Interlukine-8 Levels in Patients with Acute Brucellosis and Its Relation with the Treatment

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Abstract

Background and objective: Brucellosis is a worldwide bacterial zoonotic disease. Infection with brucella species results in the activation of cell-mediated immune response. The interaction between T-helper cell type 1 (Th1)/Th2 cytokines determines the outcome of disease. The analysis of cytokine levels is valuable to determine the role of immune system in brucella pathogenesis. The aim of this study was to investigate the levels of serum interlukine-8 (IL-8) and its relation with treatment acute brucellosis patients.

Materials and methods: Thirty-three acute brucellosis patients and 19 controls were enrolled in the study. The diagnosis of brucellosis was on the basis of the symptoms, clinical findings and standard tube agglutination test. IL-8 levels were tested in controls and patients before and after treatment by ELISA.

Results: IL-8 levels were significantly lower in brucellosis cases compared to controls. At the end of the treatment, the serum levels of this cytokine increased but there is no significant difference between this cytokine levels before and after treatment.

Conclusion: This study showed that IL-8 was lower in brucellosis cases and after treatment, the serum levels of IL-8 increased in these patients. Further studies with more patients are needed to determine the role of this cytokine in the pathogenesis of brucellosis.

Key words: **Brucellosis, interlukine-8 (IL-8), Treatment**

Rapid Detection of Salmonella typhimurium Strains Isolated from Clinical Cases

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Abstract

Background and objective: Salmonellosis is the most common type of food poisoning that can cause a wide range of human diseases. Housekeeping genes are typically constitutive genes that are required for the maintenance of basic cellular function, and are expressed in all cells of an organism under normal conditions.

The purpose of this study was to use the housekeeping genes for screening of Salmonella typhimurium strains isolated in Tehran's hospitals.

Materials and methods: Bacterial samples were collected from various clinical specimens in several hospitals in Tehran. The bacterial isolates were detected and identified as Salmonella using standard microbiological and biochemical tests. Of all Salmonella isolates 22 strains were belonged to S. typhimurium. Then the PCR method using primers hem D, dnaN, and hisD was used to molecular screen of Salmonella typhimurium strains.

Results: PCR produced the bands of 567-633 bp for hemD gene, 635 bp for dnaN gene and 561 bp for hisD gene in all tested Salmonella typhimurium. Any positive reaction was seen on control strains including E. coli and Shigella indicating that the specificity of the PCR is good.

Conclusions: This study showed that housekeeping genes are appropriate targets for molecular screening of Salmonella enterica serotype typhimurium.

 Key words: Salmonella typhimurium, housekeeping genes, hemD, dna, hisD

Diversity in Helicobacter pylori by Multi Locus Sequence Typing

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Abstract

Background and objective: Helicobacter pylori as an etiological agent of active chronic gastritis and peptic ulcer disease, is now considered to be an important pathogen for gastroduodenal diseases. Resistance to antimicrobial drugs is a major cause of treatment failure and decline in eradication rates in most of countries. The aim of this study was molecular typing of Helicobacter pylori isolates was done throughout MLST (multi locus sequence typing), the most reliable typing method, which is based on DNA sequencing.

Materials and methods: H. pylori isolates of gastric biopsies from patient's $\geq$ 18 years old were used in this study. Genomic DNA was extracted and used for PCR of glmM, atpA, mutY, efp, trpC, yphC, ppa and ureI. PCR product of 7 latter genes sequenced and analyzed with proper bioinformatics soft wares and compared with other H. pylori isolates from other countries.

Results: According to MLST results the isolates were so divers and different from other countries.

Conclusion: According to different STs resulted from MLST typing, it can be considered that H. pylori isolates in Iran are very different. It may due to many DNA exchange mechanisms which H. pylori have.

Key words: Helicobacter pylori, MLST, molecular typing

The Nosocomial Infections and Related Factors in Hospital of Ayatollah Mousavi, Zanjan, 2010

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Abstract

Background and objectives: The progress of science, to identify new drugs, Widespread use of drugs, use of vascular catheters, urinary catheters and brain shunt and the use of mechanical ventilation, despite helping to save the patient, may cause problems such as hospital infections. nosocomial infections are major problems in hospital environments and causes increased morbidity and mortality .

