Influenza in Hong Kong Children

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We have recently conducted two studies to examine the disease impact of influenza on children in Hong Kong.

I. Influenza Disease Burden in Children Without Underlying Disease

Objective: To define the disease burden of influenza in Hong Kong using hospitalization due to acute respiratory disease (ARD) during peak influenza activity as a marker.
Methods: We performed a retrospective population-based study of children 15 years or younger to determine the rates of hospitalization for ARD between 1998 and 1999. To calculate the morbidity attributable to influenza, we compared mean hospitalization rates during high influenzavirus activity with that when neither influenza nor RSV had high activity. Paediatric admissions to all the Hospital Authority hospitals were retrieved. The record of a patient from birth to 15 years of age was eligible for inclusion if the discharge code of an ARD, 460-466 or 480-487 (*International Classification of Diseases, 9th Revision, Clinical Modification*) and if the admission to the hospital occurred between January 1998 and December 1999.
Results: During the periods in which influenza predominated, weekly total and excess hospitalization rates for ARD among children without high risk were 310.80/100,000 and 101.60/100,000 population <1 year of age, 190.47/100,000 and 82.49/100,000 population 1 year to <2 years of age, 92.79/100,000 and 32.25/100,000 population 2 to <5 years of age, 24.76/100,000 and 12.60/100,000 population 5 to <10 years of age, and 6.68/100,000 and 3.94/100,000 population 10 to 15 years of age, respectively.
Conclusion: Infants and children without underlying risk for serious influenza complications are still at increased risk for hopsitalization for ARD during influenza season.

II. Influenza A and Febrile Seizures

Objectives: To compare the incidence of febrile seizures in children hospitalized for influeneza A infection with parainfluenza and adenovirus infection and to examine the hypothesis that children hospitalized for influenza A (variant Sydney/H3N2) during the 1998 season in Hong Kong had more frequent and refractory seizures when compared to other respiratory viruses.
Methods: Medical records of children between six months and five years admitted for influenza A infection in 1998 were reviewed. For comparison, records of children of the same age group with influenza A infection in 1997, and with parainfluenza and adenovirus infections between 1996 and 1998 were reviewed. Children who were afebrile or who had an underlying neurologic disorder were excluded.
Results: Of children hospitalized for influenza A in 1998 and 1997, 54/272 (19.9%) and 27/144 (18.8%) had febrile seizures, respectively (P=0.9). The overall incidence of febrile seizures associated with influenza A (19.5%) was higher than that in children hospitalized for parainfluenza (18/148; 12.2%) and adenovirus (18/199; 9%) infection, respectively (P=0.0004). In children who had febrile seizures, repeated seizures were more commonly associated with influenza A infection than with parainfluenza or adenovirus infection [23/81 (28%) vs 3/36 (8.3%), P= 0.02; OR 4.3, 95% CI: 1.2 to 15.4]. Alternatively, children with influenza A infection had a higher incidence (23/416, 5.5%) of multiple seizures during the same illness than those with adenovirus or parainfluenza infection (3/347, 0.86%), (P=0.0004, OR=6.7, 95% CI: 2 to 22.5). The increased incidence of febrile seizures associated with influenza A was not attributable to differences in age, gender or family history of febrile seizure. Multivariate analysis, adjusted for peak temperature and duration of fever, showed that hospitalized children infected with infection A had a higher risk of febrile seizures than those who were infected with parainfluenza or adenovirus (P=0.0005, OR 1.97).
Conclusion: In hospitalized children, influenza A is associated with a higher incidence of febrile seizures and of repeated seizures in the same febrile episode than are adenovirus or parainfluenza infections.