

Infectious Diseases & Vaccination Abstracts

Frequency of type 1 fimbriae among E.coli subtypes isolated from patients with urinary tract infections

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Background: The gut constitutes an important reservoir of bacteria causing extra intestinal infections such as urinary tract infection (UTI). The fecal *Escherichia coli* population structure may influence the occurrence and etiology of extra intestinal infection, but it is poorly understood. The structure of the fecal *E. coli* population may be important in the pathogenesis of extra intestinal infections.

Methods: Rectal swab specimens from children were collected using wide mouthed sterile plastic containers and transported immediately to the microbiology laboratory for analysis within two hours of collection. Also urine samples had been collected by supra pubic aspiration, catheterization, or use of urine bags. All bacterial isolates were microbiologically identified in the microbiology laboratory of CMC (Children's Medical Center) using standard biochemical identification methods. DNA Extraction: To extract DNA a sweep of growth on a nutrient agar slant was boiled in 500 µL of sterile distilled water for 10 minutes. Then centrifugation was done at 13000 rpm for 5 minutes to pellet the cell debris.

Conclusion: In our study type 1 pili like other study has been shown to be the most commonly expressed virulence factors in UPEC and also DEC. This pili is commonly found among UPEC as well as non- UPEC strains. In confirmation of other study our results show more than 80% of *E. coli* isolates from the urine and rectal swab samples had fimH gene. More than 90% of *E. coli* isolates from the gut of healthy Swedish adults have the genes for type 1 fimbriae.

Keywords: *E. Coli* Subtypes, Multiplex PCR, Type 1 Fimbriae

Nasopharyngeal carriage of streptococcus pneumoniae and antibiotic sensitivity in preschool children attending daycares in Bandarabbas

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Background: *Streptococcus pneumoniae* is the most common cause of bacterial pneumonia, otitis media and the second most common cause of meningitis in children. Resistance to penicillin and other antimicrobial agents is becoming a basic problem in worldwide and in Asia. The aim of our study was to determine prevalence of *Streptococcus pneumoniae* in the nasopharynx of healthy children, antimicrobial susceptibility patterns, and risk factors for carriage.

Methods: This cross-sectional study was performed from Jan 2012 to May 2013, a single nasopharyngeal specimen per child was obtained from children attending day-care

centers. Eight day-care centers, ages 1 to 6 years were included (402 Healthy children). Nasopharyngeal samples were collected and after 24 h incubation, microbiological tests were performed and antimicrobial sensitivity tests were done.

Findings: Of 402 children, 197(49%) were boys and 205(50%) were girls and the mean age was 3.4 years, *Streptococcus pneumoniae* was recovered from 63(15.7%). The rate of resistant was: 77.8% to co-trimoxazol, 74.6% to Ampicillin, 73% to ceftriaxone and 73% to Penicillin. Only risk factor for carrier status was number of children attending day care center.

Conclusion: In this study, the rate of carriage of *streptococcus pneumoniae* was 15.7%, but this rate in other studies is different from 4.2% to 72%. Some of the difference among population may related to sampling or laboratory methodology.

Keywords: *Streptococcus Pneumoniae*, Nasopharyngeal Carriage, Antibiotic Sensitivity

Serum levels of zinc, copper, magnesium elements and vitamin B12 in children with Giardiasis and Enterobiosis in Kashan, Iran

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Background: *Giardia lamblia* and *Enterobius vermicularis* are noted to be the most important intestinal parasites in Iran as similarly reported in the world. The association of giardiasis and enterobiasis with the malabsorption of zinc, copper, magnesium and vitamin B12 remains controversial. The aim of the present study was to investigate the changes in the serum zinc, copper, magnesium and vitamin B12 levels in children infected with *Giardia intestinalis* and *Enterobius vermicularis* in comparison to normal subjects inhabiting in Kashan, Center of Iran.

Methods: The case control study was conducted among 359 children from 6-12 years old in region study. The study participants were selected using multistage sampling method. Data were gathered through house-to-house survey. Examination of stool samples and cello-tape anal swabs were done by standard techniques and detect *G.intestinalis* and *E.vermicularis* infection. From the whole population 37 *Giardia* and 50 *Enterobius* positive were chosen for case group, and 30 age and sex matched healthy children without parasitic infection were chosen as the control group. Both groups had no record of serum shortage of mentioned factors and malnutrition. Serum samples were obtained for further laboratory examination. Zinc, copper and magnesium levels were measured by Ziestchem Diagnostics Kit and colorimetric endpoint-method respectively. Vitamin B12 levels were measured by Radioimmunoassay technique. All data were analyzed using SPSS version 17.