Material and methods: This study was conducted deccriptive cross- sectionally over one-year period at Mousavi Hospital. Diagnostic criteria based on CDC definitions for nosocomial infections and data collection instruments were questionnaire which contained demographic information of the patients and information related to signs of nosocomial infection. Data were analyzed by SPSS and chi-square test.

Results: From of 34 814 patients hospitalized at the Hospital of Mousavi in 2010, 206 patients have found nosocomial infections and are different from the 63/5% male and 35/4% female .highest incidence of these infections has been in ICU (54/8%).The most common nosocomial infection were pneumonia (42/7%) and surgical wound infections and burns (31%), urinary tract infection (16%) , eye infections (5/3%) and blood infections(4/8%) respectively . The most common Microorganisms Were Pseudomonas (23/7%) and Klebsiella (23/7%)..The results showed that there were a significant relationship between age and unit hospitalized and incident of nosocomial infection.(P<0.05)

Conclusion: Early recognition and diagnosis of nosocomial infections and antibiotic resistance, as well as proper use of antibiotics to reduce drug resistance is the most important principles in any hospitals and specially in the intensive care units is necessary.

Keywords: Nosocomial infections, Related factors

Nasal Methicillin-Resistant Staphylococcus aureus Colonization among Healthy Children in Zahedan City, 2013

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Abstract

Background and objective: Staphylococcus aureus as one of the most invasive species of staphs has been a leading cause of mortalities due to emergence of strains resistant to antibiotics. This bacterium is part of human flora being mostly colonized in the anterior part of noses. This study was performed to investigate nasal methicillin-resistant staphylococcus aureus (MRSA) colonization among healthy children of Zahedan in the province of Sistan and Baluchestan, 2013.

Materials and methods: This cross-sectional study was conducted on healthy children referred to health-care centers of Zahedan. The children's nasal swab culture was performed. Catalase and coagulase tests were used to identify the bacteria. Disk diffusion method was also used to determine the antibiotic sensitivity. Then, in order to verify the resistance to antibiotic, E-test was used.

Results: This study covered 700 children with a mean age of 6.78± 5.14 years. Haft of the study community were male and haft were female. Nasal culture for staphylococcus aureus was positive in 184 individuals of which 66 cases (35.9%) were affected by MRSA. Methicillin-resistant staphylococcus aureus colonization was associated with age, number of family members, and hospitalization history (P<0.001).

Conclusion: Methicillin-resistant staphylococcus aureus colonization was relatively high among the healthy children and was associated with age, number of family members, and hospitalization history. Further health education is recommended to prevent immense colonization among children.

Key Words: Staphylococcus aureus, MRSA, nasal colonization

Shiga-Toxigenic Escherichia coli in Sheep Cheeses

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Abstract

Background and objective: The relationship between the presence of Escherichia coli in food products and occurrence of food infections and poisonings have been confirmed in various studies. Among them, milk and dairy products have the high importance. This present study was carried out in order to study the presences of Escherichia coli, Escherichia coli O157: H7 and shiga-toxin producing Escherichia coli in cottage cheese.

Materials and methods: Totally, 110 cottage cheese samples were collected from Isfahan province's retailers. The cheese samples were produced from raw sheep milk. All samples were transferred to the laboratory and were studied using the microbial culture and Polymerase Chain Reaction.

Results: From a total of 110 cheese samples, 23 samples were positive for presence of Escherichia coli while none of them were not Escherichia coli O157: H7. From these 23 positive samples, 2 samples had stx1 (8.69%), 1 samples had stx2 (4.34%), 3 samples had eaeA (13.04%) and finally 1 sample had ehxA (4.34%) virulence genes. In the other hands, the vt1 and vt2 genes were not detected in any sample.

Conclusion: This study showed that using from unpasteurized and cottage cheese can be dangerous for human health. We recommended using PCR as an accurate, safe and rapid method in order to control the microbial quality of raw dairy products.

Key words: Escherichia coli, O157: H 7 serotrype, virulence genes, cottage cheese, PCR, Isfahan

Incidence, Risk Factors and Causes of Sterna Wound Infection in Ayatollah Rouhani Hospital, Babol.

