Epidemiological status of leishmaniasis in Iran 1362-1392

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Abstract

Background and objective: Leishmaniasis (L) has a long history in Iran with three types including: Zoonotic Cutaneous Leishmaniasis (ZCL), Anthroponotic Cutaneous Leishmaniasis (ACL) and Zoonotic Visceral Leishmaniasis (ZVL). This study aimed at epidemiological features of disease from1983 until 2012.

Materials and methods: A retrospective cross-sectional study was conducted by using leishmaniasis surveillance data and analyzed in Excel software.

Results: Leishmaniasis cases in Iran from 1983 to 2012 are 569164. Cutaneous Leishmaniasis cases are 566532 (99.5%), with annual average 18884 cases and the annual average incidence rate is 32 per 100,000 populations. ZVL cases are 2632(0.5%), with annual average 175.4 cases and the annual average incidence rate is 0.18 per 100,000 populations, this data have been recorded from all districts in the country.

Conclusion: CL and ZVL have decreased through used by control measures in recent years.

Keywords: Leishmaniasis, L.major, L.tropica, L.infantum, Iran

Genetic Diversity of the Malaria Vector *Anopheles superpictus* by PCR in South West Iran

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Abstract

Background and objectives: Malaria is one the most important health problems in most areas of world. This disease is endemic in 106 country of the world. This study was done in order to detect the genetic diversity of Anopheles superpictus as a malaria vector in South-West Iran.
Materials and Methods: in present study, An. superpictus were collected from different areas of Kohgiluyeh and Boyerahmad Province, the South West of Iran in 2013. Genetic diversity of this species was studied by using PCR and the amplified rDNA ITS2 gene was directly sequenced.
Results: The genotype of this species was studied using gene r DNA ITS2. This confirms that the X genotype was detected in the province.
Conclusion: A total of 8 adult mosquitoes were evaluated and 448 bp band was set for this species. ITS2 fragment length among populations of the same species and the band was all they bp 353. This study is the first study of the genetic diversity of this species is in Kohgiluyeh and Boyerahmad

Keywords: Anopheles Superpictus, malaria, PCR, Iran

Antimicrobial Activity of Purified Melittin from Honey Bee Venom by Reverse Phase HPLC Against Nosocomial Strains of *Staphylococcus aureus* Isolated from Burn Infection patients

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Abstract

Background and objective: *Staphylococcus aureus* is one of the most important causes of burn infections. Nowadays, resistance to antibiotics is frequently reported due to new mutation in related genes. This study aimed to investigate the in vitro antimicrobial effect of melittin peptide isolated from Persian Honey Bee venom on *S. aureus* strains isolated from burn infection.
Materials and methods: In this study, fifty *S. aureus* strains were collected from burn infections Hospital in Tehran. Melittin was purified from bee venom by during 8 months at Shahid Motahari reverse phase HPLC using a linear gradient protocol. MIC and MBC Melittin and the Vancomycin determined with the use of Microdilution Broth and CLSI principles
Result: About 22 peaks were detected in chromatogram. Surface area for melittin approximately calculated as 68.9% comparing to the total surface area. According to electrophoresis results the molecular weight of melittin was estimated as 2.8 kDa. MIC50, MIC90, MBC50, MBC90 and also MIC50, .MIC/MBC for Melittin were determined at 1.1, 4.35, 1.1, and 8.7 µg, and 0.86 respectively MIC90, MBC50, MBC90 and also MIC/MBC for Vancomycin was determined at 1, 16, 3, 16 µg, and 0.7 respectively.
Conclusions: Melittin inhibited the growth of all clinical strains of *S. aureus*. According to the results, it was found that inhibition and lethality power of melittin was two folds greater than vancomycin. Good ratio in MIC/MBC for melittin showed that this peptide has the necessary standard index to becoming an antibiotic in future. As melittin induced its antibacterial activity in very small amounts,
If melittin will become an antibiotic in future, its complication would be low. Because of powerful effect of melittin, the duration of treatment and also medical expenses would be reduced subsequently.

Keywords: Burn infections, Staphylococcus aureus, Melittin, Vancomycin.