Findings: Out of the total examined subjects, 124 (34.5%) were found positive for at least one intestinal parasites. The prevalence of *Giardia intestinalis* and *Enterobius vermicularis* infection were 10.3% and 13.9% respectively. Sex was not associated with parasitic infections. No statistically significant difference of infection was observed among the age groups. The serum zinc, copper and

magnesium levels showed a significant decrease in individuals infected with *G.intestinalis* and *E.vermicularis* when compared to controls ($p<0.05$). There was no significant difference between vitamin B12 levels between the two groups. Mean values of *Giardia* positive and negative groups was for copper 143.65 ± 16.51 and 176.26 ± 17.6 $\mu\text{g/dl}$, zinc 62.26 ± 16.06 and 80.66 ± 23.58 $\mu\text{g/dl}$, and magnesium 1.82 ± 0.23 and 2.01 ± 0.16 respectively. Mean values of *Enterobius* positive and negative groups was for copper 145.55 ± 26.84 and 176.26 ± 17.6 $\mu\text{g/dl}$, zinc 72.7 ± 17.92 and 80.66 ± 23.58 $\mu\text{g/dl}$, and magnesium 1.93 ± 0.11 and 2.01 ± 0.16 respectively.

Conclusion: The high prevalence of intestinal parasitic infections among the children in Kashan area indicated that parasitic infections are important public health problems. Thus, infection control measures and the development of awareness strategies to improve sanitation and health education should be considered. Also, the results showed giardiasis and enterobiasis decreased serum copper, zinc and magnesium levels. Finally, there was no significant difference in serum levels of vitamin B12 between the two groups. Early detection and treatment of intestinal parasitic infection could avoid these serum mineral and vitamin B12 deficiencies. Further studies are required to elucidate the actual mechanism governing the zinc, copper, magnesium and vitamin B12 – giardiasis/ enterobiasis interaction.

Keywords: *Giardia Intestinalis*, *Enterobius Vermicularis*, Children, Zinc, Copper, Magnesium, Vitamin B12, Iran

Nasal carriage and resistance pattern of multi-drug resistant staphylococcus aureus among healthy children in Kashan/Iran

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Background: Nasal carriage of *Staphylococcus aureus* (*S.aureus*) is a substantial source of human infections. Detection and treatment of nasal carriage in children with methicillin-resistant (*MRSA*) and multi-drug resistant (*MDR*) *S.aureus* may be an important modality in prevention of infections. This study determined the prevalence, antibiotic resistance patterns and risk factors for nasal carriage of *MDR S.aureus* among healthy children.

Methods: This cross-sectional study was carried out on 350 one month to 14-year-old healthy children in Kashan city, the center of Iran. Of total health-care centers, four centers were chosen by simple random sampling. Nasal samples were cultured in blood agar medium for *S.aureus* and antibiotic susceptibility profile was determined by disc diffusion and E-test. Risk factors for nasal carriage of *MDR S.aureus* also were determined.

Findings: A total of 92(26.3%) *S.aureus* isolates were obtained, of which 33(35.9%) was *MRSA* and 27(29.3%) was *MDR*. Of *MRSA* strains, 19(70.4%) were *MDR*. *S.aureus* isolates showed 52.2% resistance to cephalothin, 33.7% to co-trimoxazole, 26.1% to clindamycin, 26.1% to ciprofloxacin, 4.3% to vancomycin and 35.9% to oxacillin. Risk factors for nasal carriage of *MDR S.aureus* were antibiotic use during recent 3 months ($P<0.006$), family size more than 4 members ($P<0.044$) and parental smoking ($P<0.045$).

Conclusion: *MDR S.aureus* was not uncommon among healthy children in Kashan and prevention of its spread in

population is judicious.

Keywords: *Staphylococcus Aureus*, Nasal, Carriers, *MDR*, Healthy, Children

Screening of syphilis in pregnant women referred to Valiasr Hospital, Emam Khomeini Hospital

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Background: Syphilis is a systemic communicable infection and two forms of syphilis are encountered in children: Acquired and congenital form. Syphilis during pregnancy has a transmission rate approaching 100%. Fetal or perinatal death occurs in 40% of affected infants. But approximately two thirds of infected infants are asymptomatic at the time of birth. This study showed the prevalence of syphilis in pregnant women by screening of VDRL at the delivery time.

Methods: This study was a cross-sectional one and VDRL test was done on blood samples of all pregnant women that admitted for delivery in gynecology dept of Valiasr Hospital, Imam Khomeini Hospital and studied mother age, pregnancy age, previous abortions, sex and weight of infants and if the VDRL of mother was positive, the VDRL of infants and clinical manifestations of neonates was studied.

