Gene Predicts MRSA-Related Pulmonary Complications

BY MICHELE G. SULLIVAN
Mid-Atlantic Bureau

PHOENIX — Critically ill infants on total parental nutrition may face more complications and worse outcomes as a result of hyperglycemia induced by overfeeding, reported Daya I. Alaedeen, M.D., at the annual meeting of the American Pediatric Surgical Association. A retrospective review of 37 premature infants treated for sepsis during a 1-year period found associations between hyperglycemia, morbidity, and mortality. The higher their maximum serum glucose concentration, the longer the babies were on mechanical ventilation and the longer they stayed in the hospital, Dr. Alaedeen said.

The average maximum glucose level was 100 mg/dl higher in 6 babies (16%) who died than in 31 babies who lived. It reached 241 mg/dL in nonsurvivors vs. 141 babies (16%) who died than in 31 babies with hyperglycemia. The level was 100 mg/dL higher in 6 babies who died than in 31 babies with hyperglycemia. The level was 100 mg/dL higher in 6 babies who died than in 31 babies with hyperglycemia. The level was 100 mg/dL higher in 6 babies who died than in 31 babies with hyperglycemia.

Avoiding caloric overfeeding, possibly with tight glycemic control, may help reduce hyperglycemia-associated morbidity and mortality.

Hyperglycemia Associated With Complications in Septic Neonates

BY JANE SALODOF MCNEIL
Southwest Bureau

S. AUREUS IS AGENT OF FATAL SYNDROME

Three children diagnosed with Waterhouse-Fridrichsen syndrome died after rapidly progressive illness was traced to severe Staphylococcus aureus infection, said Patricia V. Aden, M.D., of the University of Chicago, and her associates.

Three patients—a 15-month-old girl, a 9-month-old girl, and a 17-month-old boy—had been in good health prior to the onset of infection. Premortem cultures yielded methicillin-susceptible S. aureus in the first patient and methicillin-resistant S. aureus (MRSA) in the next two patients. All the isolates were genetically related, which underscores the risk in community-associated MRSA, the investigators said (N. Engl. J. Med. 2005;353:1245-51).

Characteristics of Waterhouse-Fridrichsen syndrome include petechial rash, coagulopathy, cardiovascular collapse, and bilateral adrenal hemorrhage. Although extracorporeal membrane oxygenation has been associated with adrenal hemorrhage in other studies, it was not associated with fatal illness in the two patients in this review who received it.

Noteworthy clinical features in all three children included leukopenia, neutropenia, profound tachycardia, and profound metabolic acidosis, and the course of the disease resembled fulminant meningococcemia.

Pathologic findings revealed severe sepsis and disseminated intravascular coagulation, but there was no evidence of myocarditis or endocarditis. The lungs of all three patients showed gram-positive cocci in clusters, some of which were found in the vascular walls.

—Heidi Splete

Incidence of Sepsis Continues To Rise in the United States

SAN DIEGO — The rising incidence of severe sepsis in the past 2 decades has been accompanied by a decline in the case fatality rate, Charmaine Lewis, M.D., reported in a poster session at the 100th International Conference on the American Thoracic Society.

The incidence of severe sepsis in the United States rose from about 10 cases per 100,000 people in 1979 to 106 cases per 100,000 people in 2002. “Severe sepsis is a common diagnosis for ICU admission—it’s the 18th most common cause of death in the United States, and it’s increasing in incidence,” Dr. Lewis told FAMILY PRACTICE NEWS.

Key reasons for the increase since 1979, she said, include the emergence of HIV and the aging population. In addition, “we use a lot more immunosuppressive agents to treat what we used to consider mundane problems, such as rheumatoid arthritis,” said Dr. Lewis, of the division of pulmonary, allergic, and critical care at Emory University, Atlanta.

Meanwhile, the case fatality rate among patients with severe sepsis dropped from 50% in 1979 to 36% in 2002. Fatality rates were highest among patients with respiratory, metabolic, or cardiovascular organ failure, Dr. Lewis said. Reasons for the decline in deaths remain unclear, she said, but may have to do with improved recognition and treatment of sepsis in acute care settings.

Dr. Lewis and her associates identified patients with severe sepsis by ICD-9 codes for sepsis and acute organ dysfunction contained in National Hospital Discharge Surveys between 1979 and 2002. They normalized incidence rates to the 2002 Census. From 1979 to 2002 there were 3,302,635 cases of severe sepsis in the United States. Over that period the incidence increased from about 10 cases per 100,000 people in 1979 to a peak of 106 cases per 100,000 people in 2002. The incidence increased about 8.1% per year between 1982 and 2002.

The average age for all patients (65 years) did not change during the study period, but it was slightly lower for men than for women (65 vs. 67 years) and was lowest for African American males (56 years).

Each year about $17 billion is spent on the care of patients with severe sepsis in the United States. Over that period the incidence increased from about 10 cases per 100,000 people in 1979 to a peak of 106 cases per 100,000 people in 2002. The incidence increased about 8.1% per year between 1982 and 2002.

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—Doug Brunk