Studies assess complications and deaths from 2009 H1N1 influenza among children

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More than one-fourth of children hospitalized with 2009 novel influenza A(H1N1) in California required intensive care or died, according to a report in the November issue of *Archives of Pediatrics & Adolescent Medicine*, one of the JAMA/Archives journals. A second report assessing children in Israel found that those with underlying illnesses and infants born prematurely were at greater risk of severe complications following 2009 novel influenza A(H1N1) infection.

"Following the detection of the first cases of 2009 novel influenza A(H1N1) in California in April 2009, the virus has rapidly spread throughout the world," the authors write as background information in one of the articles. "In the United States, observations suggest that most cases of 2009 novel influenza A(H1N1) are in children or young adults, with 40 percent of cases in children between the ages of 10 and 18 years; the attack rate in children aged 5 to 14 years (147 per 100,000) has been higher than that of adults 60 years and older (10.5 per 100,000)."

Janice K. Louie, M.D., M.P.H., and colleagues at the California Department of Public Health, Richmond, analyzed data from standardized report forms and medical records describing 345 children who were known to be hospitalized or died of laboratory-confirmed novel influenza A(H1N1) between April 23 and Aug. 11, 2009.

The median (midpoint) age of these children was 6. The rate of hospitalization was 3.5 per 100,000 children over the 110-day period, with the highest rates in infants younger than 6 months (13.9 per

100,000).

Two-thirds (230 or 67 percent) of those who died or were hospitalized had co-occurring illnesses. More than half (59 percent) had pneumonia, 94 (27 percent) required intensive care and nine (3 percent) died. In addition, more than two-thirds of the children (221 of 319, or 69 percent) received antiviral treatment, including 88 of 202 (44 percent) who were treated within 48 hours of developing symptoms.

The most common symptoms included fever, cough, shortness of breath or difficulty breathing, nausea or vomiting, diarrhea and muscle aches. Central nervous system manifestations were observed in 30 children (8.7 percent) and included seizures (17 children), altered mental status (18 children) or both (12 children).

Factors associated with an increased risk of death or admission to the intensive care unit included congenital heart disease and cerebral palsy or developmental delay; Hispanic children were less likely than white children to experience either outcome. Of the 261 children who had laboratory testing for novel influenza A(H1N1), 221 tested positive, for a sensitivity rate of 85 percent.

"Clinicians should be aware of when and what type of influenza and other respiratory viruses, including 2009 novel influenza A(H1N1), are circulating in their community," the authors conclude. "When 2009 novel influenza A(H1N1) activity is present, clinicians should maintain high suspicion for infection in pediatric patients presenting with febrile respiratory illness and initiate prompt treatment in infants and children with underlying risk factors regardless of rapid antigen test results."

In a second report, Michal Stein, M.D., of Edith Wolfson Medical Center, Holon, Israel, and colleagues assessed data from children hospitalized with 2009 influenza A(H1N1) at seven medical centers in

Israel between July 12, 2009, and Dec. 24, 2009. "The most frequent clinical presentations were pneumonia, influenza-like illness, wheezing exacerbation and convulsions," the authors write.

Of the 478 patients studied, the average age was 6.1 years. About 9 percent (42 patients) were admitted to the pediatric intensive care unit and 0.6 percent (three patients) died. Underlying illnesses that predisposed children to complications were detected in 48.7 percent of patients.

"In conclusion, our study showed that the severity and mortality of 2009 influenza A(H1N1) in Israel were milder than those described in earlier publications and were similar to the figures reported in the literature on seasonal influenza," the authors write. "Children with underlying metabolic and neurologic disorders represent the group at highest risk for severe complications following 2009 influenza A(H1N1) infection. Our results also suggest that children with cyanotic heart lesions and infants born prematurely are two additional populations at significant risk for a complicated hospital course following infection with 2009 influenza A(H1N1) virus."

More information: Arch Pediatr Adolesc Med. 2010;164[11]:1023-1031, 1015-1022.

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