2 · Parviz Abdolmaleki1 · Hossein Vazini3 · Leila Ghandi4 · Mohamad Satari1

1 Department of Biophysics, Faculty of Biological Science, Tarbiat Modares University (TMU), POB: 14115-154, Tehran, Iran
2 Department of Toxicology, Ahvaz Jundishapur University of Medical, Ahvaz, Iran
3 Nursing Department, Hamedan Branch, Islamic Azad University, Hamedan, Iran
4 Chemistry Department, Tarbiat Modares University (TMU), Tehran, Iran

Aflatoxins are a kind of mycotoxins that are mostly produced by a group of molds such as Aspergillus flavus and Aspergillus parasiticus. The studies on different parts of Iran showed that AFM1 infection of milk is higher than European Union’s standard. In this study, the specific aptamer with the carboxylic group at the end of 5’ and Fe3O4 nanoparticles with amine groups was synthesized. Morphological and structural qualities of Fe3O4 were determined by the Fourier-transform infrared spectrograph (FTIR), dynamic light scattering, scanning electron microscope, and X-ray diffraction devices. The specificity of the aptamer to AFM1 was investigated in adjacent of AFM1 and aflatoxin B1. Then, aptamers were attached to nanoparticles to improve synthetic qualities and to ease of its detachment. The attachment was approved by FTIR method. The complex (Fe3O4–APT) was then added to infected milk and after the proper time was detached from the milk using a magnet. The remained amount of AFM1 was attained in milk using high-performance liquid chromatography. Our result showed that this method for aflatoxin detoxification is much more effective than conventional methods based on recognition of AFM1 and their concentration in infected milk. This method is more applicable, faster, and
In vitro evaluation of antifungal effects of menthol alone and in combination with nystatin and itraconazole against standard and oral isolates of Candida glabrata and C. krusei

Aghil Sharif Zade

Zahra Hosseni

Alireza Khosravi

Paria Samadi Tari

Nowadays, Candida glabrata and C. krusei are known as etiologies of serious hospital acquired infections in immunocompromised patients. Menthol, a terpenoid compound obtained from medicinal plants, has been reported to have antifungal activity. The aim of this study was to investigate the synergistic antifungal effect of menthol in combination with itraconazole or nystatin against clinical C. glabrata and C. krusei isolates. The antifungal effects of menthol along with two synthetic drugs, including itraconazole and nystatin, were evaluated against candida isolates by the Clinical Laboratory Standards Institute (CLSI) M44-A disc diffusion and CLSI M27-A3 broth microdilution methods. The fractional inhibitory concentration index (FICI) was determined for menthol plus itraconazole and menthol with nystatin combinations using the checkerboard method. The mean of minimum inhibitory concentration (MIC) values of menthol, nystatin and itraconazole were 53.2, 2.30 and 1.50 µg/ml for C. glabrata isolates and 121, 1.08 and 0.38 µg/ml for C. krusei isolates, respectively. Menthol in combination with itraconazole or nystatin exhibited the synergistic antifungal effects against all the species of candida tested. FICI values for menthol plus itraconazole and menthol plus nystatin combinations ranged from 0.250 to 0.561 and 0.139 to 0.623 for C. glabrata isolates, and 0.182 to 0.750 and 0.188 to 0.760 for C. krusei, respectively. No antagonistic activity was seen in the strains tested in the present study. These results support the potential use of menthol as an antifungal agent, and it might be used complementarily with other conventional antifungal agents in the future.
PM-07

Correlation between recurrent vulvovaginal candidiasis and dectin-1 Y238X gene polymorphism

Hamid Badali¹, Fardin Ahmadkhani²*

¹Department of Medical Mycology and Parasitology, School of Medicine, Mazandaran University of Medical Sciences, Sari, Iran
²Student Research Committee, Mazandaran University of Medical Sciences, Sari, Iran
Email: fardin.ahmadkhani@yahoo.com

Introduction: Vulvovaginal candidiasis is a frequent disease affecting approximately more than 75% of all childbearing women at least once in their lifetime by overgrowth of opportunistic Candida species. Recurrent vulvovaginal candidiasis (RVVC) is common in otherwise healthy individuals. Several risk factors were reported to contribute to RVVC susceptibility. A polymorphism in Dectin-1 (Y238X, rs16910526) was identified in patients with RVVC and hypothesized that genetic factors play an important role in susceptibility to RVVC. Herein, we aimed to survey the polymorphisms in the Dectin-1 gene, linked to susceptibility to RVVC.