Findings: With a total number of 605 pregnant women that tested with VDRL method, in two cases the results were weakly reactive and the remaining were negative. The test has been repeated in the first case by VDRL and in second case by FTA-ABS, that were negative in this two cases. Therefore, all 605 cases were negative.

Conclusion: The results of the current study, like other studies in Iran (Yazd, Mashhad &...), showed the prevalence of syphilis in Iran is very low, but we suggest this screening should be done, because the sequel is high and the treatment is easy.

Keywords: Syphilis, Pregnancy, VDRL, FTA-ABS

Role of rotavirus genotype in causing gastroenteritis associated with fever and seizure; does the virus directly affect the central nervous system?

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Background: Acute diarrhea is a major cause of mortality in young infants across the developing countries and rotaviral agents are the main etiology of this disease. The accompaniment of seizure with gastroenteritis is rather common. We conducted a study to assess the rate of rotaviral infection in children with gastroenteritis, fever and seizure, and to find the viral genotypes correlated with this condition.

Methods: Children with fever and gastroenteritis and seizure presenting to a children hospital were evaluated regarding the presence of rotavirus in feces and cerebrospinal fluid (CSF). The patients affected by rotavirus were compared to other patients regarding demographical and clinical characteristics.

Findings: Thirty one children were included. Ten cases (32%) were diagnosed to have rotaviral infection. The most common genotype was G1P8 which was found in 30%. Other common genotypes included G1P4 in 20%, G1P and G2P in 10% each. Viral agents were not found in the CSF of any of the patients.

Conclusion: Rotavirus is an important cause of gastroenteritis in association with fever and seizure in young children. The central nervous system (CNS) is not directly affected by the virus. In addition to other reasons, prevention of seizures and their consequences is a strong reason to proceed to nation-wide immunization of children against retroviral infections.

Keywords: Acute Diarrhea, Seizure, Gastroenteritis, Rotavirus

Pattern of leishmaniasis demonstration (CL) in children referred to the of the skin and the leishmaniasis (sedigheh Tahereh), Isfahan 1392

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Background: Cutaneous leishmaniasis from remote times has been in Iran. Today, our country is one of the most important area of this disease in the world. The number of patients with cutaneous form in our country is about 20 thousands per annum. Some believe that the actual figures of the disease is more than 4-5 times this number and this disease is the most important parasitic disease after malaria in Iran. So far, an effective vaccine for this disease has not yet been made. In spite of massive efforts and national and international investments, not only this disease hasn't been eradicated, but is becoming the new area in the corner and in the future the country will find the higher prevalence. One of the major complications of the disease is wound scar that especially in children and girls, creating concern in family and can be applied the economic and social problems. This study was accepted to evaluate the clinical manifestations of disease patterns and the results of the treatment of disease in children.

Methods: This study was a descriptive study that has been done retrospectively. The community study was the children with cutaneous leishmaniasis has been referred to the centre for treatment of skin and leishmaniasis in Isfahan in 1392. Information collected via electronic files of the patients and then analyzed by SPSS software.

Findings: The findings based on this study of total 428 number referred to the skin center, the children were given up were 40.6%. Of this number, 53.4% was girls and 46.6% was boys. In terms of the age group, 48.3% was in Group 0-4 years, 38.5% was in Group 5-9 years and 13.2% was in Group 10-14 years. In terms of the location of the lesion, lesions on the face and neck have been 24% which 43.8% has been in girls and 56.2% in boys. 53.4% of lesions were on the limbs which 52.7% has been in the girls and 47.3 in the boys. Lesions on the body have been 10.3% which 66.7% has been in the girls and 33.3% in the boys. Of the total patients treated, 54.6% have had complete recovery, 45.4% have had partial recovery or no recovery.

Conclusion: The results suggest that nearly half of the patients are children. These results comment that the special efforts on the preparation of new drugs in the treatment of cutaneous leishmaniasis is not done yet in developed countries. Considering that repeated efforts in the fight against mosquito and rodent control have not had

high efficiency in the country, we must pay special attention to supply vaccines and methods of prevention and preparation of new and effective drugs in the treatment of this disease. This issue needs to apply comprehensive cooperation from all authorities and respected professors including pediatricians.

Keywords: Cutaneous leishmaniasis, demonstrations, children, Sedigheh Tahereh

Asymptomatic herpes simplex virus infection in Iranian mothers and their newborns

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Background: Human herpesvirus infections are very common and prevalent in the population and establish latency in different tissues. The study aimed to determine the prevalence of congenital herpes simplex virus infection in a randomly selected pregnant women and their newborns in Tehran, Iran.