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Abstract

Background and objective: Sterna wound infection was an uncommon but harmful complication after CABG. risk factors and prevalence of SWI was vary in different study. The aim of this study was determination of incidence, risk factor and microorganism of SWI.

Material and methods: In this cross-sectional study, patients referred to Ayatollah Rohani hospital , Babol, Iran, between 1391 to 1392 were enrolled .sample was given from SWI and cultured for determination of microorganism. univariate and multivariate logistic regression used for determination of risk factors.

Results: Totally, 167 patients were enrolled that 53.3 of them was male. Superficial SWI was seen in 15 (9%) of patients. Deep SWI and mortality was not seen. Hyperlipidemia and mechanical ventilation more than 48 hours were determined as risk factor of SWI. Staphylococcus aureus was most common microorganism.

Conclusion: The Incidence of SWI in this study than other studies was in moderate rate. Control of predisposing factor determined in this study, before and after of CABG appears affective.

Key words: SWI, incidence, microbiology, risk factor

Antimicrobial Effect of Portulaca oleracea Extract on Infectious Microorganisms- In-vitro Study

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Abstract

Background and objective: Today with raised use of antibiotics and prevalence of resistant strains, there is need for antimicrobial drugs that have fewer side effects than antibiotics. The aim of this study is to investigate the antimicrobial effect of Portulaca oleracea on Escherichia coli PTCC 1330, Staphylococcu aureus PTCC 1337, Staphylococcus epidermidis PTCC 1435, Streptococcus pyogenes PTCC 1447 and Pseudomonas aeruginosa PTCC 1310.
Materials and methods: In this in vitro study Portulaca oleracea was used to evaluate its antimicrobial effects. The Minimum Inhibitory Concentrations (MIC) and Minimum Bactericidal Concentration (MBC) were determined by the microplate method. Data was analyzed by SPSS18 software and one-way ANOVA test analysis and Tukey test. $p < 0.05$ was considered significant.
Results: In this study, the most efficacy of ethanol extract of Portulaca oleracea was at concentration of 100 mg/ml against Streptococcus pyogenes and Staphylococcus epidermidis. MIC of ethanolic extract for Streptococcus pyogenes, Staphylococcus epidermidis, Staphylococcu aureus, Escherichia coli and Pseudomonas aeruginosa was 6.25,6.25, 12.5,25 and 50 mg/ ml and their MBC of the was 6.25, 12.5, 12.5, 50 and 50 mg/ml, respectively. MIC of aqueous extract for Streptococcus pyogenes, Staphylococcus epidermidis, Staphylococcu aureus, Escherichia coli and Pseudomonas aeruginosa was 12.5, 12.5, 25, 50 and 100 mg/ ml and their MBC of the was 25, 25, 50, 100 and 200 mg/ml, respectively.
Conclusion: The results of this study showed that Portulaca oleracea can be used instead of synthetic antimicrobial that their resistance against microbial increased daily.
Keywords: Portulaca oleracea, Extract, Pour Plate, Inhibition zone

Anti-bacterial Effects of Aquatic and Chloroformed Eextract of Allium Sativum on E. coli

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Abstract

Background and objective: E. coli bacteria is one of the most important infection factors in mankind and also, by increasing the resistance of bacteria against chemical drugs and low side effects of herbal drugs, today the herbal ones are evaluated by researchers. The aim of the current study is considering the anti- bacterial aquatic and chloroformed effects of Allium Sativum on E. coli.
Materials and methods: In this study, first the aquatic and chloroformed extraction of Allium Sativum was prepared, then the MIC and MBC rates of extraction were calculated and the diameter of lack of growing areola of E. coli was measured in different attenuation of extraction. And also, the sensitivity of different anti- biotic was considered by Kirby/baur standard method and the results were analyzed by SPSS software, version 18 and Anova one-way statistical test.
Results: The chloroformed extraction with areola diameter average of lack of growing about 27±3% showed more powerful anti-bacterial effects than aquatic extraction with the average of 9±2% and the maximum rate of anti-bacterial sensitivity to Amikacin was showed about 40.69 %.
Conclusion: Although the medical usage of herbal extractions and essences is valuable for their less side effects rather than common medical factors, but it should be done more studies about the mechanism of ingredients of this plant on bacterial factors for the medical usage of anti-bacterial aquatic and chloroformed extraction of Allium Sativum.
Key Words: E. coli, Garlic, Aquatic extraction, Chloroformed extraction, Drug resistance.

