

Needle Sticks Injuries among Nurses in Emergency Medical Center in Tehran University of Medical Sciences Hospital (2008-2012)

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Abstract

Background and objective: Accidental needle-stick injuries (NSIs) are a hazard for health-care workers and general public health. Nursing workers are at high risk for occupational exposure to blood-borne pathogens via sharp injuries of needle stick. The aim of this study was to determine “needle sticks injuries among health care workers in emergency medical center in Tehran University of Medical Sciences(TUMS) hospital”. (2008-2012).

Materials and methods: In this descriptive study 358 health care workers worked in emergency wards in Tehran University of Medical Sciences hospitals were followed for needle stick events from 2008 to 2012. Sampling method was census. Data were collected by a researcher-made questionnaire consisted of 32 questions included demographic variables and NSI included the event that leads to needle stick injuries. Content and face validity and also test-retest reliability were measured and data was analyzed by SPSS 16.

Results: The study population reported 84 needle stick injuries during the study period. Incidence rate of NSI was 23/46%. In most cases, needles and vein catheter were responsible for injuries. IV access and recapping of needles) were most common action resulted to exposure. Exposed people believed that the most important and basic reason for needle stick injuries was patients crowdedness, shortage of staff and fatigue.80/95% of the nurses who had experienced NSIs in the previous 5-years were reporting all exposure to the NSIs.75/9% of nurses had been vaccinated against hepatitis B virus. There weren't statistically significant different in demographic variables except working experience.

Conclusion: This study suggests that the frequency of NSIs and rate of underreporting among nurses are considerable. It is suggested that, NSI in hospitals should be managed through obtaining an appropriate reporting system, organizing blood and body fluid exposure surveillance system, Standard reporting protocol, education and vaccination against hepatitis B virus.

Keywords: Needle Stick Injuries, Nursing, Hospitals, Emergency wards, Incidence

Relation between Tuberculosis Incidence and Migration Using Quantile Regression Model in Iran 2010

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Abstract

Background and objective: The quantile regression model is an efficient method for prediction and estimation the relationship between explanatory variables and percentiles of the distribution. In this study we used the model to examine the relationship between TB and inter-districts migration in Iran.

Materials and methods: This cross-sectional study was conducted on 11,320 Patients whose TB was diagnosed between March 2010 and March 2011 in Iran. Data were collected from the Ministry of Health and Medical Education and Statistical Center of Iran. To study the effect of migration on extreme quantiles of the distribution of TB incidence among districts, quantile regression model was used adjusting for some socioeconomic indicators. To examine the goodness of fit of the model, the Akaike information criterion (AIC) was applied. For data analysis and modeling, Quantreg package in R software was employed.

Results: The results of the quantile regression model showed that the tuberculosis incidence rate was elevated as the immigration rate increased. For 50th, 60th, 70th, 80th and 95th percentiles of TB incidence, immigration rate showed significant relationship.

Conclusion: The Tuberculosis and migration were associated together typically for high percentiles of the TB Incidence.

Keywords: Migration, Tuberculosis, Quantile regression model

The Fixed-Dose Combination Regimen and Separate Drugs in Treatment of Tuberculosis

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Abstract

Background and objectives: WHO and other organizations recommend fixed-dose combination formulations (FDCs) as a further step to facilitate the optimal drug treatment of TB. No study has been done in this regard so far in Iran. The purpose of this study is comparison of the Treatment Outcome of a Fixed-Dose Combination (FDC) regimen with separate drugs for treatment of pulmonary and extra pulmonary tuberculosis in Gorgan, Iran.

Materials and methods: This study is a quasi-experimental study in 528 patients with tuberculosis during the 2012-2013. In line with the national implementation of the care and treatment of tuberculosis, Patients were divided into two groups Fixed-Dose Combination (n=257) regimen compared with separate drugs (n=271) and treatment outcome in the two groups were compared. The data was analyzed by multinomial logistic regression using SPSS16 software.

Results: Of the 528 patients assessed for eligibility, 257 satisfied the inclusion/exclusion criteria and were assigned to a Fixed-Dose Combination regimen group (51% male, mean age of 19.6 years); 271 patients (52.4% male, mean age of 20.3 years) in the separate drugs group. There were no significant differences in Age, sex, living place and status of imprisonment between groups ($P>0.05$). Difference between the treatment outcome in the fixed-dose combination group and the separate drugs group ($P<0.001$).

Conclusions: International standards for the treatment of tuberculosis are recommended to use Fixed-Dose Combination regimen of drugs. Findings suggest that Fixed-Dose Combination of anti-TB drugs have a more favorable treatment outcome than the separate drugs.

Keywords: Tuberculosis, Fixed-Dose Combination, separate anti-TB drugs, treatment outcome

Seroepidemiologic Investigation of Human Lymphotropic Virus Type 1 and 2 (HTLV-1/2) Indeterminate Blood Donors from Khorasan Razavi Province, Iran

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Abstract

Background and Objectives: The indeterminate results of screening test for human T-cell lymphotropic virus type 1 and 2 (HTLV-1/2) has been a challenge in blood centers worldwide especially in endemic areas. The aim of this study was to investigate the prevalence rate of HTLV-1/2 indeterminate profile among blood donors, as well as their epidemiological characteristics in Khorasan Razavi province of Iran.