Methods: The sera of pregnant women (n=100) were analysed for the presence of the herpes simplex virus specific antibodies (IgG and IgM) with an enzyme linked immunosorbent assay (ELISA). Consecutive umbilical cord blood samples from their newborn (n=100) were analysed for the presence of herpes simplex virus (HSV)-1 and HSV-2 DNAs using real-time polymerase chain reaction (PCR).

Findings: HSV IgG and IgM antibodies were found in 97 (97%) and 2 (2%) of 100 pregnant women. Of the 100 cord blood specimens tested, 6 (6%) were positive for herpes simplex virus DNA (HSV-1 DNA [n=2]; HSV-2 DNA [n=4]). From six HSV DNA positive newborns, 2 cases (HSV-2 positive) were from mothers who had detectable IgM in their sera samples. All corresponding mothers of six HSV positive infants had detectable IgG antibodies in their serum specimens.

Conclusion: The presence of HSV-1 and HSV-2 DNAs in the cord blood of newborns could be a risk marker for transmission of the virus from asymptomatic pregnant women to the child. Screening of newborns may help identify asymptomatic or misdiagnosed cases of genital and neonatal HSV infection.

Keywords: Herpes Simplex Virus Infection, Cord Blood, Real Time PCR, Congenital Infections

Palmoplantar desquamation and nail shedding follow to hand foot mouth disease

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Hand foot mouth disease (HFMD) is a common childhood disease. Coxsackivirus A16 is the main cause of classic disease and Coxsackivirus A6 is the uncommon etiology of nonclassic and severe HFMD. HFMD is self-limited illness that presented after short incubation period with low grade fever, exanthema and anathema lesions. We report 50 patients who presented unusual palmoplantar desquamation and nail shedding follow to HFMD in last summer and fall.

Methods: This is a retrospective case study in 50 patients that referred to Madany children hospital in khorram Abad for rash, fever, unusual palmoplantar desquamation and

nail shedding. All patients had clinical criteria for HFMD. **Findings:** Females and males were presented equally. The ages of the patients were under 5 years with median age 3 years (range between 6 months to 5 years). The most symptoms were fever 80%, pharyngitis 60%, cough 20%, vomiting 15%, and diarrhea 15%. No patients had seizure and neurologic complications. The illness was self limited in all patients and cutaneous lesions cured after 2–3 weeks. After 3–4 weeks of the first febrile symptom of HFMD, palmoplantar desquamation and nail shedding presented. For all patients CBC, ESR, calcium and thyroid function tests performed and all laboratory findings were normal. Palmoplantar desquamation resolve after 2–3 weeks and nail shedding resolve after 2–6 months.

Conclusion: Palmoplantar desquamation and nail shedding are rare complications of HFMD that presented after involving with coxsackivirus A6. It must be differentiated from other childhood disease such as Thyroid disease, Kawasaki, and chronic disease.

Keywords: Hand Foot Mouth Disease, Palmoplantar Desquamation, Nail Shedding

Fever of unknown origin in children aged 3 Months to 15 years

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Background: Fever of unknown origin (FUO) is defined as the presence of fever for 8 or more days in a child in which a careful history and physical examination and preliminary laboratory results failed to reveal the probable cause of fever. The causes of FUO are different according to geographical regions. The aim of the study was to evaluate the common causes of childhood FUO in our region.

Methods: A 6 years retrospective study conducted on all admitted children aged from 3 months to 15 years and those with final diagnostic of FUO were entered to the study.

Findings: Numbers of eligible cases for the study were 1100 patients. The causes of FUO were infectious diseases (55.1%), collagen vascular (4.6%), neoplasm (6.7%), miscellaneous (23.3%) and undiagnosed (10.3%).

Conclusion: Most fever of unknown origin results from atypical presentation of common diseases like TB and Salmonellosis, Brucellosis and Pneumonia.

Keywords: FUO, Pediatrics, Infectious Diseases

Virulence factors in uropathogenic and commensal Escherichia coli isolates

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Background: Urinary tract infections (UTIs) including cystitis and pyelonephritis are the most common infectious diseases in childhood. Escherichia coli (E. coli) accounts for as much as 90% of the community-acquired and also 50% of nosocomial UTIs. Therefore, identification of E. coli strains and antibiotic resistance patterns is important for both clinical and epidemiological implications.

