

Down Syndrome May Call for RSV Prophylaxis

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Senior Editor

Down syndrome by itself is a risk factor for severe respiratory syncytial virus infections of the lower respiratory tract and may merit an indication for prophylaxis with palivizumab, according to investigators who followed 395 patients in the Netherlands.

All told, 39 children with Down syndrome were hospitalized for these infec-

tions. The rate of hospitalization, 9.7%, was 14 times that of the 0.7% recorded for a control group of 276 siblings (Pediatrics 2007;120:e1076-81).

While children with Down syndrome are known to have high rates of respiratory syncytial virus (RSV) infection and of risk factors for severe RSV, Dr. Beatrijs L.P. Bloemers of University Medical Center Utrecht and her coauthors said this was the first study to report a higher incidence of hospitalization for RSV lower res-

piratory tract infections in these children.

The population came from two studies of children with Down syndrome. The first looked retrospectively at 206 children born 1976-2005 and followed at an outpatient clinic. The second focused on a nationwide birth cohort of 241 children born 2003-2005, who were identified prospectively and followed up to 2 years of age. Clinical data were available for 176 and 219 children, respectively.

The control group comprised all the sib-

lings born between 1976 and 2005.

When the two cohorts of children with Down syndrome were combined, 180 children (46%) had a risk factor for severe lower respiratory tract infections caused by RSV. Although the hospitalization rate was lower in term children without congenital heart disease (CHD) (8%) than in preterm children (9%) and those with hemodynamically significant CHD (12%), these differences did not reach statistical significance. Nor did disease severity appear to be significantly different when the children with risk factors were compared with those with none.

Compared with the general pediatric population, the hospitalized children with Down syndrome may have had more severe infections, according to the investigators. The median duration of hospitalization was 10 days, during which 31 children (80%) used supplemental oxygen and 5 children (13%) had mechanical ventilation.

As for clinical implications, the investigators noted that palivizumab, a monoclonal antibody, is indicated for RSV prophylaxis in young children with known risk factors for severe infection, and that the Down syndrome population had a similar rate of hospitalization to what had been previously reported in children with prematurity, chronic lung disease, and CHD. "Our findings, therefore, support the possibility of a new indication for RSV prophylaxis in children with [Down syndrome] up to 2 years of age, although the safety and efficacy of such an approach remains to be determined," they wrote.

Dr. H. Cody Meissner, chief of pediatric infectious disease at Tufts-New England Medical Center and a professor of pediatrics at Tufts University, Boston, cautioned in an interview against drawing "too vigorous" conclusions from one study, but called the report useful and "an interesting first step to address the issue of RSV in children with trisomy 21."

He noted that children with Down syndrome not only are at increased risk for a number of infections but also have a different immune response from other children.

Along with the higher incidence of CHD, he cited abnormal numbers of B cells and T cells and abnormal anatomy in the upper airways.

Until more research is done, however, Dr. Meissner recommended sticking to the guidelines defining risk factors for palivizumab prophylaxis, as updated and published by the American Academy of Pediatrics in the 2006 Red Book.

Dr. Andrew J. Nowalk of the Children's Hospital of Pittsburgh and University of Pittsburgh suggested in another interview that palivizumab prophylaxis might be considered when children with Down syndrome have repeated RSV infections even if they do not have known risk factors for severe RSV.

He described the findings from the Netherlands as provocative and voiced hope that they would drive interest in looking prospectively at whether children with Down syndrome are a risk group. "Respiratory infections are a scourge for them," he said. ■



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