Materials and Methods: In the current study, blood samples were obtained from 25 patients who had frequent vulvovaginal candidiasis relapses and were diagnosed as RVVC. In addition, blood cultures were obtained from control group comprising of healthy individuals (n=25) with no history of RVVC, vaginal discharge, or itching on the day of examination. Dectin-1 Y238X gene polymorphism was investigated using DNA sequencing and bidirectional polymerase chain reaction (PCR) amplification of specific alleles (Bi-PASA), as previously described by Carvalho et al.

Results: The analysis revealed that all of the patients were wild-type homozygous for Dectin-1 Y238X polymorphisms. None of the individuals showed heterozygous or mutant homozygous Dectin-1 polymorphism.

Conclusion: No significant correlations were observed between the susceptibility to RVVC and Dectin-1 Y238X polymorphism in the Iranian population, which was not previously studied.

Keywords: Candida species, Dectin-1 Y238X gene polymorphism, RVVC
PM-08

Preservation of Candida glabrata in Common Cryoprotectant Agents

Saeid Amanloo¹*, Masoomeh Shams-Ghahfarokhi²

¹Department of Parasitology and Mycology, Faculty of Medical Sciences, Zanjan University of Medical Sciences, Zanjan, Iran
²Department of Mycology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran, Iran

*Corresponding author:
Saeid Amanloo, PhD
Assistant Professor of Mycology
Department of Parasitology and Mycology, Faculty of Medical Sciences, Zanjan University of Medical Sciences, Zanjan, Iran.

E-mail addresses: s.amanloo@zums.ac.ir & ama.myco@gmail.com

Introduction: Nowadays, Cryopreservation is one of the best methods for in vitro storing of fungi. Using suitable cryoprotectants can increase the success of cryopreservation process. The aim of this study was to examine the effect of various cryoprotectants to protect of Candida glabrata in freezing conditions.

Materials and Methods: In this study, glycerol 10% and 40%, glucose 4% and DMSO 10% was used to preservation of C. glabrata at -20 °C. After 2 years, the success of the cryoprotectants to the samples retrieval was compared. Statistical analysis was performed to determine significant correlations between the survival rate of samples and types of cryoprotectants.

Results: In this study, 4% glucose with the ability to keep 100% of the samples, was determined as the best cryoprotectant. Also, 40% glycerol and DMSO 10% with 94% success in retrieving samples were relatively good cryoprotectants, while the 10% glycerol showed the lowest protective effect (26%) on C. glabrata. According to the Pearson’s chi-square test results, there is a significant difference between the cryoprotectants preservation rate (P = 0.012).

Discussion: It has been shown that does not exist a clear relationship between the fungal classification groups and their response to freezing methods. In overall, the success of a preservation method depends on the protocol compatibility to the type of microorganisms. Therefore, further studies on the development, modification and optimization techniques based on the fungal species are essential and gives useful practical information to researchers.

Conclusion: There was a significant difference between the cryoprotectants and by selecting a suitable cryoprotectant, survival of microorganisms can be increased in freezing conditions.

Keywords: Preservation, Cryopreservation, Cryoprotectant, Candida glabrata.
Prevalence of candiduria among diabetic patients and the distribution of *Candida* species in a tropical and subtropical region of the Middle East

Alireza Esmailzadeh¹, Hossein Zarrinfar²*, Abdol Majid Fata¹,³, Monavar Afzalaghaee⁴, Tanuka Sen⁵

1. Department of Parasitology and Mycology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
2. Allergy research center, Mashhad University of Medical Sciences, Mashhad, Iran
3. Cutaneous Leishmaniasis Research Center, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran
4. School of Health, Social Determinant of Health Research Center, Mashhad University of Medical Sciences, Mashhad, Iran
5. School of Life and Environmental Sciences, Faculty of Science Engineering and Built Environment, Deakin University, Australia

*Corresponding Author: Hossein Zarrinfar

Address: Allergy research center; Laboratory of Parasitology and Mycology, Ghaem Hospital, Mashhad University of Medical Sciences, Mashhad, Iran, Zarrinfarh@mums.ac.ir.