Methods: To characterize uropathogenic strains of E. coli, we studied 50 E. coli strains recovered from urine samples of children aged less than 7 years with community-acquired UTIs and 50 E. coli recovered from stool sample of healthy children. We assessed virulence factors (VFs) and drug sensitivities of E. coli isolates.

Findings: Drug sensitivities of the isolates were: 94% (amikacin), 90% (nitrofurantoin), 66% (gentamicin), 56% (cefixime), 40% (nalidixic acid) and 28% (cotrimoxazole). Laboratory tests showed that the prevalence of virulence factors ranged from 18% for hemolysin and P-fimbriae to 2% for type1-fimbriae.

Conclusion: Most drug resistance was to cotrimoxazole and amikacin was the lowest. P-Fimbriae and hemolysin in uropathogenic Escherichia coli was more frequent than non-pathogen type of E. coli.

Keywords: Escherichia Coli, Virulence Factor, Drug Resistance, Urinary Tract Infection

The effect of bacterial and yeast probiotics on acute watery diarrhea in children

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Background: Diarrheal diseases are one of the main causes of mortality and morbidity in the developing countries. ORS (oral rehydration solution) has turned up to decrease diarrheal mortality, but has left no effect on the duration and severity of the disease. Different studies have focused on the use of probiotics as a supplementary treatment for acute diarrhea. This current study was to evaluate the effect of bacterial and yeast probiotics in children with acute diarrhea.

Methods: This clinical trial was conducted on 90 two-five year old children with acute watery diarrhea referred to pediatrics clinic in 2013 as outpatient cases. These children were divided randomly into three different groups of thirty. One group was under standard treatment with oral dehydration solution in addition to bacterial probiotics in form of Kidilact once a day. The second group, in addition to ORS, received yeast probiotics in form of Argopharm 250mg once a day. The third group received standard rehydration therapy along with placebo. Treatment with probiotics or placebo lasted for 5 days.

Findings: Our findings demonstrated no significant difference in the three groups in terms of age, sex, frequency, and duration of diarrhea before treatment. Mean durations of diarrhea from commence of treatment to recovery were 2.80, 3.17, and 4.43 days for the first (bacterial probiotic), the second (yeast probiotic), and the third (placebo) groups, respectively. A significant difference was revealed among the three groups in terms of diarrhea duration. The bacterial probiotic group had the best effect in reducing diarrheal length, while the placebo group had the least effect in this respect.

Conclusion: Findings of the current study and those of other studies confirm that application of probiotics in pediatric diarrheal diseases can be effective in minimizing course of diarrhea. According to our study, bacterial probiotic appeared more effective than the yeast probiotics in this regard.

Keywords: Diarrhea, Probiotic, Yeast, Children

Bilateral parotiditis as the first presentation of HIV infection

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Background: Parotiditis is prevalent in childhood. The etiology of parotiditis can be divided into infectious and non infectious ones. Viral infections are the main causes of Mumps (post vaccinal or disease) parotiditis such as enteroviral and HIV. Apart from this viruses, EBV, CMV, influenza, parainfluenza 1,2 infections as well as staph aureus can cause the same problem. Most of bacterial parotiditis are unilateral. There are also noninfectious cause for parotiditis; Obstruction of stensen duct, collagen vascular disease (sjogren disease, SLE,...) and tumors are among this types of causes.

Case presentation: A 2 year old girl admitted to hospital with bilateral parotiditis, having fever and chills for two weeks. Her vital signs were stable. Vaccination were carried out in due times. In physical examination of head and neck, both parotids were erythematous and tender. Liver and spleen had normal size, no lymph nodes were palpable. In lab test (N=26%, L=70%, mono=74%); WBC: 9200, Hb=10.3, PLT=383000. ESR was raised upto 117. PPD test, IgM VCA and toxoplasma antibody (IgM,IgG) were negative. Serum amylase raised up to 250 unit/L. She tested for HIV infection and the test was positive. In paraclinical study sonography were done and revealed a larg hypoechoic mass with several necrotic cycts. In left side there were collected fluid. Chest radiography reported diffuse bilateral nodular infiltration. she underwent surgery for abssecs drainage. Staph aureus was reported from abssece fluid. Her parents were tested for HIV infection and the test result for both of them proved positive.

Conclusion: In childhood, bilateral infections with this presentation of HIV infection must be remembered.

Keywords: HIV, Infection, Parotiditis

Antibiotic susceptibility survey of Group A streptococcus isolated from Iranian children with pharyngitis

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Background: The aim of this study was to contemplate the antibiotic susceptibility of Group A streptococcus (GAS) to the antibiotics which are usually used in Iran for treatment of GAS pharyngitis in children.