Staphylococcus aureus Antimicrobial Resistancy among Specimens Isolated from Tabriz Imam Reza and Shohada hospital 2011-2013

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Abstract

Background and objective: Antimicrobial resistance is an organism's resistance to an antimicrobial drug to which has been susceptible naturally. AMR infection caused by an organism fails in respond to the drug treatment and 70% of bacteria causing infections in hospitals are at least resistant to one of the routine drugs used in treatments.We decided to study the antimicrobial resistance of *Staphylococcus aureus* in clinical strains isolated in a three years period.

Materials and methods: In a three years period, all suspected samples of infection with *Staphylococcus aureus* were collected and then some of these samples were randomly assigned into study protocol. After routine identification of isolates, antimicrobial resistance were studied using disk Agar diffusion and Oxicillin screening method were used to screen resistant strains to Methicillin.

Results: Antibiogram results in 3 years for drugs used in the ward such as Cefazolin, Clindamycin and Tetracycline were resistant 10%, 21.3%, 6.6% and 16.7%, 27.9% and 8.2% , respectively Resistance was 20% to 30% in the three years period.

Conclusion: Mutants which are resistance have been developed recently. As a result it is any clinical and educational institute's duty to have a plan for continuous control which needs the optimization of control tools. Considering the difference between two methods it is likely that disk providing centers must do some efficient proceedings to improve their products and finally to prevent spreading strains resistance to multiple drugs.

Key Words: Staphylococcus aureus; Screening with Oxacillin; Disk Agar diffusion

Antibiotic Resistance Patterns of *Escherichia coli* Strains Isolated from Patients with Urinary Tract Infections in Isfahan

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Abstract

Background and objectives: Urinary tract infections (UTIs) are one of the most common bacterial infections of human. Although, a variety of bacteria is known as the causative agents of UTIs, but *Escherichia coli* is the most common cause of infections in men and women. The aim of this study was to determine the antibiotic resistance patterns of uropathogenic *E. coli* (UPEC) strains isolated from patients with urinary tract infections in a referral university hospital in Isfahan, Iran.

Materials and methods: During 2015, a total of 254 *E. coli* isolates were collected from patients with UTI in Isfahan, Iran. All isolates were identified at the species level using conventional biochemical tests and PCR method using specific *tufA* primers. The susceptibility patterns of isolates to 17 antibiotics were determined using disc diffusion method by the guideline of Clinical and Laboratory Standards Institute (CLSI).

Results: The results of biochemical and molecular methods were as the same. Antibiotic susceptibility testing revealed that, most of the isolates were resistant to cephalothin and ampicillin, respectively. Moreover, all of the isolates showed susceptibility to amikacin and resistance to meropenem, nitrofurantoin, cefoxitin and gentamicin was lower than other antibiotics tested.

Conclusion: PCR using specific primers is a specific, sensitive, accurate and rapid method that could be used for rapid identification of different bacteria in hospitals and laboratories. Moreover, in present study, amikacin, meropenem and nitrofurantoin were the most effective antibiotics against UPEC isolates.

Keywords: Uropathogenic E. coli, UTI, antibiotic resistance, PCR, Isfahan

Prevalence of Mmethicillin-Resistant *Staphylococcus aureus* Isolated from Clinical Specimens of Teaching Hospitals in Mazandaran using phenotypic and genotypic methods.2014-15

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Abstract

Background and objective: *Staphylococcus aureus* has been recognized as a major nosocomial infection. Since the 1960s, the first methicillin-resistant *Staphylococcus aureus* (MRSA) has appeared and resistant to all beta-lactam antibiotics caused by the *mecA* gene. In addition, MRSA with a wide range of infections from mild skin and soft tissue infections to life threatening pneumonia has been recently become a worldwide concern. The aim of current study was prevalence of methicillin resistant *Staphylococcus aureus* isolated from clinical specimens in province of Mazandaran using phenotypic and genotypic methods.

