

Katerina Haidopoulou<sup>a</sup>, Maria Eboriadou<sup>b</sup>, Stratos Saliakelis<sup>a</sup>, Myrofora Goutaki<sup>a</sup>, Lambrini Damianidou<sup>b</sup>, Vassiliki Pavlidou<sup>c</sup>, Anna Papa<sup>c</sup>

<sup>a</sup>Fourth Department of Pediatrics, Papageorgiou Hospital, Thessaloniki, Greece; <sup>b</sup>Second Department of Pediatrics, AHEPA Hospital, Thessaloniki, Greece; <sup>c</sup>A' Department of Microbiology, School of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

**INTRODUCTION:** Human bocavirus (family *Parvoviridae*) was recently identified in children with respiratory tract infection (RTI), first in Sweden, and subsequently in different parts of the world.

**OBJECTIVE:** The aim of our study was to gain insight into the epidemiology of bocavirus in children with RTI in Greece.

**METHODS:** One hundred ten throat-swab samples were collected during the autumn and winter months of 2006–2007 from previously healthy children (aged 1 month to 13 years) who were hospitalized for RTI. DNA was extracted from the samples, and polymerase chain reaction was performed to amplify the *NS1* gene of the bocavirus genome. Polymerase chain reaction products were sequenced and compared with respective bocavirus sequences.

**RESULTS:** Bocavirus DNA was detected in 10 samples (9%). Comparison with previously identified bocavirus sequences showed a high degree of identity. Mean age of the children was 1.8 years (range: 2 months to 4 years). The most common symptoms were fever, cough, and various degrees of respiratory distress. A majority of the children (9 of 10) were clinically diagnosed as having lower RTI, mainly acute bronchiolitis and pneumonia.

**CONCLUSIONS:** This is the first report of human bocavirus infection in Greece, which suggests that the virus is spread worldwide, and it is associated with RTI in infants and young children.

## GENETIC CHARACTERIZATION OF THE F PROTEIN OF RESPIRATORY SYNCYTIAL VIRUS STRAINS ISOLATED IN THE BEIJING, CHINA, AREA

Submitted by Qi Lu

Qi Lu<sup>a</sup>, Kunling Shen<sup>b</sup>, Wenbo Xu<sup>c</sup>, Yang Zhang<sup>c</sup>, Zhen Zhu<sup>c</sup>

<sup>a</sup>Children's Hospital, Chongqing University of Medical Sciences, Chongqing, China; <sup>b</sup>Beijing Children's Hospital, Beijing, China; <sup>c</sup>China Center for Disease Control and Prevention, Beijing, China

**INTRODUCTION:** Respiratory syncytial virus (RSV) is the most common viral pathogen for lower respiratory tract infection among young children. However, pathogenic mechanisms and molecular characteristics of RSV are still not completely understood, so the development

of an effective vaccine has been hindered. F protein has been shown to be a potential RSV subunit vaccine candidate, so the study on genetic characteristics of F protein may be important for further investigation.

**OBJECTIVE:** Our goal was to determine the genetic characteristics of the F protein.

**METHODS:** Seventy-six strains of human RSV were isolated from 2001 to 2004 in Beijing, China, of which 6 representative strains were chosen.

**RESULTS:** Among the 6 Beijing isolates, 4 belonged to subgroup A. The F gene of the isolates shared 97.0% to 97.4% nucleotide sequence identity and 92.1% to 93.0% amino acid sequence identity. They were highly homologous with GenBank Nos. AY198175, AY198176, and AY198177 (China Hebei). The other 2 isolates belonged to subgroup B, and 97.3% and 98.2% sequence identity was seen at nucleotide and amino acid levels, respectively. The nucleotide sequences of subgroup B showed the highest identities with GenBank Nos. NC001781 and AF013254. Phylogenetic analysis of nucleotide sequences revealed that those 4 within group A were monophyletic and closely related to each other, but those 2 within group B were distributed in 2 distinct clusters. AA200-225 and AA259-278 on the F gene are conservative between subgroups A and B.

**CONCLUSIONS:** Subgroup A and B strains cocirculated, which indicates that there were different transmission chains in Beijing from 2001 to 2004. AA200-225 and AA259-278 are potential segments to develop an effective vaccine in Beijing or even in China.

## SEROEPIDEMIOLOGY OF HEPATITIS A IN GREEK CHILDREN

Submitted by Vassiliki Papaevangelou

Amalia Kyrka<sup>a</sup>, Athanassios Tragiannidis<sup>b</sup>, Katerina Pantelaki<sup>c</sup>, Andreas Tzivaras<sup>c</sup>, Fotini Athanasiadou<sup>b</sup>, Andreas Konstantopoulos<sup>a</sup>, Vassiliki Papaevangelou<sup>a</sup>  
<sup>a</sup>Second Department of Pediatrics, Panagiotis and Aglaia Kyriakou Children's Hospital, University of Athens, Athens, Greece; <sup>b</sup>Second Department of Pediatrics, Aristoteles University of Salonica, AHEPA General Hospital, Thessaloniki, Greece; <sup>c</sup>Blood Bank Laboratory, Agia Sophia Children's Hospital, Athens, Greece

**INTRODUCTION:** Hepatitis A is a vaccine-preventable disease with epidemiology that has changed over the past decades. In Greece, the vaccine has been available and recommended, but no universal mass vaccination has been implemented as yet.