Methods: From 2010 to 2013, children 3-15 years of age with acute tonsilopharyngitis who attended Mofid children's hospital clinics and emergency ward and met the inclusion criteria were enrolled in a prospective study in a sequential manner. Throat culture was carried out in 200 children. The isolates strains were identified as GAS by colony morphology, gram staining, beta hemolysis on blood agar, sensitivity to bacitracin, a positive pyrrolidonylaminopeptidase (PYR) test result and the presence of Lancefield A antigen determined by agglutination test. Antimicrobial susceptibility was first identified by disk diffusion method using the disk of commonly used antibiotics in Iran and in accordance with Clinical and Laboratory Standards Institute (CLSI 2012) guideline. Susceptibility of the GAS strains to the described

antibiotics was also checked by broth dilution method according to CLSI guideline recommendation.

Findings: Of the 200 children enrolled in this study, 59 (30%) cases were culture positive for GAS. All isolates were sensitive to penicillin G. The prevalence of Erythromycin, Azithromycin and Clarythromycin resistance was 33.9%, 57.6% and 33.9%, respectively. Surprisingly 8.4% of GAS strains were resistant to rifampin. In this study, 13.5% and 32.2% of the strains were resistant to clindamycin and ofloxacin respectively.

Conclusion: The high rate of resistance of GAS to some antibiotics in Iran should warn the physicians to use the antibiotics restrictedly and logically to prevent the rising of resistance rate in future. It also seems that continuous local surveillance is necessary to achieve the best therapeutic option for GAS treatment.

Keywords: Group A Beta-Hemolytic Streptococci, Pharyngo, Tonsillitis, Streptococcus

Efficacy of zinc sulfate on common cold in children aging from 1 to 5 years

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Background: Common cold is the most common acute upper respiratory tract disease in children. The efficacy of vitamins and minerals on duration, symptoms and complications of common cold were evaluated in several studies. This study was performed to determine the efficacy of zinc sulfate on common cold in children aging from 1 to 5 years attending to Javaheri hospital in 2012-2013.

Methods: In this clinical trial study, 112 children with common cold aging from 1 to 5 years attending to Javaheri hospital in 2012-2013 were enrolled. They are randomly assigned to receive either conventional treatment including Acetaminophen, pediatric cold and nasal drop or these drugs plus zinc sulfate for 5 days. Then the duration of symptoms and complications of common cold were compared across two groups.

Findings: The results demonstrated disease duration was significantly shorter in zinc group($p<0.03$). Also the frequency of nasal discharge, sneezing, cough and sinusitis was significantly less in zinc group($p<0.05$).

Conclusion: Totally according to the obtained results, it may be concluded that zinc sulfate is effective on duration of symptoms and complications of common cold in children aging from 1 to 5 years old.

Keywords: Zinc Sulfate, Common Cold, Children, Complications

Evaluation of procalcitonin in diagnosis of renal parenchymal involvement in children with urinary track infection

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Background: Febrile urinary tract infection (UTI) is a common problem among children and carries the risk of parenchymal damage and sequelae. The location of the infection within the urinary tract influences decisions regarding both therapeutics and follow-up. Because clinical features and laboratory markers of infection at an early age

are not specific, it is difficult to make a distinction between lower UTI and acute pyelonephritis. Procalcitonin (PCT) has been studied as a marker of severe bacterial infection. We evaluated the sensitivity and specificity of ESR, CRP and PCT and compared with DMSA as a diagnostic procedure for kidney inflammations, also we tried to find the most cost benefit method to diagnose kidney inflammations.

Methods: We compared the symptoms and laboratory findings of fever, vomiting, abdominal/flank pain, leukocyte count, serum C-reactive protein and procalcitonin levels with the results of the DMSA scan in 104 children, 1 month to 14 years of age, admitted for suspected febrile UTI (first episode). PCT was measured by immunoluminometric assay in serum samples from children with microbiologically documented infection. Renal parenchymal involvement was evaluated with DMSA scintigraphy within 7 days after admission. The diagnostic accuracy Of PCT, PCR and ESR and the best cut-off points were determined by receiver operating characteristic (ROC) analysis (MedCalc 7.4, Belgium). The sensitivity and specificity PCT for detection of renal Inflammation, defined as abnormal DMSA scan results, were calculated for the optimal cut-off points.

