

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

Vassiliki Papaevangelou<sup>a</sup>, Ioannis Kavaliotis<sup>b</sup>, Heleni Kokori<sup>c</sup>, Lito Mantagou<sup>d</sup>, Georgios Trimis<sup>e</sup>, Vithelem Papadopoulou<sup>b</sup>, Georgios Niotakis<sup>c</sup>, Nikoleta Nikolakopoulou<sup>d</sup>, Andreas Konstantopoulos<sup>a</sup>

<sup>a</sup>Second Pediatric Department, Children's Hospital Aglaia Kiriakou, Athens University, Athens, Greece; <sup>b</sup>Pediatric Department, Thessaloniki Hospital of Infectious Diseases, Thessaloniki, Greece; <sup>c</sup>Second Pediatric Department, Venizelou Hospital, Heraklion, Crete, Greece; <sup>d</sup>Pediatric Department, Patras University, University Hospital of Rio, Patras, Greece; <sup>e</sup>First Pediatric Department, Agia Sophia Children's Hospital, Athens University, Athens, Greece

**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

Ileana Puiu, Polixenia Stancu, Dumitru Bulucea, Carmen Niculescu, Veronica Elena Nicolescu, Felicia Stoian

Pediatrics Clinic, Tuberculosis Center, Emergency Clinical Hospital, University of Medicine and Pharmacy, Craiova, Romania

**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-

adenitis who were admitted to our tuberculosis center during a period of 10 years.

**RESULTS:** Our 10-year study of 1112 children with lymphadenopathy showed that tuberculous adenitis was encountered in 87 children (7.8%). The disease was present at all ages but was found more frequently between the ages of 10 and 18 years (39.1%). The most common location was the anterior cervical space in 43 children (49.4%), followed by the axillary and supraclavicular areas. Systemic clinical signs (fever, weight loss, tiredness, night sweats) were encountered by 69 children (79.3%). Granulomatous infection was confirmed in 19 children (21.8%) who had abnormal chest radiograph findings. The diagnosis of tuberculous lymphadenitis was based on histological demonstration of caseating epithelioid cell granulomas in the specimen obtained by excision biopsy in 56 cases (64.3%). Tuberculin skin-test results were positive in 76 cases (87.3%). Positive family history of tuberculosis was discovered in 72 cases (82.7%).

**CONCLUSIONS:** In most cases, the diagnosis was established on the basis of the specific histopathological aspect, tuberculin skin-test result, positive family history of tuberculosis, and the abnormal chest radiograph findings.

## SURVEILLANCE OF INFLUENZA IN CHILDREN YOUNGER THAN 5 YEARS IN A TERTIARY CARE HOSPITAL IN BANGKOK, THAILAND

Submitted by Piyarat Suntarattiwong

Piyarat Suntarattiwong<sup>a</sup>, Parada Thongtip<sup>a</sup>, Chortip Sian-nork<sup>a</sup>, Pranee Thawatsupha<sup>b</sup>, Rungruang Kitphati<sup>b</sup>, Tawee Chotpitayasonondh<sup>a</sup>

<sup>a</sup>Queen Sirikit National Institute of Child Health, Ministry of Public Health, Bangkok, Thailand;

<sup>b</sup>Department of Medical Science, Ministry of Public Health, National Institute of Health, Bangkok, Thailand

**INTRODUCTION:** Influenza is a common febrile illness with a significant impact on the pediatric population. Few data regarding influenza in young children have come from tropical resource-limited countries.

**OBJECTIVE:** We aimed to study epidemiological data, clinical manifestations, influenza rapid tests, and oseltamivir treatment in children with influenza.

**METHODS:** We conducted influenza surveillance at Queen Sirikit National Institute of Child Health, a tertiary care children's hospital in Bangkok, Thailand. From July 5, 2004, to July 3, 2005, 2 groups of patients aged 0 to 5 years were enrolled: (1) patients diagnosed with lower respiratory tract infec-

tions (ie, viral croup, bronchitis, bronchiolitis, and pneumonia) and (2) patients diagnosed with influenza-like illness on the basis of World Health Organization criteria. Subjects must have had symptoms for <5 days. We collected nasal swabs to perform influenza A antigen tests by rapid-test kit and nasopharyngeal swab to perform viral cultures. Clinical signs and symptoms were recorded. Oseltamivir (Tamiflu) was given to the patients with positive rapid-test results, and parents agreed to receive an antiviral agent. Other treatment was provided by attending physicians as the routine standard of care.

**RESULTS:** We enrolled 495 patients, 49 (9.9%) of which had influenza virus. The virus was isolated year-round with 2 peaks (Fig 1). Fever and myalgia were symptoms with a statistically significant difference between patients with and without influenza infection. The rapid test for influenza A showed 51% sensitivity and 98% specificity compared with viral culture. Eighteen (37%) of 49 patients received oseltamivir treatment. The oseltamivir-treated patients had, on average, 1.12, 0.41, and 0.55 days' shorter oxygen duration, hospital stay, and time to improvement, respectively, but there was no statistically significant difference.

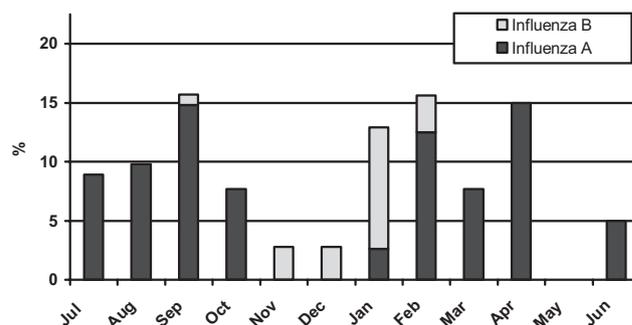


FIGURE 1. Percentage of influenza A and B cases according to month.

**CONCLUSIONS:** Influenza in young children in Thailand can be found in 10% of patients with lower respiratory tract and influenza-like illness. Two peaks occurred during July to October and January to April. Rapid-test kits have moderate sensitivity but high specificity. Benefit from oseltamivir treatment was observed but not statistically significant.

## LITERATURE REVIEW OF ROTAVIRUS PREVALENCE IN AFRICA

Submitted by Zainab Waggie

Zainab Waggie, Anthony Hawkrige, Gregory Hussey  
Institute of Infectious Disease and Molecular Medicine,  
University of Cape Town, Cape Town, South Africa

**INTRODUCTION:** Diarrhea kills 1.6 million children younger than 5 years annually, with rotavirus causing

**DIAGNOSIS OF TUBERCULOSIS LYMPHADENITIS IN CHILDREN**  
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