

D Nikčević, D Terzić, B Dupanović, B Andrić. *Clinic for Infectious Diseases, Clinical Center of Montenegro, Podgorica, Montenegro*

Background and Aims One third of the world population has been infected by the hepatitis B virus (HBV), causing an enormous worldwide burden of chronic hepatitis, cirrhosis and hepatocellular carcinoma. We make revue of clinical characteristics of acute hepatitis B infection in children in Montenegro.

Methods 180 children suffering from acute virus hepatitis were examined on Clinic for infectious diseases in Podgorica during the period 2006–2012. We used epidemiological and clinical data and blood tests for hepatitis viruses, Epstein-Barr virus, CMV and adenoviruses. Research sample is consisted of 18 children, which are old from 7–15 years with clinical, laboratory and virology verification of acute hepatitis B.

Results Epidemiological data have indicated the infection trough blood or blood products in 14 children and in 4 the way of infection remained unknown. HBsAg and antiHBc IgM were positive, values of alanine aminotransferase were elevated and PCR HBV DNK was higher than 200000 U/l in all children. The most frequent symptoms were the loss of appetite (88%) and fatigue (70%). Fever was registered in 30% of children, while the diarrhea is reported in 25%, hepatomegaly in 86%, enlarged spleen in 20% and icterus in 60% of cases. Patients without symptoms were present in 12% of cases. Three children after a follow-up longer than one year developed chronic infection.

Conclusions Even though immunisation for hepatitis B virus is mandatory since 2002 in Montenegro, the acute hepatitis B isn't rare infection. Children are at the greatest risk for developing potentially fatal complications of the infection.

939 EPIDEMIOLOGIC STUDY ON PATHOGENIC BACTERIA CAUSING DIARRHEA IN CHILDREN AND DETECTION OF ANTIBIOTICS RESISTANCE PATTERNS IN HAMADAN, WEST OF IRAN

doi:10.1136/archdischild-2012-302724.0939

¹R Yousefimashouf, ²F Eghbalian, ³M Koshki. ¹Department of Microbiology; ²Dept. of Pediatrics; ³Hamadan University of Medical Sciences, Hamadan, Iran

Background and Aim Bacterial diarrhea is very common in particular in developing countries and is still one of the most causes of mortalities in children. The aim of present study was to identify the most common of bacterial agents causing acute bacterial diarrhea in children under 14 years old and detection of their resistance to antibiotics.

Methods During two years, 610 samples obtained from children under 14 years old with gastroenteritis were investigated for bacterial cultures, frequency of age, serogrouping of isolates and antibiogram patterns. Polyvalent (I, II, III, IV) and monovalent antisera were used for serogrouping of *E. coli* (EPEC). Antibiogram tests were also performed by gel-diffusion method of Kirby-Bauer. The data were gathered through a questionnaire and analysed using spss software.

Results Out of 610 tested samples, 155 cases (25.4%) had positive culture for intestinal pathogenic bacilli. The most common isolate was; *Escherichia coli* (EPEC) with 105 cases (67.8%) and the lowest isolate was *Shigella* with 18 cases (11.6%). The most common serogroup of *E. coli* was 0128 (26.6%) and the lowest serogroup was 0119 (5.7%). The most common serogroups of *Salmonella* were *S. typhi* (34.4%) and *S. typhimurium*. The most common serogroup of *Shigella* was *S. sonnei* (55.6%). The most effective antibiotics against bacteria were ceftriaxone, nitrofurantoin, imipenem, amikacin and gentamycin.

Conclusions The present study showed that *Escherichia coli* (EPEC) and *Salmonella species* are predominant causes of bacterial diarrhea in children under 14 years old in this region. Most species showed

high resistance to routine antibiotics such as ampicillin, trimethoprim and chloramphenicol.

940 CLINICAL SPECTRUM OF RESPIRATORY TRACT INFECTIONS: A STUDY AMONG CHILDREN IN AJMAN, UAE

doi:10.1136/archdischild-2012-302724.0940

¹M Hassan, ²LJ John, ³M Hassan. ¹Pharmaceutics; ²Pharmacology, Gulf Medical University; ³Pediatrics, Gulf Medical College Hospital, Ajman, United Arab Emirates

Background and Aims Respiratory tract infection (RTI) among children is one of the most common reasons for physician visits and hospitalization and associated with significant morbidity. It is a leading cause of sickness among school children and parental absenteeism from work. Accordingly, this study was conducted to evaluate the spectrum of the respiratory tract infections among the children attending the outpatient department (OPD) of pediatrics in GMC Hospital, Ajman.

Methods A cross-sectional study was conducted from the medical records of pediatric patients (aged 0–12 years) diagnosed with RTIs during January 2011 at GMC Hospital, Ajman. The demographic data and the clinical diagnosis were analyzed (descriptive statistics) using SPSS version 19.