Materials and methods: A total of 201719 blood donors were screened for HTLV-1/2 antibody by ELISA method. Repeatedly reactive samples were further evaluated by Western blot assay. ELISA and Western blot data collected from Negare software. Statistical analysis was performed using chi² test.

Results: Three hundred and eighty samples were reported as indeterminate by Western blot analysis. The prevalence rate of HTLV indeterminate was calculated 0.19%. There was a significant difference between sex and age of HTLV indeterminate and positive cases.

Conclusions: The prevalence of HTLV indeterminate rate was determined to be 0.19% in our donor population, a value that falls between the prevalence rate in endemic and non-endemic areas. Since there are reports of finding HTLV-1 genome in indeterminate subject and because of the existence of an association between some seroepidemiologic features of these cases and their prognosis, it is strongly recommended that a comprehensive study to be performed on indeterminate donors.

Key words: HTLV-1/2, Western blot, indeterminate

Antimicrobial Effects of Aqueous and Ethanolic Extracts of *Ferulago angulata* on *Staphylococcus aureus*, *Bacillus cereus* and *Salmonella typhi* "in vitro"

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Abstract

Background and objectives: Study of medicinal plants in order to discover new pharmaceutical supplies against bacterial infections in recent years has been considered very much. In this study the antimicrobial effect of aqueous and ethanolic extracts of *Ferulago angulata* on *Staphylococcus aureus* ATTC 25923 , *Bacillus cereus* PTTC 1015 and *Salmonella typhi* PTTC 1609 “in vitro”.

Material and methods: In this study, different concentration level of ethanolic and aqueous extracts of *Ferulago angulata* were prepared. The antibacterial effects of extracts were investigated using pour plate and disk agar diffusion test. Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) were also studied using the dilution method .Statistical analysis was carried out by analysis of variance (ANOVA).

Results: In disk agar diffusion Method all concentrations of ethanolic extract have inhibitory effect against *Bacillus cereus* and *Staphylococcus aureus*. Minimum Inhibitory Concentration (MIC) of *Kelussia odoratissima* leaves of aqueous and ethanolic extracts for *Bacillus cereus* and *Staphylococcus aureus* was 16 and 8 mg/ml and for *Salmonella typhi* was 64 and 32 mg/ml, respectively . Minimum *Bactericidal* Concentration (MBC) of *Kelussia odoratissima* leaves of aqueous and ethanolic extracts for *Bacillus cereus* and *Staphylococcus aureus* was 32 and 16 mg/ml and for *Salmonella typhi* was 128 and 64 mg/ml, respectively.

Conclusions: The results showed that the ethanolic extract of *Ferulago angulata* had greater inhibitory effects on the strains studied compared to aqueous extracts in vitro. *Salmonella typhi* was resistant to most of the aqueous and ethanolic *Ferulago angulata* extracts .

Keywords: *Ferulago angulata*, Ethanolic and aqueous extract, Antibacterial effects.

Smear Positive Pulmonary Tuberculosis in Prisons. South Khorasan-2010

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Abstract

Background and objective: TB is one of the most important infectious diseases with 10,000,000 new cases and 3 million mortality annually. Prisoners are the high risk groups for TB about low socioeconomic state and crowded. This study was done in order to active screening for pulmonary TB in South Khorasan prisons and Risk Factors evaluated.

Material and method: This descriptive cross sectional study was done on all prisoners of South Khorasan , first them had chronic cough on Hemoptesis with fever and weight loss longer 2 week, included, then was done for them 3 sputum for BK and Chest X Ray. Data collected and analyzed with descriptive test.

Results: From 4000 prisoners of prisons of South Khorasan, 150 patient , included. 89/3% were male with mean age $36/1 \pm 11/8$ years. 1/3% patients had old TB and 8% had in their family. Cough with 84/7% and sputum 69/3% were the most clinical findings. Chest X Ray was abnormal in 30% that Reticulo-nodular infiltration was the most common pattern. One patient had positive sputum for TB.

Conclusion: With under observation of pulmonary patients and use of DOTS and better diagnostic ways, pulmonary TB decreased in prisoners of South Khorasan.

Key Words: Tuberculosis, Prison, Risk Factors, South Khorasan.

Salmonella's Serotypes in Domestic Eggs in Gilan Province

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Abstract

Background and objective: Eggs and egg products are the popular food with animal source which consumed especially in developing countries. According to the different studies, Salmonella is one of the important bacteria contaminations of eggs and egg products, especially in domestic eggs due to the lack of healthy inspection on domestic hen's production. In this survey 300 domestic eggs obtained from market in Gilan province were examined for Salmonella serotypes according to the methods described by APHA.

Materials and methods:The swab samples of egg shell and egg contents were examined including pre enrichment in lactose broth, enrichment in selenit cycthein and tetrathionate broth and finally detection on XLD, SS and BG agar. The suspected colonies were biochemically examined and Salmonella serotypes were identified by using Difco anti serums.