Findings: The mean PCT level was significantly higher in UUTI than in LUTI ($2.05 \pm 1.05 \text{ ng/mL}$ vs $0.68 \pm 0.62 \text{ ng/mL}$). In these 2 groups, the mean CRP levels were $1.86 \pm 1.16 \text{ mg/L}$ and $0.2 \pm 0.40 \text{ mg/L}$, mean erythrocyte sedimentation rates were $40.41 \pm 18.5 \text{ mm/hour}$ and $12.68 \pm 7.4 \text{ mm/hour}$, and leukocyte counts were $12111 \pm 2807 \text{ cells/mm}^3$ and $6812 \pm 2680 \text{ cells/mm}^3$. In cut off point 1+ for CRP the sensitivity was 100% and specificity was 23%. According to ESR cut of point (>25), sensitivity and spicifity were 100% and 8.8% respectively. In cut off point for PCT (>2), the sensitivity was 100% and specificity was 2.9%.

Conclusion: Serum PCT levels and CRP area sensitive for early diagnosis of of the acute pyelonephritis.

Keywords: Acute pyelonephritis, Children, Procalcitonin, Urinary Tract Infection

A four-year evaluation of causative pathogens of recurrent urinary tract infection and their antibiotic resistance patterns among the children referred to Lohman Hospital in Iran

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Background: Recurrent urinary tract infections (RUTIs) are mostly caused by re-infection with the original bacteria or another different isolates in children. This study was conducted to detect the most common causative agents of RUTI as well as their antibiotic susceptibility pattern.

Methods: A retrospective study was conducted among patients who referred to Lohman hospital in Tehran, Iran, from March 2008 until March 2011. The isolates from the urine cultures were subjected to antibiotic susceptibility test using disk diffusion method according to CLSI guidelines. Extended spectrum beta-lactamase (ESBL) and multi drug resistant (MDR)-ESBL patterns were defined based on CLSI definition, and CDC and ECDC guidelines.

Findings: Fourteen patients (7 boys, 7 girls) were approved to have RUTI. Twelve cases caused by re-infection (6 with the same organisms, 6 with different strains), the rest showed a relapse pattern. Half of the patients had two or more experiences of recurrence, one girl experienced RUTI for 24 times. The predominant causing pathogens were *Escherichia coli* (in 11 patients, 45.6% of isolates), followed by *Klebsiella pneumoniae* (in 4 patients, 26.3% of isolates). ESBL resistance pattern was identified in 80% of *K. pneumoniae* vs. 50% of *E. coli* isolates. Moreover, while MDR-ESBL pattern detected in about half of *K. pneumoniae* isolates, only 1 of 26 *E. coli* isolates showed this pattern. Both bacteria were mainly resistant to sulfamethoxazole/trimethoprim, and sensitive to ciprofloxacin and norfloxacin. However, just *E. coli* isolates were highly sensitive to nitrofurantoin and amikacin, while *K. pneumoniae* isolates were much more resistant to ceftioxone, ceftazidim and nalidixic acid.

Conclusion: In this study, the prevalence of RUTI was equal among girls and boys. Re-infection happened equally by the same or different pathogens, mostly *E. coli*. Furthermore, *K. pneumoniae* showed more MDR patterns than *E. coli* and more concerns should be performed for its antibiotic treatment.

Keywords: Recurrent UTI, Antibiotic Susceptibility Pattern

Antibiotic resistance patterns of gram-negative bacteria in two tertiary hospitals in Sanandaj, Iran

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Background: There is a growing concern about the rapid rise in the resistance of gram negative bacteria to antimicrobial agents. We conducted a study to assess the antibiotic susceptibility patterns of common gram-negative bacteria isolated from infections of normally sterile body sites at two tertiary hospitals in the Sanandaj city, Kurdistan Provenience, Iran.

Methods: From January 2011 to December 2011, all positive cultures from potentially sterile body fluids were gathered from two university hospitals in Sanandaj. The antibiotic susceptibility and minimum inhibitory concentration (MIC) were determined using the Kirby-Bauer method (disk diffusion technique). The results were interpreted as per Clinical and Laboratory Standards Institute (CLSI) guidelines against a panel of the antimicrobials.

Findings: 79 isolates of gram negative bacteria from patients with infections were collected. *Serratia marcescens* was the most frequently isolated organism (38%) followed by *Escherichia coli* (19%), *Klebsiella pneumoniae* (19%), *Acinetobacter baumannii* (6%), *Enterobacter species* (6%), *Serratia odorifera* (4%) and *Pseudomonas species* (5%). The Susceptibility pattern of common isolates i.e. *Serratia marcescens*, *E.coli*, and *K.pneumoniae* for commonly used antibiotics were as follows: ampicillin 3.3%, 6.7%, 20%; gentamycin 73.3%, 73.3%, 46.7%; amikacin 76.7, 93.3%, 53.3%; cotrimoxazole 70%, 13.3%, 40%; cephalothin 3.3%, 40%, 33.3%; ceftazidim 80%, 73.3%, 33.3%; piperacillin/tazobactam 90%, 66.7%, 86.7%; cefepim 80%,

86.7%, 46.7%; ciprofloxacin 100%, 73.3%, 86.7%; imipenem 100%, 100%, 100%, respectively.