Results A total of 2416 patients attended the OPD of pediatrics during the study period of which RTI accounted for 20.2% (n=488). 55.5% (n=271) were males and 44.5 (n=217) were females. Majority of the patients were Egyptians followed by Emiratis and Indians. Forty six percent of the patients (225) were between 1–5 years of age. The four most commonly diagnosed RTIs were unspecified upper respiratory tract infections (URTI) (20.3%), common cold combined with bronchitis (17.8%), tonsillitis (8.8%), followed by bronchitis (8%) in rank order. URTI was most commonly presented by children of 1–5 years (50.5%), while common cold combined with bronchitis was frequent among those below 1 year (47.1%).

Conclusions Comparable to previous reports upper respiratory tract infections were the most common RTI among this population and children of 1–5 years were most vulnerable to RTI.

941 AUTONOMIC DYSFUNCTION IN INFANTS WITH RSV INFECTION

doi:10.1136/archdischild-2012-302724.0941

¹C Liebrand, ¹M Bouwman, ¹I Ahout, ³M Kox, ¹C Neeleman. ¹Pediatric ICU; ²Department of infectious diseases; ³ICU research department, UMCN St Radboud, Nijmegen, The Netherlands

Background Apnea can be a presenting symptom in respiratory Syncytial Virus (RSV) infection. The incidence of apnea in RSV infected infants varies between 16 and 25% with a particularly high risk associated with young age (< 3 mo) and prematurity. Apnea is frequently observed in early RSV infection when symptoms are still confined to the upper airways, suggesting inflammatory response induced autonomic dysfunction.

Objective The aim of the study is to assess autonomic dysfunction as indexed by Heart Rate Variability (HRV) in severe RSV infection. The secondary parameter is to analyze the effect of other viral pathogens on autonomic function in infants with LRTI requiring mechanical ventilation.

Methods Prospective observational study in a tertiary PICU in infants with viral LRTI requiring mechanical ventilation. Controls were age matched infants without signs of infection. Autonomic function was assessed via HRV, monitoring low frequency (LF) and high frequency (HF) indices of short time recordings (5 min).

Results In 7 patients and 13 controls 36 recording were analyzed. Total HRV, LF and LF/HF ratios were significant lower in RSV patients versus controls ($p < 0.0045$, $p < 0.0002$ and $p < 0.0001$ respectively). In ventilated infants with LRTI caused by other respiratory

viruses no significant differences in HRV versus controls were observed. These data indicate RSV related reduced sympathetic activity.

Conclusion RSV infection in infants is associated with autonomic dysfunction of central origin. This may be correlated with an increased risk for serious apnea or ALTE, for which prolonged cardio respiratory monitoring is indicated.

942 ACUTE RESPIRATORY TRACT INFECTIONS IN PRESCHOOL POPULATION OF GEORGIA

doi:10.1136/archdischild-2012-302724.0942

M Kherkheulidze, N Kavlashvili, I Chkhaidze, E Kandelaki, N Adamia. *Pediatrics, State Medical University, Tbilisi, Georgia*

Aim and methods: To assess the frequency of ARI in preschool children population, identification of risk factors and main principles of treatment. The cross sectional study was conducted using the special questionnaires for parents of 3–6 years children and in all regions of Georgia. At all 1448 parents and caregivers were interviewed.

Results 2.3% of children have 7–8 episodes of ARI per year, 19.9% have 3–5, 53.4% 1–2 episodes per year and in 24.2% ARI are very rare. The incidence of ARI is higher in urban population, then in rural area and in mountain regions ($p < 0.001$). The main symptoms for admission to health care facilities were cough (82, 8%) and fever (75, 9%). Study revealed the risk factors for ARI: male sex, living in urban area, attendance of day care centers, exposure to passive smoking, big number of family members significantly increase risk of ARI. There was no correlation between the type of feeding in infancy and frequency of ARI infection in 3–6 years old children. In 47% of ARI cases antibiotics were used from those in 32 # parents started antibiotics by self.

Conclusion Male sexes, urban regions, attendance of day care center, passive smoking are the significant risk factors for development of ARI in children aged 3–6 years. Primary health care providers still prescribe unnecessary and excessive antibiotics. The incidence of ARI may be reduced substantially through public health measures.

943 THE STUDY OF ANTIMICROBIAL RESISTANCE AMONG SHIGELLA FLEXNERI STRAINS ISOLATED OF CHILDREN IN TEHRAN, IRAN

doi:10.1136/archdischild-2012-302724.0943

¹Z Rajabi, ²MM Soltan Dallal, ³MR Pourshafie, ⁴R Ranjbar, ⁵S Heidarzadeh. ¹Pathobiology, School of Public Health, Tehran University of Medical Sciences; ²Pathobiology, School of Public Health, Antibiotic Resistant Research Center, Tehran University of Medical Sciences; ³Microbiology, Institute Pasteure of Iran; ⁴Molecular Biology Research Center, Baqiyatallah University of Medical Sciences; ⁵Pathobiology, School of Paramedical Sciences, Tehran University of Medical Sciences, Tehran, Iran

Background and Aims Shigellosis is one of the major causes of morbidity in children with diarrhea in Iran. The aim of this study was to investigate antimicrobial resistance of *S. flexneri* strains isolated from clinically diagnosed cases of gastroenteritis and acute diarrhea in Tehran, Iran.

