

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**

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**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**

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**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-

vated folate concentrations) toward a profile observed in cobalamin-replete older children and adults. Thus, high MMA and tHcy levels, reported for a large fraction of infants, do not reflect immature metabolism but, rather, insufficient cobalamin to fully sustain cobalamin-dependent reactions. Clinicians and researchers should address the possible developmental and clinical consequences of metabolic evidence of cobalamin deficiency in infants.

### **CENTRAL OBESITY IS THE MAJOR RISK FACTOR FOR FAILURE OF OBESITY MANAGEMENT DURING CONSOLIDATION PHASE IN CHILDREN**

**Submitted by Adel El Tajuri**

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**INTRODUCTION:** A proportion of obese children who are treated with a multidisciplinary approach with behavior modification and parental involvement show no response to the consolidation phase of treatment.

**OBJECTIVE:** Our goal was to identify possible risk factors that led to failure of obesity management in children who were attending an equipped, busy, specialized outpatient clinic.

**METHODS:** We performed a case-control study in which cases were those whose conditions failed to respond to current multidisciplinary management as judged by no decrease in BMI *z* score. Controls were those who responded to treatment (lower subsequent BMI *z* scores).

**RESULTS:** Of the 519 children, 416 (80.2%) had BMI *z* scores of >3. Management was successful in 85% of the patients. In bivariate analysis, risk factors were age of <4 years (odds ratio [OR]: 4.00 [95% confidence interval (CI): 1.08–14.70]), previous obesity management (OR: 2.18 [95% CI: 1.10–4.32]), triglyceridemia (OR: 2.01 [95% CI: 1.10–3.65]), and higher abdominal fat content as measured directly by dual-energy radiograph absorptiometry (OR: 1.09 [95% CI: 1.00–1.19]) or relative to thigh (waist/hip index) (OR: 2.67 [95% CI: 1.13–6.72]). Duration of obesity, the initial BMI *z* score, and gender were not predictive of treatment failure. In multivariate analysis, central obesity was the single-most important factor. In more hierarchical conceptual framework, factors retained were maternal obesity (OR: 2.44 [95% CI: 1.22–4.86]), previous management of obesity (OR: 2.21 [95% CI: 1.11–4.37]), and waist/hip index (OR: 3.35 [95% CI: 1.18–9.49]).

**CONCLUSIONS:** We propose a model in which centrally obese children with obese mothers who have high triglyceride levels are more likely to show resistance to reversal of the pathologic process of excess fat accumulation. Central obesity is a well known correlate of increased morbidity.

### **NUTRITIONAL STATUS IN CYSTIC FIBROSIS**

**Submitted by Maria Fotoulaki**

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**OBJECTIVE:** We aimed to investigate the nutritional status of patients with cystic fibrosis (CF) in relation to their clinical manifestations.

**METHODS:** In 68 patients with CF (aged 2–38 years), body weight, height, and composition (bioelectrical impedance analysis), respiratory function, *Pseudomonas* colonization, pancreatic function, CF-related diabetes mellitus (CF-DM), and genotype were measured.

**RESULTS:** BMI was <5th percentile in 12 patients (18%), between the 5th and 10th percentiles in 6 (7%), between the 10th and 85th percentiles in 41 (60%), between the 85th and 95th percentiles (overweight) in 4 (6%), and >95th percentile (obese) in 5 (7%). Among 18 patients with a BMI at <10th percentile, 18 (100%) had pancreatic insufficiency, 16 (89%) had *Pseudomonas*, and 7 (38%) had CF-DM. Among 41 patients with a BMI in the 10th to 85th percentile, 37 (90%) had pancreatic insufficiency, 28 (82%) had *Pseudomonas*, and 9 (22%) had CF-DM. Among 9 patients with a BMI at >85th percentile, 3 (33%) had pancreatic insufficiency, 1 (11%) had *Pseudomonas*, and none had CF-DM. Forced expiratory volume in 1 second was significantly better among overweight patients than among patients with a low or normal BMI ( $P < .05$ ). In addition, forced expiratory volume in 1 second correlated with BMI ( $P = .014$ ), age ( $P = .029$ ), and percent free fat mass ( $P = .039$ ). Overweight/obese patients were homozygotes for mild mutations.

**CONCLUSIONS:** Most patients with CF had an optimal nutritional status. A small percentage were overweight or obese, especially those with pancreatic sufficiency and carriers of mild mutations. These patients had mild-to-moderate lung disease and were less likely to be colonized with *Pseudomonas* or have liver disease.

### **TRANSMISSION OF HELICOBACTER PYLORI INFECTION IN MOTHER-INFANT PAIRS**

**Submitted by Selda Fatma Hizel Bulbul**

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