Assessing the Needs of General Physicians Regarding Continuing Medical Education Program for National Tuberclusis Survillance System in Semnan 20112

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Abstract

Background and objective: The purpose of the study was to investigate knowledge and attitudes of general practitioners regarding the National Tuberculosis Program (NTP) in Semnan, Iran, in the year 1391.

Materials and method: This study was descriptive-analytic in design and based on a census on all practicing general practitioners in Semnan in the year 1391. The data were collected using a self-developed questionnaire. The validity and reliability of the questionnaire were confirmed to be 81 percent by using Cronbach's Alpha. The data then were analyzed by means of SPSS 16 software.

Results: Except for some of the findings of the study which were analyzed using statistical indices, the others were not satisfactory. The findings of the study indicated that in comparison to the female participants of the study, the male ones had better knowledge on (the question) Tuberculosis preventive measures (p=0.005). As for the other questions of the study, no significant difference was observed. The findings also revealed that the practitioners in the age range between 33 and 40 and between 47 and 55 had better knowledge on the cases of potential Tuberculosis compared with other age ranges (P=0.008).

It was also discovered that the practitioners who enter university in the years between 68 and 75 had better knowledge on fundamental measures for curbing the spread of Tuberculosis than others (P=0.006). Compared to the male participants of the current study, the male participants had a more positive attitude toward the statement, "Everybody living in the society is in potential danger of catching Tuberculosis," (P=0.018). There was no significant difference in the attitudes of the practitioners who entered university in different years toward the illness (P>0.05).

Conclusion: knowledge and attitudes of the general practitioners regarding protection from Tuberculosis are acceptable. The study, however, shows that the practitioners do not employ their knowledge in line with the pivots of the National Tuberculosis Program (NTP).

This lack is obvious in the statement 9 of the main and pivotal function of the attitudes toward Tuberculosis.

Therefore, revising and developing educational curriculum based on the needs of the practitioners in the areas of professional practice related to Tuberculosis protection systems in the courses before graduation and implementing continuous training programs and evaluation systems after graduation for updating the practitioners' professional practice are recommended.

Key words: Tuberculosis, medical education, general practitioners, knowledge,

Biochemical Characterization of the Crude Venom of Iranian Snake Macrovipera lebetina

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Abstract

Background and objective: Macrovipera Lebetina belongs to Viperidae Family and one of the most venomous Iranian plateau snakes. The poison of vipers causes fatal systemic reactions. Almost, viper venom
affect the human body or victims by functions of several enzymatic and non-enzymatic proteins. The purpose of this study was determining the biochemical properties of the crude venom of Iranian snake Macrovipera Lebetina.

Materials and methods: After specimen collection from Kalate-Nader region, Khorasan province-Iran, venom samples were taken and freeze dried. The venom prepared and the protein composition was estimated and then the protein pattern was determined by SDS-PAGE electrophoresis.
Biochemical properties of the venom evaluated using the following assays including hemolytic activity, proteolytic activity, phospholipase activity, dermonecrotic activity and coagulation activity (PT, aPTT as well as 50% of lethal activity (LD50).

Results: SDS-PAGE electrophoresis showed different proteins ranged from 11 to 135 kDa. LD50 of venom was 47μg/mouse. 50% of Hemolytic activity was estimated as 142.85μg. Proteolytic activity was seen in different amount of venom from 500 to 31.25μg. Serial amount of crude venom ranges from 31.25 to 0.24μg showed phospholipase activity. The venom induced dermonecrotic activity at minimum dose of 10μg. The minimum amount of venom that caused the minimum time of plasma coagulation was 15.625μg in both PT and PTT test.

Conclusion: In this study, hemolytic, proteolytic, phospholipase, dermonecrotic, and coagulation activity was found in Iranian Macrovipera lebetina crude venom. This research suggested that the toxic effect of Macrovipera lebetina crude venom is due to enzymatic properties. This research is pending to purification and separation of enzymatic fractions of the crude venom.

Keyword: Venom, Macrovipera lebetina, Biochemical Properties