

## COMPARISON OF PEDIATRIC LOGISTIC ORGAN DYSFUNCTION (PELOD) SCORE AND PEDIATRIC RISK OF MORTALITY (PRISM) III AS A MORTALITY PREDICTOR IN PATIENTS WITH DENGUE SHOCK SYNDROME

Submitted by Henny R. Iskandar

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**INTRODUCTION:** The mortality rate for dengue shock syndrome (DSS) in the PICU at Children's and Maternity Harapan Kita Hospital is still high (13.2%).

**OBJECTIVE:** We evaluated performance of the Pediatric Logistic Organ Dysfunction (PELOD) score compared with the Pediatric Risk of Mortality III (PRISM III) for predicting mortality in our PICU.

**METHODS:** A total of 42 patients (48% boys, 52% girls) admitted to the PICU from January to December 2006 were enrolled onto the study. Diagnosis of DSS was made according to 1997 World Health Organization criteria and confirmed with serologic-positive dengue blot taken on the fifth day of fever (93% secondary infection and 7% primary infection). PELOD and PRISM scores were evaluated on the first day.

**RESULTS:** From 42 admissions, 1 was excluded for insufficient data. Median age of the children was 7 years. Death occurred in 11.9% of the patients with DSS. Analysis showed that the mean PELOD score was 7.2 (Mann-Whitney *U* test between survivors and nonsurvivors was significant at  $P = .001$ ) compared with the PRISM III (mean score was significant also at  $P = .008$ ). The receiver operating characteristic curves for the PELOD and PRISM III were 0.954 and 0.868, respectively.

**CONCLUSIONS:** PELOD and PRISM III scores showed a good discrimination for predicting mortality in patients with DSS in our PICU.

## MIDDLE-EAR FLUID STREPTOCOCCUS PNEUMONIAE SUSCEPTIBILITY AND SEROTYPE AND DISTRIBUTION IN MEXICAN CHILDREN WITH ACUTE OTITIS MEDIA

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**INTRODUCTION:** Acute otitis media (AOM) is the most common microbial respiratory tract infection in early childhood: *Streptococcus pneumoniae* is a common pathogen isolated from patients with AOM. The American Academy of Pediatrics advises immunization with a 7-valent pneumococcal conjugate vaccine for children with recurrent AOM.

**OBJECTIVE:** We aimed to establish the most common *S pneumoniae* serotypes present in the middle-ear fluid of Mexican children with AOM and to analyze antimicrobial susceptibility patterns and assess the potential protection provided by the new conjugated *S pneumoniae* vaccines.

**METHODS:** During 2002 and 2003, 72 *S Pneumoniae* isolates were obtained from 138 Mexican children with AOM. Serotyping distribution was performed by the quellung reaction with antisera from Statens Serum Institute (Copenhagen, Denmark). Tests for susceptibility were performed by using the agar-dilution method according to Clinical and Laboratory Standards Institute protocol for 18 antibiotics.

**RESULTS:** The most common *S pneumoniae* serotypes isolated were 6B and 19F (16.67% each) and 6A, 14, and 23F (15.27% each). The overall rate of resistance (defined as the rate of intermediate resistance plus the rate of resistance) for penicillin was 65.38% (intermediate and resistant categories were 29.17% and 36.11%, respectively), for cefotaxime was 19.45%, for azithromycin and erythromycin was 23.61%, for trimethoprim/sulfamethoxazole was 61.11%, for amoxicillin was 5.5%, and for clindamycin was 12.5%. With amoxicillin/clavulanate, ceftriaxone, imipenem, meropenem, teicoplanin, telithromycin, and vancomycin, we found susceptibility for 100% of the isolates. The most common resistant serotypes were 19F and 23F.

**CONCLUSIONS:** The serotype distribution of *S pneumoniae* that causes pediatric AOM in Mexico is similar to that reported from developed countries. The current heptavalent pneumococcal conjugate vaccine covers 63.89% of AOM episodes in Mexican children.

## ROLE OF THROMBOMODULIN IN DETECTION OF ENDOTHELIAL CELL DESTRUCTION AFTER INFECTION WITH FALCIPARUM AND TERTIAN MALARIA

Submitted by Max Mantik

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**INTRODUCTION:** Thrombomodulin is an endothelial cell receptor for thrombin. In tropical and tertian malaria, thrombomodulin is secreted after endothelial cell

destruction after infections with *Plasmodium falciparum* or *Plasmodium vivax*.