**OBJECTIVE:** We sought to study the seroepidemiology of hepatitis A in Greek children.

**METHODS:** The seroepidemiology of hepatitis A in children 0 to 14 years of age living in Greece was studied. We collected 100 sera per year of age, stratified by geographic region. Demographic data and documented

hepatitis A vaccine history was entered into a specially designed anonymous database. Sera were tested for the presence of anti-hepatitis A virus immunoglobulin G antibodies (AxSYM, Abbott Laboratories, Hellas, Greece).

**RESULTS:** Data from 948 children analyzed revealed that 40.7% of the children had received at least 1 dose of hepatitis A vaccine. To date we have examined 498 sera. Among fully vaccinated children who had received at least 2 doses of vaccine, 91.2% were immune. The overall prevalence of anti-hepatitis A virus antibodies in unvaccinated children was 15.4%. In unvaccinated children >12 months of age, the rate of natural immunity was 11.7% (33 of 282). Interestingly, neither age nor ethnicity were associated with higher rates of natural infection. Among unvaccinated infants, the rate of passively maternal antibodies was surprisingly high (15 of 30 [50%]), mainly because of children from immigrant or Gypsy families, reflecting maternal natural infection.

**CONCLUSIONS:** The implementation of universal vaccination against hepatitis A in Greece should be discussed because, according to our results, 11.7% of unvaccinated children have serologic evidence of past natural infection.

### **SOCIAL FACTORS ASSOCIATED WITH CHILD ABUSE AND NEGLECT IN GUADALAJARA, MEXICO**

**Submitted by Maria Guadalupe Vega-Lopez**

Maria Guadalupe Vega-Lopez, Guillermo J. Gonzalez-Perez, MPH Ana Valle, Maria E Flores, Samuel Romero-Valle, Ing Pedro P. Quintero  
*University of Guadalajara, Guadalajara, Mexico*

**INTRODUCTION:** Cases of child abuse and neglect have increased in Mexico, but few studies have been carried out to examine the factors associated with this health problem.

**OBJECTIVE:** With this study we sought to identify social factors associated with child abuse and neglect and to construct a predictor model of child maltreatment in children younger than 7 years in Guadalajara, Mexico.

**METHODS:** A case-control study was designed; cases were selected randomly from the register of maltreated children younger than 7 years by the DIF (the public institution that provides assistance to families in Mexico) during 2002 ( $N = 205$ ). Controls were chosen randomly from the register of children assisted in other DIF programs in 2002 ( $N = 379$ ). A multivariate logistic regression model was used to estimate odds ratios (ORs) with 95% confidence intervals (CIs).

**RESULTS:** In the multivariate analysis, 6 factors were statistically associated with child maltreatment: maternal drug addiction (OR: 15.3 [95% CI: 1.8–127.6]), mother without steady partner (OR: 3.0 [95% CI: 1.9–4.6]), bad family relationships (OR: 1.3 [95% CI: 1.1–4.2]), the

child has “tantrums” (OR: 1.8 [95% CI: 1.2–2.8]), the child’s behavior irritates the parents (OR: 1.5 [95% CI: 1.1–2.1]), and overcrowding (OR: 1.5 [95% CI: 1.1–2.2]).

**CONCLUSIONS:** According to the constructed model, if a child were simultaneously exposed to all these risk factors, he or she would have a very high probability of being a maltreated child. The findings show that public health institutions can play an important role in designing timely intervention strategies directed at avoiding or reducing the cases of child abuse and neglect.

## **Gastroenterology, Hepatology, and Nutrition**

### **EFFECT OF COBALAMIN SUPPLEMENTATION IN INFANTS: A RANDOMIZED, CONTROLLED TRIAL**

**Submitted by Anne-Lise Björke Monsen**

Anne-Lise Björke Monsen<sup>a,b</sup>, Ingrid Torsvik<sup>c</sup>, Hege Sžtran<sup>a</sup>, Trond Markestad<sup>c</sup>, Per Magne Ueland<sup>b</sup>

*Departments of <sup>a</sup>Clinical Biochemistry and <sup>c</sup>Pediatrics, Haukeland University Hospital, Bergen, Norway; <sup>b</sup>LOCUS for Homocysteine and Related Vitamins, University of Bergen, Bergen, Norway*

**INTRODUCTION:** A metabolic profile that suggests impaired cobalamin status is prevalent in breastfed infants. Whether this profile reflects immature organ systems or cobalamin deficiency has not been clarified.

**OBJECTIVE:** Our goal was to study serum cobalamin levels in breastfed infants.

**METHODS:** This study included 107 apparently healthy infants who at the age of 6 weeks were randomly assigned to receive either an intramuscular injection with 400  $\mu\text{g}$  of cobalamin or no intervention. Concentrations of cobalamin and folate in serum and total homocysteine (tHcy), methylmalonic acid (MMA), and cystathionine in plasma were determined at inclusion and at the age of 4 months.

**RESULTS:** There was no significant difference in the concentrations of any vitamin marker between those in the intervention ( $n = 54$ ) and control ( $n = 53$ ) groups at 6 weeks ( $P = .20-.78$ ). At the age of 4 months, infants who were given cobalamin had 75% higher serum cobalamin levels than those of controls. The intervention was associated with a remarkable reduction in median plasma tHcy (from 7.46 to 4.57  $\mu\text{mol/L}$ ) and MMA (from 0.58 to 0.20  $\mu\text{mol/L}$ ) ( $P < .001$ ) levels, whereas both metabolite levels were essentially unchanged during follow-up in the control-group infants.

**CONCLUSIONS:** Cobalamin supplementation of infants changed all markers of impaired cobalamin status (low cobalamin, high MMA and tHcy, and slightly ele-

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