Results: One of 300 samples of egg shell and 3 out of 300 samples of egg contents were positive for salmonella groups C and D respectively.

Conclusion: Hygienic procedures e.g adequate cooking before consumption of the egg and egg products are recommended.

Keywords: Domestic hens, Egg, salmonellosis.

The Frequency and Antibiotic Resistance of Urinary Tract Infection Organisms in Hospitalized Children. Shahid Beheshti Hospital.Kashan. 2012-2013

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Abstract

Background and objective: Urinary tract infection is one of the most common diseases in human populations. Appropriate antibiotic therapy is an important step in the recovery and prevention of scarring in the kidney. The aim of this study was to determine the frequency and pattern of antibiotic resistance in bacterial urinary tract infection In Hospitalized patients less than 12 years in Shahid Beheshti hospital during the years 2012 to 2013.

Materials and methods: In this cross-sectional study that was conducted during the years 2012-2013; All registered cases of positive urine culture and antibiotic sensitivity of 180 patients under 12 years of Shahid Beheshti Hospital were examined, and Resistant to antibiotics, ceftriaxone and imipenem also was approved using E-test method.

Results: 67% of the patients were female and 32.2% were boys. Overall, the most common cause of urinary tract infection was *Escherichia coli* (63.3%). Maximum resistance was to ampicillin (87.8%). No resistance was observed against Imipenem and meropenem antibiotic (0%). From 92 cases of resistance to ceftriaxone which was detected using the disk diffusion method; 91.3% (84 cases) were susceptible and 8.7% (8 cases) were resistant using the E-test method.

Conclusions: Imipenem and meropenem are reliable as broad-spectrum antibiotics. On the other hand the indiscriminate use of antibiotics ceftriaxone is the only justification for high levels of resistance to these antibiotics and It makes eminent sense to prescribe appropriate medication.

Key words: Urinary tract infections, antimicrobial susceptibility, drug resistance, E-test

Enterotoxin A Producing Methicillin Resistant Staphylococcus aureus in Profiteroles

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Abstract

Background and objective: Staphylococcal enterotoxins are members of a family of more than 20 different staphylococcal and streptococcal exotoxins that are functionally related and share sequence homology. These bacterial proteins are known to be pyrogenic and are connected to significant human diseases that include food poisoning. The aim of this study was to detect the enterotoxin A producing *Staphylococcus aureus* strains in profiteroles obtained from 2 confectionaries in Isfahan.

Materials and methods: Sampling was carried out 4 times from 2 confectionaries in Isfahan from profiteroles. Serial dilutions from each sample were prepared and samples were filtered. Filters were put on Baird parker agar without oxacillin and supplemented with oxacillin. After 48 h incubation at 37°C and black colonies were selected. Isolates were identified at the species level using biochemical tests and specific primers. Susceptibility of isolates selected from medium supplemented with antibiotic to oxacillin was determined using disc diffusion and broth micro dilution assays. Presence of *mecA* and *sea* genes was checked using PCR.

Results: Totally, 679 and 18 *S. aureus* and methicillin resistant *S. aureus* strains were isolated from different media, respectively. All 18 isolated showed resistance to oxacillin and resistance in 78% of MRSA isolates was very high (MIC \geq 256 μ g/ml). *sea* gene was detected in 4 and 100% of *S. aureus* and MRSA isolates, respectively. One hundred percent of the MRSA isolates contained *mecA* gene.

Conclusion: High prevalence of enterotoxin A producing MRSA isolates in different foods and specially profiteroles, which is an enrichment medium for growth and proliferation of bacteria is a warning for public health.

Key words: MRSA, enterotoxin A, profiteroles

Prevalence of Enterotoxin A producing Methicillin Resistant Staphylococcus aureus Isolates in Tehran Hospitals

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Abstract

Background and objective: Staphylococcus aureus is known as community-acquired and nosocomial pathogen. Most of the isolates contain lysogenic phages and various virulence factors. The aim of the study was to analyze the antibiotic resistance pattern and detect the enterotoxin A gene among MRSA isolated from two hospitals in Tehran.

Materials and methods: Totally 94 isolates of methicillin resistant S. aureus were identified at the species level using specific primers. Susceptibility to seventeen antibiotics was determined using disc diffusion method and Minimum inhibitory concentration (MIC) of oxacillin and vancomycin in MRSA isolates were also detected using Etest. mecA and sea genes were detected using specific primers. Primers for identification of 6 classes of prophages were used in a Multiplex-PCR assay.

Results: The highest antibiotic resistance was observed to penicilli and followed by ciprofloxacin, erythromycin, kanamycin, amikacin, tobramycin, clindamycin and tetracycline. Five different prophage types were found in MRSA isolates and all MRSA isolates contained at least one prophage type. One hundred percent of the MRSA isolates contained sea and mecA genes.

Conclusion: High prevalence of different classes of prophages, production of enterotoxin A and high resistance of MRSA isolates to first and second lines of treatments is a potential treat for public health.

Key words: MRSA, prophages, enterotoxin A