Methods *Shigella* strains were isolated from stool samples of children patients who visited the several major hospitals in Tehran. *S. flexneri* was preliminarily identified by biochemical tests as well as by API20E. Antimicrobial resistance testing was performed according to the standard guidelines of the Clinical and Laboratory Standards Institute.

Results All strains were resistant to streptomycin. More than 97% of the strains were resistant to tetracycline, 89% to co-trimoxazole, 80% to amoxicillin, 33.5% to ampicillin, 14% to chloramphenicol, 8% to kanamycin, 5% to nalidixic acid, 1.5% to cefixime and 0.5% to amikacin and furazolidone. None of the tested isolate was resistant

to ceftriaxone, ceftizoxime, ceftazidime, gentamicin, ciprofloxacin, cephalothin, cefotaxime, cephalaxine and nitrofurantoin.

Conclusions This study indicates the increase in incidence of multiple drug resistance among the strains of *S. flexneri* isolated in Tehran, Iran.

944 PRECEDING HUMAN METAPNEUMOVIRUS INFECTION INCREASES ADHERENCE OF STREPTOCOCCUS PNEUMONIAE AND SEVERITY OF MURINE PNEUMOCOCCAL PNEUMONIA

doi:10.1136/archdischild-2012-302724.0944

SH Lai, SL Liao, KS Wong, TY Lin. *Pediatrics, Chang Gung Memorial Hospital, Taoyuan, Taiwan R.O.C.*

Co-infections with respiratory virus and *Streptococcus pneumoniae* have been frequently reported in epidemiologic studies. Here, we explore how inoculating A549 and Hep-2 cell monolayers with human metapneumovirus (hMPV) affected subsequent in vitro infections with pneumococcus serotypes 3 and 14. The different serotypes had variable adherence, but the A549 cells with a preceding hMPV infection had significantly enhanced bacterial adherence. Also, BALB/c mice infected with hMPV had increased adhesion of pneumococcus to the bronchial epithelium. The lungs of mice with a preceding hMPV inoculation had delayed bacterial clearance and exacerbated histopathology after they were infected with *Streptococcus pneumoniae*. Additionally, the mice with a preceding hMPV infection had inhibited recruitment of airway neutrophil and decreased expression of neutrophil chemoattractants. Our results suggest that

1. airways infected with hMPV, especially lower airway epithelium, allow increased adherence of *Streptococcus pneumoniae* and
2. hMPV-infected mice have impaired recruitment of airway neutrophils that may cause delayed bacterial clearance and exacerbated pulmonary inflammation.

945 CHANGES OF INTESTINAL SECRETORY IMMUNOGLOBULIN A IN CHILDREN WITH ROTAVIRUS INFECTION

doi:10.1136/archdischild-2012-302724.0945

I Nezgoda, O Bodnariuk. *Infectious Diseases in Children, Vinnitsa National Medical M.I. Pirogov Memorial University, Vinnytsya, Ukraine*

The Aim of this study was to evaluate the level of intestinal sIgA in children with rotavirus infection (RVI) depending on disease severity.

Methods Between November 2009 and February 2011, stool specimens from 85 children less than 4 years of age suffering from RVI were tested for intestinal sIgA by ELISA. 75.6% of patients were with moderate severity of disease and 23.5% - with severe course. 66 healthy children were studied as controls.

Results intestinal sIgA in patients on the 1st–2nd day of RVI was $22.6 \pm 1.05 \text{ mg/l}$ and significantly different ($p < 0.01$) from the level of healthy children $31.8 \pm 1.35 \text{ mg/l}$. The following dependence from disease severity was detected: intestinal sIgA in severe case $16.7 \pm 1.6 \text{ mg/l}$ which was significantly less ($p < 0.001$) than in patients with moderate severity $24.36 \pm 1.21 \text{ mg/l}$. Intestinal sIgA increased up to $32.74 \pm 1.53 \text{ mg/l}$ in patients with moderate severity on the 5th–6th day of disease and to $22.9 \pm 1.85 \text{ mg/l}$ in patients with severe case which were significantly different ($p < 0.05$).

Conclusions The level of intestinal sIgA on the 1st–2nd day of disease was less than the level of healthy children. Severe course of disease is usually present in case of low concentration of sIgA. The level of sIgA in patients with moderate severity of RVI increases up to the level of healthy children on the 5th–6th day of disease and it is significantly higher than the level of sIgA in patients with severe