**Objectives:** Urinary tract infections (UTIs) are a severe health problem that is caused by a range of pathogens such as bacteria, fungi, parasites and viruses. Among the fungal pathogens, *Candida* species are the most common cause of UTI. Some predisposing factors such as diabetes mellitus, urinary retention, urinary stasis, renal transplantation, and hospitalization can increase the risk of candiduria. The aim of this cross-sectional study was to evaluate candiduria among type 2 diabetic patients and identification of the *Candida* isolates.

**Methods:** Four hundred clean-catch midstream urine specimens were obtained from patients with type 2 diabetes mellitus (November 2015 until September 2016). The specimens were centrifuged and the sediments were examined by direct examination and cultured on Sabouraud dextrose agar. The plates were incubated for 2–3 days at 35 °C. The *Candida* colonies were counted and purified using CHROMagar Candida. The isolates were identified by matrix-assisted laser desorption ionization-time of flight mass spectrometry (MALDI-TOF MS) system.

**Results:** Of the 400 urine specimens, 40 (10%) had positive cultures for *Candida* species with a colony count of $\geq 1 \times 10^3$ colony forming units (CFU) /ml. The frequencies of the *Candida* species were as follows: *C. albicans* (n=19, 47.5%), *C. glabrata* (n=15, 37.5%), *C. kefyr* (n=4, 10%) and *C. krusei* (n=2, 5%). Seventy-three (88%) of the patients with candiduria had hemoglobin A1c (HbA1c) levels above 7%.

**Conclusion:** The rate of candiduria was relatively high in the type 2 diabetic patients. Although *C. albicans* was the most common species in these patients, non-*albicans* *Candida* species, especially *C. glabrata* had high frequency. Most of the patients with positive cultures for *Candida* had high HbA1c levels and lack of proper blood glucose control.

**Key words:** Candiduria; Diabetic patients; *Candida*; MALDI-TOF; Mashhad
Clinical and Laboratory Findings in Otitis Media with Otitis Externa Presentations

Kiakojuri K¹, Rajabnia M.², Khafri S.³, Mahdavi Omran S⁴

¹Dept. of ENT, Ayatollah Rouhani Hospital, School of Medicine, Babol University of Medical Sciences, Babol, Iran.
²Dept. of Microbiology, School of Medicine, Babol University of Medical Sciences, Babol, Iran.
³Dept. of Biostatistics, School of Medicine, Babol University of Medical Sciences, Babol, Iran.
⁴Infectious Diseases & Tropical Medicine Research Center, Health Research Center, and Dept. of Medical Parasitology and Mycology, School of Medicine Babol University of Medical Sciences, Babol, Iran. Email: s.mahdavi@mubabol.ac.ir

Background and Objective: Infections of the middle ear which can damage the eardrum can be presented as external ear infections. The present study was performed to assess the clinical and laboratory findings of this disease in Babol, north of Iran.

Materials and Methods: The study included 33 patients suffering from ruptured tympanic membrane with otitis externa presentations. Ear samples were removed using speculum, curette or a sterile loop by the ENT specialist. A part sample was spread on slide and the rest was cultured on blood agar and sabouraud dextrose agar supplemented with chloramphenicol (Sc) and transferred to the Microbiology and Mycology laboratories, Faculty of Medicine of Babol University of Medical Sciences.

Findings: Out of the 33 patients with otitis media, 36.37% of patients were housewives and 93.93% of them had pus in their ears. Female were more infected from male. The main cause of tympanic perforation was chronic otitis. Bacterial and mixed bacterial and fungal elements were observed in 54.55% and 21.21%, respectively. Gram positive and negative Bacteria, Gram positive Cocci and mixed mycelia and yeast were the most organisms in direct examination. Staphylococcus aureus and Streptococcus sp. were the common organisms isolated from middle ear exudates in culture media. Aspergillus spp. and Candida spp. were the most fungi in culture media.

