

Pediatric EM Studies Parallel Community Practice

A Syracuse, N.Y., emergency services director covers research topics from bacteremia to mononucleosis.

BY DOUG BRUNK
San Diego Bureau

YOSEMITE, CALIF. — “As you follow the research in pediatric emergency medicine, it really parallels the practice model of the community,” Dr. Richard M. Cantor said during a pediatric conference sponsored by Symposia Medicus.

On topics from bacteremia, to migraines, to mononucleosis, he summarized recent studies in the literature that have affected the practice of pediatric emergency medicine.

“Any of you who have been in practice for more than 5 or 7 years can see the trends and where these issues have come from,” said Dr. Cantor, director of pediatric emergency services at University Hospital in Syracuse, N.Y.

Young Febrile Infants

Dr. Bema K. Bonsu of Children’s Hospital, Columbus, Ohio, and Dr. Marvin B. Harper of Children’s Hospital, Boston, set out to estimate the accuracy of the total peripheral white blood count as a screening tool for bacteremia in febrile young infants. They evaluated logistic models for predicting bacteremia that are based on the total peripheral white blood cell count by following 3,810 infants aged 0-89 days who had a temperature in triage of greater than or equal to 100.4° F. (Ann. Emerg. Med. 2003;42:216-25).

The rate of bacteremia was 1% (38/3,810), but the sensitivity and specificity of the white blood count test was 79% and 5%, respectively, at a cutoff of greater than or equal to 5,000 cells/mm³. The odds of bacteremia were not decreased substantially at any cutoff and were increased only modestly at values outside published norms of the test.

“Thus, decisions to obtain blood cultures should not rely on this test,” said Dr. Cantor, who also is associate professor of emergency medicine and pediatrics at State University of New York (Syracuse) Upstate Medical University.

Risk for Serious Bacterial Infections

Dr. M. Olivia Titus and Dr. Seth W. Wright of Vanderbilt University Medical Center, Nashville, Tenn., investigated the prevalence of serious bacterial infections (SBI) in 174 febrile infants who were younger than 8 weeks of age and had documented respiratory syncytial virus (RSV) and compared them with 174 gender- and age-matched control subjects who were febrile and RSV-negative.

Overall, only 2 patients in the RSV group had SBI (both urinary tract infections), compared with 22 in the control group (17 were UTIs). They concluded that the risk of SBI in febrile infants with RSV infection is very low (Pediatrics 2003;112:282-4).

“Full septic work-ups may not be necessary, and it is prudent to look at the urine [for evidence of UTI],” Dr. Cantor said. “This is important.”

Bacteremia, Antibiotic Use in RSV

A separate study was conducted by Dr. P. Bloomfield and associates at the Children’s Hospital at Westmead, New South Wales, Australia, to examine the frequency of and risk factors for bacteremia in 1,795 children aged 0-14 years hospitalized with RSV infection over a 4-year period (Arch. Dis. Child. 2004;89:363-7).

Only 11 (0.6%) of the 1,795 RSV-positive children had bacteremia. RSV-positive children were more likely to be bacteremic if they had nosocomial RSV (6.5%), cyanotic congenital heart disease (6.6%), or were admitted to the pediatric ICU (2.9%). “They concluded that bacteremia is rare and that certain characteristics help you identify bacteremic children,” Dr. Cantor said.

Rapid Diagnosis of Influenza

Dr. Aleta B. Bonner and her colleagues at the University of Alabama, Birmingham, attempted to determine the impact of the rapid diagnosis of influenza in the pediatric emergency department on physician decision making and patient management.

The investigators screened 391 patients aged 2 months to 21 years for fever and cough, coryza, myalgias, headache, and/or malaise and randomized them to one of two groups; 202 were influenza positive and ended up randomized roughly equally in the two groups.

In group 1, the attending physician was aware of the rapid influenza test results. Nasopharyngeal swabs were obtained and immediately tested with the flu optical immunoassay (FluOIA) test for influenza A and B, and the results were placed on the chart before the patient was evaluated by the attending physician.

In group 2, the attending physician was unaware of the test results. Nasopharyngeal swabs were obtained, stored, and tested within 24 hours.

Physician awareness of a rapid diagnosis of influenza significantly reduced the number of laboratory tests and radiographs ordered, as well as the associated charges; decreased antibiotic use; increased antiviral use; and reduced the length of time to discharge (Pediatrics 2003;112:363-7).

“This is a big deal,” Dr. Cantor remarked. “You go into the exam room and you say, ‘Good news. Your baby has the flu.’ They ask, ‘Is my child gonna die?’ I’ve had that question. What do you tell them?”