**OBJECTIVE:** Our goal was to investigate whether thrombomodulin levels can be used to detect the endothelial cell destruction after tropical or tertian malaria and whether thrombomodulin is related to the severity of tropical malaria.

**METHODS:** This was a cross-sectional observational analytical study conducted in 5 hospitals in north Sulawesi, Indonesia, from June to September 2006, in patients aged 2 to 13 years with tropical or tertian malaria. Thrombomodulin levels were determined with an enzyme-linked immunosorbent assay using a thrombomodulin kit (Fujirebio Diagnostics, Inc, Malvern, PA). Data were analyzed by independent *t* test and Spearman rank correlation coefficient.

**RESULTS:** For 30 patients with tropical malaria (thrombomodulin level: 0.060–0.180 FU/mL) and 2 patients with tertian malaria (thrombomodulin level: 0.068–0.075 FU/mL), there was a significant difference in *t*-test results between tropical and tertian malaria ( $P = .044$ ). For 11 patients with severe malaria (thrombomodulin level: 0.086–0.162 FU/mL), there was also a very significant difference in *t*-test results for complicated and uncomplicated tropical malaria ( $P = .009$ ). The Spearman rank test showed significant positive correlation between thrombomodulin and parasitemia levels ( $r_s = 0.686$ ;  $P = .001$ ).

**CONCLUSIONS:** Thrombomodulin levels can be used to detect endothelial cell destruction in malaria; the thrombomodulin level in tropical malaria was found to be higher than that of tertian malaria. Thrombomodulin levels were very significantly different in complicated and uncomplicated tropical malaria and also correlated significantly with the degree of parasitemia.

## ROTASCORE STUDY: EPIDEMIOLOGICAL OBSERVATIONAL STUDY OF ACUTE GASTROENTERITIS WITH OR WITHOUT ROTAVIRUS IN GREEK CHILDREN YOUNGER THAN 5 YEARS

Submitted by Vassiliki Papaevangelou

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**INTRODUCTION:** Pediatric rotavirus gastroenteritis (PRG) is the most frequent cause of severe acute gastroenteritis (AGE) in children up to 5 years of age worldwide.

**OBJECTIVE:** We sought to determine the proportion of PRG and compare its clinical burden to that of AGE caused by other pathogens.

**METHODS:** The study was conducted in 4 hospital emergency units (HEUs) and 50 private pediatric clinics between January and May 2006. Children up to 5 years of age were included. A rapid stool immunochromatographic test for rotavirus antigen detection was performed. Symptom-severity scores were calculated by using the Clark scale.

**RESULTS:** Seven hundred and six children participated in the study (median age: 20 months; 385 boys [54.5%]); 273 patients (38.6%) visited HEUs, and 433 (61.4%) visited private clinics. The proportion of PRG was 29% (95% confidence interval [CI]: 25.9%–32.6%) in the total study group, 18.3% (95% CI: 14.9%–22.3%) in private clinics, 45.7% (95% CI: 40.0%–51.7%) in HEUs, and 49.1% in hospitalized patients (95% CI: 42.3%–55.7%). Most children with PRG (71.7%) were between 6 months and 3 years old. Behavioral changes and signs of dehydration, weight loss, fever at  $\geq 38^\circ\text{C}$ , diarrhea, and vomiting were more prevalent with PRG ( $P < .01$ ). In children with PRG, a higher incidence of moderate or severe gastroenteritis ( $P = .013$  and  $.021$ , respectively), hospitalization ( $P = .011$ ), and need for a clinical reevaluation ( $P = .012$ ) was observed, as was longer hospitalization ( $5.14 \pm 3.18$  vs  $3.69 \pm 2.25$  days;  $P = .039$ ).

**CONCLUSIONS:** PRG was responsible for nearly half the patients with AGE who visited HEUs or required hospitalization. Vaccination against rotavirus would help prevent this frequent and often severe disease.

## DIAGNOSIS OF TUBERCULOSIS LYMPHADENITIS IN CHILDREN

Submitted by Ileana Puiu

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**INTRODUCTION:** Tuberculosis represents a major health problem, and the most frequent cause of extrapulmonary tuberculosis is tuberculous lymphadenitis.

**OBJECTIVE:** The aim of this study was to determine the relative contribution of tuberculous lymphadenitis as a cause of persistent cervical lymphadenopathy.

**METHODS:** Our study included 87 children (aged 6 months to 18 years) suffering from tuberculous lymph-

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