Conclusion: We found a high resistance rate from bacteria isolated from healthcare associated infections in our hospitals. A national surveillance program is essential to monitor the extent of resistance continuously, emphasize rational use of antimicrobials, and conduct effective measures to improve patient management outcome.

Keywords: Antibiotic Susceptibility E. Coli, Klebsiella, Serratia Marcescens, Extended-Spectrum Beta-Lactamase

Prevalence of different microorganisms in CSF cultures and their susceptibility pattern in Children's Medical Center hospital during 2009-2014, Tehran, Iran

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Background: Bacterial meningitis is associated with high mortality rate. So, it is important to define antimicrobial sensitivity of the causative microorganism for proper treatment. This study has designed to recognize organisms' types in CSF cultures in a tertiary children's hospital to determine the prevalence of different microorganisms and their antimicrobial sensitivity to detect antibiotics suitable for empirical treatment.

Methods: The data of CSF cultures from March 2009 till March 2014 were collected from hospital laboratory. All positive CSF cultures have been included except repeated ones with the same organisms and antibiogram. The antimicrobial sensitivity testing was performed on Muller-Hinton agar by the Kirby-Bauer disk diffusion method and if it was necessary, by determining MIC level using E-test method according to CLSI instruction.

Findings: 189 specimens were positive among 5578 CSF cultures received during this period. Most frequent organisms were enteric gram negative bacilli (21.9%), coagulase negative staphylococci (21.9%), pseudomonas spp (10.6%), acenitobacter spp (10.1%), staph aureus (9%), streptococcus pneumonia (5.3%), other streptococcal spp (5.3%), haemophilus spp (4.8%), enterococcus (4.8%), candida spp (2.6%), micrococci (1.0%), salmonella spp (0.5%), neisseria meningitides (0.5%) and diphteria spp (0.5%). Near half of enteric gram negative bacilli were resistant to all cephalosporins. This rate was less among Aminoglycosides. Among Staph aureus and pseudomonas which are main causes for nosocomial infections,

resistancy to Imipenem and Tazobactam-Piperacillin have been reported frequently.

Conclusion: Our data shows that most of the organisms are resistant to first line medications and it is necessary to review our antibiotic administration protocols occasionally in order to treat bacterial meningitis and to avoid resistance spreading in surgical and ICU wards.

Keywords: CSF Culture, Antimicrobial Susceptibility, Bacterial Meningitis, Nosocomial Infection

Latest situation of new vaccine introduction in Iran, EMRO and in the World

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Immunization prevents illness, disability and death from vaccine-preventable diseases and averts an estimated 2 to 3 million deaths every year from diphtheria, tetanus, pertussis and measles. World health organization recommend that every child in the world should receive at least 11 antigen in their routine immunization which includes BCG, DTP, Measles, polio, hepatitis B, Hib, Pneumococcus, Rota and rubella. According to WHO annual report only 5% of children in the world receives base vaccination. During 2013, about 84% (112 million) of infants worldwide received 3 doses of DTP3 vaccine. Hib vaccine had been introduced in 189 countries by the end of 2013. Global coverage with 3 doses of Hib vaccine is estimated at 52%. Hepatitis B vaccine for infants had been introduced nationwide in 183 countries by the end of 2013. Global coverage with 3 doses of hepatitis B vaccine is estimated at 81%. Pneumococcal vaccine had been introduced in 103 countries by the end of 2013, and global coverage was estimated at 25%. Polio is a highly infectious viral disease that can cause irreversible paralysis. In 2013, 84% of infants around the world received 3 doses of polio vaccine. Targeted for global eradication, polio has been stopped in all countries except Afghanistan, Nigeria and Pakistan. Rotavirus vaccine was introduced in 52 countries by the end of 2013, and global coverage was estimated at 14%. Although there are enough data on vaccine preventable disease burden and cost benefit for new vaccine introduction, it is necessary to move forward and change our routine vaccination program and introduce Hib, Rota and pneumococcal vaccine as soon as possible in our national immunization schedule. It is due to lunch Hib vaccine before the end of this year.

Keywords: Immunization, Vaccination, New Vaccine