

difference between Hp<sup>+</sup> and Hp<sup>-</sup> index children concerning demographic factors except age, which was higher in Hp<sup>+</sup> index children ( $P = .009$ ). In all Hp<sup>+</sup> index children (100%) and in 71.4% of Hp<sup>-</sup> children, at least 1 more family member was infected ( $P < .001$ ); in all cases (100%) at least 1 parent in the group of Hp<sup>+</sup> index children, compared with 69.6% in Hp<sup>-</sup> index children ( $P < .001$ ), was infected. The rate of infected siblings of the Hp<sup>+</sup> index children was 43.2%, and that in the Hp<sup>-</sup> group was 3.6% ( $P < .001$ ). There were more infected mothers in the Hp<sup>+</sup> index children group (83.7% vs 50% in the Hp<sup>-</sup> group;  $P = .001$ ) and more infected fathers (76.7% vs 56.4%, respectively;  $P = .035$ ).

**CONCLUSIONS:** The identification of at least 1 more infected member in each family of Hp<sup>+</sup> index patients, including a parent in all cases, strongly indicates family as the main source of infection for children and confirms the hypothesis of intrafamilial spread of Hp.

## THERAPEUTIC EFFECT OF A MAGNESIUM-ENRICHED FORMULA ON INFANTS WITH CONSTIPATION

Submitted by Yvan Vandenplas

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**INTRODUCTION:** Infant constipation is a frequent condition in formula-fed infants.

**OBJECTIVE:** Our goal was to study the effectiveness of magnesium-enriched formula in relieving constipation in infants.

**METHODS:** A prospective randomized, clinical trial was performed with infants with constipation fed with a magnesium-enriched formula, Novalac-IT (IT group) in comparison with 20% strengthened formula (S group). Enrolled subjects had difficulties with defecating, hard stools, or low frequency of defecation ( $\leq 4$  times per week).

**RESULTS:** Ninety-three infants (47 boys; mean age:  $3.8 \pm 1.7$  months) were included because of hard consistence of (50.5%), low frequency of (44.1%), and painful (33.3%) defecation. Statistically significant improvement was observed after 4 and 8 weeks of intervention in the IT group ( $P = .014$  and  $P < .001$ , respectively). In the IT group, significantly more infants were symptom free at 4 weeks (82.9% vs 50%;  $P = .029$ ) and 8 weeks (89.1% vs 54.1%;  $P < .001$ ). Increase of stool weight was significant in the infants in the IT group after 4 and 8 weeks ( $P = .048$  and  $.029$ , respectively).

**CONCLUSIONS:** A magnesium-enriched formula improves constipation in formula-fed infants.

## DOUBLE-BLIND TRIAL OF FORMULA IN DISTRESSED AND REGURGITATING INFANTS

Submitted by Yvan Vandenplas

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**INTRODUCTION:** Many parents seek medical help because of frequent regurgitation and inconsolable crying of their formula-fed infant.

**OBJECTIVE:** We aimed to assess the effectiveness of special formulas in distressed and regurgitating infants.

**METHODS:** We included 12 consecutive infants in a prospective, randomized, single-blinded (parents), cross-over trial (6 infants were started on G1 [80/20 casein/whey, tapioca starch, and locust bean] for 2 weeks and then switched for 2 weeks to G3 [partial whey hydrolysate, tapioca starch, and locust bean]; for the other 6 infants, the order of the formulas was opposite). Infants were exclusively formula fed, were crying for  $>3$  hours/day for at least 3 weeks, and regurgitated several times after each feeding. Before inclusion, all of them had been given  $\geq 3$  different commercialized AR formulae, formulae for digestive comfort, and at least 1 extensive hydrolysate without success. All infants had been treated without success with a prokinetic agent (domperidone/cisapride) and an acid-blocking drug (H<sub>2</sub>-receptor agonist/proton-pump inhibitor).

**RESULTS:** Gastric emptying time, as evaluated with a <sup>13</sup>C acetate breath test, was  $117.1 \pm 18.3$  minutes with Novalac-AR (80/20 casein/whey and corn starch),  $104.5 \pm 15.5$  minutes with G1, and  $79.2 \pm 14.0$  minutes with G3 ( $P < .001$  [Friedman test]). The mean number of regurgitations per day was  $5.1 \pm 1.2$  with G1 and  $1.8 \pm 1.2$  with G3 ( $P = .002$ ). Quality of life, as assessed by the parents in a diary, was  $4.20 \pm 1.79$  with G1 and  $2.10 \pm 0.74$  with G3 ( $P = .005$ ). The mean duration of crying per day was  $84.5 \pm 50.1$  minutes with G1 and  $26.7 \pm 18.1$  minutes with G3 ( $P = .003$ ).