Conclusions: Due to the prevalence of bacterial and fungal species which were isolated from this study, determining of the presence or absence of eardrum perforation in patients with otitis externa, can be helpful in the selection of therapy.

Key word: Otitis externa, Otitis media, Symptom
PM-11

α-bisabolol inhibits *Candida albicans* growth via affecting in ergosterol biosynthetic pathway

Zahra Jahanshiri¹, Masoomeh Shams-Ghahfarokhi ², Mehdi Razzaghi-Abyaneh*³

¹ Department of Mycology, Pasteur Institute of Iran, Tehran 13164, Iran
² Department of Mycology, Faculty of Medical Sciences, Tarbiat Modares University, Tehran 14115-331, Iran

Zahra Jahanshiri, Ph.D.

E-mail addresses: zjahanshiri@yahoo.com

Finding new compounds with antifungal properties is an important task due to the side effects of common antifungal drugs and emerging antifungal resistance in fungal strains. In the present study, the effects of α-bisabolol, a natural phenylpropanoid found in *Matricariarecutita* and *Pliniacerrocampanensis* essential oils, on *Candida albicans* growth and ergosterol biosynthesis were studied; Fungi were cultured in presence of serial concentrations of α-bisabolol (0.5-8 mM) for 3 days at 35 °C. Mycelia dry weight was determined as an index of fungal growth and ergosterol content was assessed. Our results demonstrated that α-bisabolol strongly inhibited *Candida albicans* (40.25% to 80.15%) and ergosterol synthesis (21.45% to 75.17%) dose-dependently. Taken together, these results provides evidence that α-bisabolol inhibits *Candida albicans* growth via affecting in ergosterol biosynthetic pathway.

**Keywords** *Candida albicans*, α-Bisabolol, Ergosterol biosynthesis, Antifungal activity
PM-14

Study of phytochemical, anti-fungal properties, anti-oxidant activity and cytotoxicity of the essential oil of *Thymus daenensis* Celak

Abdelnasser Mohammadi Gholami¹

¹ Assistant Professor, Department of Biology, Faculty of Science, Lorestan University, Khorramabad, Iran

Email: mnnasser@yahoo.com

**Background:** Aspergillosis is an opportunistic fungal infection that is associated with a high rate of disease and mortality, especially in immunocompromised individuals. Due to limitations antifungal drugs and increasing drug resistance, the aim of this study was to identify constituents compounds, antifungal activity against *Aspergillus* species, antioxidant properties and cytotoxicity of essential oil Th. daenensis.

**Methods:** The plant at the flowering stage in the spring of 1396 from the Zagheh area of Lorestan province was collected, the essence was extracted by water distillation, its compounds were identified by the Gas chromatography/ mass spectrophotometer (GC/MS), Anti-fungal properties are performed using broth microdilution method, minimum inhibitory concentration (MIC) and minimum inhibitory concentration (MFC) of the essential oil were determined. Antioxidant activity by DPPH and cytotoxicity assay on growth and proliferation of human lymphocyte cells by MTT method was performed.

**Results:** The results showed that the most important compounds in the essential oil were thymol (24.7%) and carvacrol (38.5%), MIC of *Aspergillus fumigatus* and Niger, 0.5 and 1 μg / ml, and MFC, 1 and 2 μg / ml was determined. The radical inhibitory effect was increased by increasing the essential oil concentration and IC50 = 23.63 μg / ml was obtained. essential oil, cell lysis has a small effect on human white blood cells, So that With an increase in concentration, increased cell lysis.

**Conclusion:**

This study showed that Thyme essential oil has high antifungal and low cell cytotoxicity for human cells. Therefore, with further studies, it can be used to treat cancers and fungal infections.

**Keywords:** Aspergillosis, Anti-fungal, Antioxidant, cytotoxicity