Materials and methods: About 118 clinical specimens were collected from teaching hospitals in Babol and Sari. After identification of the isolates using usual tests, resistance to methicillin was investigated using cefoxitin disc diffusion, oxacillin screening plate and polymerase chain reaction (PCR) for *mecA* gene. In addition, sensitivity of isolates to other antibiotics was determined according to the Clinical and Laboratory Standards Institute (CLSI).

Results: From all collected clinical specimens, a total of 100 isolates was identified as *Staphylococcus aureus*. The results of sensitivity assay to methicillin using cefoxitin disc diffusion and oxacillin screening agar was showed 66% and 71% of the isolates were resistant to MRSA, respectively. However, the results of PCR showed the presence of *mecA* gene in 81% of isolates. In addition, investigation of resistant pattern to antibiotics among the isolates was shown that the isolates were high resistant to ampicillin, penicillin and amoxicillin (100%) and low resistance to nitrofurantoin (0%). Also, the MRSA strains were resistant to at least 10 more antibiotics.

Conclusion: The results of current study were shown that phenotypic methods are not reliable for determination of methicillin sensitivity. Therefore it is necessary that these results confirmed with genotypic procedures such as PCR should. Moreover, most of *Staphylococcus aureus* have become resistant to different antibiotics, rapid diagnosis and also appropriate and reasonable prescription of effective antibiotics in order to prevention of increasing drug resistance is necessary.

Keywords: Staphylococcus aureus, Methicillin resistance, Mazandaran

Frequency of Anti-HBcAb in Solid Tumor Patients in Zanjan

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Abstract

Background and objective: About 350 million people are hepatitis B virus carriers worldwide. During the convalescent phase of infection, anti-HBc appears in patients' blood and remains positive until the end of life. During the suppression of immune system by chemotherapy, immune system status to HBV infection will change. Reactivation of HBV followed by chemotherapy regimen is a common event that occurs in 21-35% of HBsAg carrier and has a high mortality rate despite antiviral therapy. Immune suppression followed by chemotherapy leads to reactivation of HBV. The aim of this study was to evaluate the prevalence of anti-HBc among patients with solid tumor and undergoing chemotherapy in zanjan province.

Material and methods: To examine the prevalence of anti-HBc in patients undergoing chemotherapy, 384 blood sample were collected from oncology and chemotherapy ward of Valiasr hospital. Serum samples were provided and isolated anti-HBc ELISA were performed on samples.

Results: In this study, 384 serum samples, with an average age of 36/56 years (204 males and 180 females) were studied. A total of 89 samples (17/23%) were positive for anti-HBc marker.

Conclusion: The results suggest that demographic study of patients with solid tumor for serological marker of anti-HBc to identify past or present infection with the hepatitis B patients before beginning chemotherapy is necessary.

Key word: Hepatitis B virus, Chemotherapy, solid tumor, anti-HBC

Antibiotic Resistance Patterns of Bacteria Causing Urinary Tract Infection in Women Referred to Resalat Hospital, Tehran, 2015

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Abstract

Background and objective: Urinary tract infection (UTI) is one of the most prevalent infectious diseases in women. The aim of this study was to assess the antibiotic resistance patterns of bacteria causing urinary tract infections in women and to determine the efficiency of commonly used antibiotics for treatment of UTI.

Material and methods: This cross sectional and descriptive study was conducted in Resalat Hospital in 2015. After culturing urine samples and confirming of infection, antimicrobial susceptibility tests were done by disk diffusion. Data and the results were collected and analyzed.

Results: In this study, the most common cause of urinary tract infections in women was E.coli (81.6%). Drug susceptibility assay revealed that Amikacin and ciprofloxacin were the most sensitive antibiotic agents and nalidixic acid and cephalothin were the most resistant antibiotics. It means that nalidixic acid and cephalothin don't work in treating urinary tract infection anymore.

Conclusion: Our study showed that gram-negative bacilli, especially E.coli is dominant bacterial agents that causes urinary tract infections in women. Most isolated species showed a high resistance to common antibiotics. So it is advised that physicians should care more about prescribing antibiotics for the treatment of urinary tract infection.

Key words: Urinary tract infection, Antibiotic resistance, Women