Human Bocavirus Reported in U.S. Children

BY JANE SALODOF MACNEIL
Southwest Bureau

SAN FRANCISCO — A new parvovirus linked to respiratory tract infections in young children is circulating in the New Haven area of Connecticut, an infectious disease laboratory at Yale University has reported.

Dr. Deniz Kesebir said the laboratory found the pathogen, human bocavirus (HBoV), in respiratory specimens from 22 (5.2%) of 426 children under the age of 2 years who presented with respiratory symptoms at hospitals and clinics associated with the university.

"To our knowledge, this is the first description of human bocavirus in the United States," Dr. Kesebir, of Yale University, New Haven, said at the annual meeting of the Pediatric Academic Societies.

Canine and bovine forms of the virus are known to infect animals of all ages, but cause illness primarily in infants of those species, according to Dr. Kesebir.

Investigators at Karolinska University Hospital, Huddinge, Sweden, published the first report of a bocavirus infecting a human in September of last year (Proc. Natl. Acad. Sci. U S A 2005;102:12891-6). They identified the virus in 17 (3.1%) of 540 children less than 3 years old who were hospitalized for respiratory disease.

A month later, an Australian group reported finding the new pathogen in 18 (5.6%) of 324 children in the same age group who had respiratory tract infections (J. Clin. Virol. 2006;35:99-102).

Japanese investigators published a third report this March (J. Clin. Microbiol. 2006;44:1132-4). They found HBoV in 18 (5.7%) of 318 nasal swabs from children under the age of 3 years who were treated for respiratory tract infections.

Dr. Kesebir said the Yale infectious diseases laboratory headed by Dr. Jeffrey S. Kahn did a retrospective search for HBoV in children less than 2 years of age who presented with respiratory symptoms but screened negative on a direct immunofluorescence assay (DFA) for adenovirus, respiratory syncytial virus, and various influenza viruses.

All the positive samples were taken from children who presented with symptoms from October through April. Specimens collected from May through September were negative for HBoV.

The group also screened specimens from a matched control group of 96 children in an ongoing epidemiologic study of respiratory viruses in children. None of the asymptomatic children were positive for HBoV.

Rare polymorphisms in the positive samples established that the New Haven

The researchers do not know whether the virus jumped species or just had not been detected in humans before.

DR. KESEBIR

virus is identical to two HBoV genotypes identified in Sweden. Asked in an interview how the same virus got from Sweden to Yale, or vice versa, Dr. Kesebir said the question was on a long list of questions the investigators are trying to answer about the new pathogen.

"That's interesting. I don't know. It's exactly the same," she said.

Dr. Kesebir reported on 20 of the 22 positive cases at the meeting, which is sponsored by the American Pediatric Society, Society for Pediatric Research, Ambulatory Pediatric Association, and American Academy of Pediatrics. Her presentation excluded data on one child whose chart was unavailable for review and another who was coinfected with an adenovirus.

She said 15 (75%) of the remaining 20 infected children were hospitalized for up to 18 days. Nine children were hospitalized for 1-3 days and three for 4-18 days. Another three developed nosocomial infections. The other five children were seen in an emergency department or clinic. Seventeen children (85%) had a comorbidity, which she defined as asthma, eczema, bronchopulmonary dysplasia, or seizures.

For signs and symptoms, she reported that 19 children presented with rhinorrhea, 15 with fever, and 14 with cough. Ten children presented with wheezing, and six had oxygen saturation levels below 87%.

Abnormal chest x-rays were seen in 13 (72.2%) of 18 children for whom chest

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Dexamethasone Is Protective in Bacterial Meningitis

BY KATE JOHNSON
Montreal Bureau

CHICAGO — Dexamethasone treatment can reduce the sequelae of pediatric bacterial meningitis when given prior to or concurrent with antibiotic therapy, according to Dr. Marianne Gausche-Hill.

"Although this issue has been controversial in the past, I think we are on the pro side now," she said at a meeting sponsored by the American College of Emergency Physicians.

The goal of corticosteroid therapy is to reduce the inflammatory response that

In a recent study, steroids before or with antibiotics was associated with protection from death or severe morbidity.

DR. GAUSCHE-HILL

can lead to thrombotic changes, vasculitis, increases in cerebral pressure, and neuronal injury, she said.

"Reducing inflammation is the key to preventing sequelae," she said. "Obviously, antibiotics are important, but early reduction of inflammation is essential—especially in reducing the risk of hearing loss."

Until recently, there was some controversy about whether corticosteroid therapy was appropriate for pneumococcal meningitis because some studies suggested it might impair the cerebrospinal uptake of vancomycin, said Dr. Gausche-Hill, who is director of emergency medical services and pediatric emergency medicine fellowships at Harbor-UCLA Medical Center and professor of medicine at the University of California, Los Angeles.

Both the Infectious Diseases Society of America and the American Academy of Pediatrics Committee on Infectious Diseases previously released cautionary statements about the use of steroid therapy in pediatric pneumococcal meningitis, she said.

But a more recent study showing significantly improved outcomes with adjuvant corticosteroid therapy in pneumococcal meningitis (Arch. Dis. Child. 2005;90:391-3) has shifted medical opinion in favor of this therapy for both *Haemophilus influenzae* and pneumococcal meningitis, she said.

The study of 120 cases of pediatric pneumococcal meningitis included 15 children who died and 39 who sustained permanent neurologic impairment from the infection. Corticosteroid therapy either before or with parenteral antibiotics was associated with protection from death or severe morbidity (odds ratio of 0.21), Dr. Gausche-Hill said.

She suggested the algorithm for children with suspected bacterial meningitis should be an immediate lumbar puncture (if not contraindicated) and blood cultures, followed by dexamethasone and empiric antibiotic therapy.

In treating adolescents, she said, consideration of the adult literature is helpful. Although many authors recommend dexamethasone and antibiotics for all forms of adult bacterial meningitis, the Infectious Diseases Society of America recommends dexamethasone for pneumococcal disease only—noting inadequate data to recommend this therapy for other forms of bacterial meningitis, such as meningococcal disease, Dr. Gausche-Hill said. ■

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x-rays were available. Dr. Kesebir cited peribronchial cuffing, infiltrates, and hyperinflation.

Of particular interest were eight children who presented with gastrointestinal symptoms. Dr. Kesebir and her colleagues concluded that HBoV is associated with upper and lower respiratory tract disease in children, and speculated that it also may be the cause of gastrointestinal symptoms.

Among the future studies planned are screening of children up to age 5 for HBoV, DFA screening of positive specimens for coinfection with other viruses, and a search for the cause of gastrointestinal symptoms.

In the interview, Dr. Kesebir said the researchers do not know whether the virus jumped species or just had not been detected in humans before. "It is in adults as well, but most of the findings of symptoms are in children. ... Probably the adults are carriers and less symptomatic or immune," she said. ■