[I say] ‘I have this bank of testing in front of me that gives me viral answers.’”

Human Metapneumovirus in Infants

The aim of this study by Dr. John V. Williams and his associates at Vanderbilt University Medical Center was to determine the role of human metapneumovirus in lower respiratory tract illness in previously healthy infants and children.

The investigators tested nasal-wash specimens obtained from 2,009 infants and children who presented with acute respiratory tract illness between 1976 and 2001. There were 408 visits for lower respiratory tract illness by 321 children for which no cause was identified.

Of these 321 children, specimens from 248 were available. Of these 248 specimens, 49 (20%) contained human metapneumovirus RNA or viable virus (N. Engl. J. Med. 2004;350:443-50).

“Thus, 20% of all previously virus-negative lower respiratory tract illnesses were attributable to human metapneumovirus, which means that 12% of all lower respiratory tract illnesses in this cohort were most likely due to this virus,” Dr. Cantor said.

The virus was associated with bronchiolitis in 59% of cases, croup in 18%, pneumonia in 8%, and an exacerbation of asthma in 14%.

The findings suggest that human metapneumovirus “may be one of the primary causes of bronchiolitis,” Dr. Cantor said. “This was a great study.”

The purpose of this metaanalysis by Dr. M. Michael and associates at the Children’s Hospital at Westmead, New South Wales, Australia, was to compare the effectiveness of 2-4 days oral antibiotic therapy (short therapy) with 7-14 days (standard duration therapy) for children with urinary tract infections. The study population consisted of 652 children with lower tract UTI recruited from outpatient or emergency departments (Arch. Dis. Child. 2002;87:118-23).

The investigators found no significant differences in the frequency of positive urine cultures between the short and standard duration therapy for UTI in children 0-7 days after treatment and at 10 days to 15 months after treatment.

There also were no significant differences between short and standard duration therapy in the development of resistant organisms in UTI at the end of treatment or in recurrent UTI.

“We can probably get away with a shorter course of antibiotics [for this patient population],” Dr. Cantor said.

Interventions for Impetigo

A metaanalysis by S. Koning and colleagues was done to assess the effects of treatments for impetigo in 3,533 subjects who participated in 57 randomized, controlled trials of 20 different oral and 18 topical treatments for the condition (Cochrane Database Syst. Rev.[2]: CD003261.pub2, 2003).

Topical antibiotics showed better cure rates than placebo, and no topical antibiotic was superior.

Topical mupirocin was superior to oral erythromycin, but in most other comparisons, topical and oral antibiotics did not show significantly different cure rates, nor did most trials that compared oral antibiotics.

The reviewers concluded there is good evidence that topical mupirocin and topical fusidic acid are equally or more effective than oral treatment for people with limited disease.

It remains unclear whether oral antibiotics are superior to topical antibiotics for people with extensive impetigo.

Treating Pediatric Migraines

A prospective, randomized, double-blind study by Dr. David C. Brousseau and his colleagues at the Medical College of Wisconsin, Milwaukee, compared the efficacy of IV ketorolac and IV prochlorperazine in the treatment of pediatric migraines. The study population consisted of 62 children aged 5-18 years who presented with migraine headaches to the emergency departments at two children’s hospitals (Ann. Emerg. Med. 2004;43:256-62).

Investigators defined successful treatment as a 50% or greater reduction in the McGrath Facial Affective Scale (nine faces pain scale) score at 60 minutes.

At 60 minutes, 16 (55.2%) of the 29 children who received ketorolac and 28 (84.8%) of the 33 children who received prochlorperazine were successfully treated. About 30% of children in each group had a recurrence of some headache symptoms.

“They recommend prochlorperazine,” Dr. Cantor said. “I do, too. Pick your drug and go with it.”

ED Analgesia for Fracture Pain

A study by Dr. Julie C. Brown and her colleagues compared the use of analgesics for fracture pain in adults and children based on an analysis of the emergency department component of the National Center for Health Statistics National Hospital Ambulatory Medical Care Survey for 1997 through 2000 (Ann. Emerg. Med. 2003;42:197-205).

Of the 2,828 patients who had isolated closed fractures of the extremities or clavicle, 64% received any analgesic and 42% received a narcotic analgesic. Compared with adults, a lower proportion of children received any analgesic or a narcotic analgesic.

“This demonstrates that pain meds [for fracture pain] were not part of the armamentarium,” Dr. Cantor said. “Kids should get pain meds for fractures the minute they walk in the door, before they’re processed.”

Use of Analgesics for Fracture Pain in Emergency Departments