**CONCLUSIONS:** The cross-over design protected for bias. G3 scored better than G1 for all parameters evaluated and decreased regurgitation and infant distress significantly.

## General Pediatrics

### PEDIATRICIANS' AWARENESS OF AND ATTITUDES ABOUT OTITIS MEDIA: RESULTS OF A MULTINATIONAL SURVEY

Submitted by Adirano Arguedas

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**INTRODUCTION:** Otitis media (OM) is a common problem in primary care and constitutes a significant health burden in <5-year-olds. Middle-ear effusion after acute OM is also a common problem that causes hearing loss in a substantial proportion of children and is a frequent reason why primary care providers refer children to specialists. However, there are limited non-US data on pediatricians' awareness and attitudes toward OM disease burden, complications, and causative pathogens.

**OBJECTIVE:** A multinational survey was undertaken to validate and measure primary care physicians' attitudes and behaviors toward OM.

**METHODS:** Two thousand pediatricians from 10 countries (4 European, 3 Asian, 2 Latin American, and 1 Middle Eastern) were interviewed. Questions focused on the number of children younger than 5 who were treated for OM in the previous year, perceptions about complications and sequelae, awareness of OM pathogens, and concerns about current disease-management practice.

**RESULTS:** Reported estimates of OM in <5-year-olds was 349 (range: 125–1000) cases per year per practice (ie, pediatricians treated at least 1 patient with OM per day). Eighty-two percent of the pediatricians reported that they treat OM with first-line antibiotics; they were generally satisfied but viewed antibiotic resistance as a serious issue. Nineteen percent of children were referred to an ear, nose, and throat specialist because of treatment failure, recurrent/chronic OM, or hearing problems or for surgery. Pediatricians associated OM with 2 main pathogens: *Streptococcus pneumoniae* (77%) and *Haemophilus influenzae* (73%). Association of nontypeable *H influenzae* was significantly lower (40%).

**CONCLUSIONS:** OM is frequently treated by pediatricians in daily practice. A majority of them seem to use antibiotics as first-line treatment. The most common reasons for specialist referrals include treatment failures, recurrent/chronic OM, hearing problems, and surgery. Hearing loss and antibiotic resistance are of concern. Nontypeable *H influenzae* is less well known as an otopathogen.

## **ASSESSMENT OF DIFFERENCES BETWEEN THE NEW WORLD HEALTH ORGANIZATION CHILD-GROWTH STANDARDS AND THE CENTERS FOR DISEASE CONTROL AND PREVENTION 2000 GROWTH CHARTS IN LATIN AMERICAN CHILDREN: WHICH REFERENCE SHOULD WE USE?**

**Submitted by Daniel Fuentes Lugo**

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**INTRODUCTION:** Evaluation of growth patterns significantly depends on the reference used. Last year the World Health Organization (WHO) released new standards for assessing child growth during the first 5 years of life.

**OBJECTIVE:** Our goal was to assess differences between the 2000 Centers for Disease Control and Prevention (CDC) growth charts and 2006 WHO growth standards.

**METHODS:** A longitudinal study was conducted on a sample of 300 healthy children (167 boys and 133 girls) from a pediatric outpatient clinic in Mexico City. Weight-for-age *z* score, length/height-for-age *z* score, and weight-for-length/height *z* score were obtained yearly from birth to age 5 and compared by using the 2000 CDC growth charts and 2006 WHO growth standards.

**RESULTS:** Significant statistical differences were found at all ages in both genders. Main differences were found in early-infancy weight-for-age *z* scores. The prevalence of girls who were undernourished at birth was 3 times higher with the CDC reference than with that of the WHO (13.53% vs 4.50%, respectively), but the opposite was found for boys (2.99% vs 9.58%, respectively). During the first 4 years of life, a higher prevalence of length/height-for-age *z* scores less than  $-2.0$  was found in both boys (10.77%) and girls (4.51%) when using WHO standards as opposed to the CDC charts. Furthermore, at the age of 5 years, obesity was significantly higher in girls according to WHO standards than in boys according to the CDC charts, although the CDC reference failed to detect a fast rate of weight gain in early infancy.

**CONCLUSIONS:** The new WHO standards are a better tool than the CDC charts for monitoring growth and detecting early overweight in Latin American children. Therefore, using this new international reference in daily clinical practice in our countries should be emphatically encouraged.

## **CHILDREN WITH PERSISTENT WHEEZING ASSOCIATED WITH HUMAN BOCAVIRUS INFECTION IN CHINA**

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**INTRODUCTION:** Human bocavirus (HBoV) is a newly identified human parvovirus that was originally

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