

When 'ah-choo' turns to the flu

Young children contract and spread influenza more than any other age group



Dr Daryl Cheng | 16th July 2018

1 Comment



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Case 1

Casey, an eight-month-old girl, presents to ED with a five-day history of cough, fever, coryza, lethargy and decreased oral intake.

Her work of breathing increased significantly during the 24 hours prior to presentation. On examination, Casey looks significantly unwell and lethargic with tachycardia, a fever of 39°C, SpO₂ 86% RA and significant respiratory distress. There is decreased air entry to both lung bases.

Initial investigations reveal WCC 32.02x10⁹/L (normal 6-18), platelets 149x10⁹/L (normal 150-400). A chest X-ray shows significant consolidation in mid-lower zones bilaterally with no effusions.

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- Case Report: A timely reminder of the severe complications of influenza
- Earn CPD points: How to Treat — Acute viral bronchiolitis

She is placed on high-flow oxygen therapy, given a 20mg/kg IV fluid bolus, and starts empiric antibiotics prior to her transfer to a tertiary care centre.

On further assessment, chest ultrasound shows no effusion or collection amenable to drainage.

Blood cultures taken at initial presentation are positive for *Streptococcus pneumoniae*, and a nasopharyngeal swab is positive for influenza A.

Casey is diagnosed with a secondary pneumococcal bacteraemia following primary influenza A infection.

Based on sensitivities, antibiotics are rationalised to single-agent ceftriaxone and then high-dose oral amoxicillin for a total of 10 days of antibiotic therapy.

She is gradually weaned off respiratory support and requires five days of hospitalisation.

Case 2

Damian, a 19-month-old boy, presents to ED following a simple febrile seizure. He has had cough and coryza for the preceding 24 hours.

He appears well on review, has no sequelae or residual symptoms, and after a period of observation in the ED is discharged home.

He presents again to ED 12 hours later in status epilepticus. At this examination, Damian has active generalised tonic-clonic seizure activity.

He has a fever of 38.2°C but no focal signs of localised infection.

He requires midazolam and loading doses of two anti epileptic medications to control the seizures.

An urgent CT scan shows loss of grey-white matter differentiation suggestive of oedema. Damian is started on empiric IV antibiotics.

Once stabilised, he undergoes an MRI brain and lumbar puncture.

The MRI shows multiple cortical abnormalities involving the frontal and parietal lobes suggestive of viral encephalitis.

A nasopharyngeal aspirate is influenza A positive.

Damian is diagnosed with viral encephalitis likely secondary to influenza A infection and completes a five-day course of oseltamivir.

Antibiotics are ceased after 48 hours once blood cultures are negative.

Neither child had received a seasonal influenza vaccine, recommended for all children over the age of six months.

Discussion

Influenza predominantly affects otherwise healthy patients, but specific subgroups are particularly susceptible.

These include the elderly, pregnant women, infants and young children, especially those under five years of age.

It is well established that seasonal influenza is a large economic burden.

However, compared with adults, the disease burden of influenza is disproportionately high in childhood, with a significantly higher rate of hospitalisation.

Young infants and those with complex medical or neurodevelopmental problems are particularly vulnerable to severe disease impacts.

These subgroups are also at greater risk for complications following initial influenza infection.

Although for most children influenza is a self-limiting illness, complications may include secondary bacterial infections, myositis, myocarditis and respiratory failure, and may be fatal.

The most common complication is bacterial pneumonia, which usually occurs about a week after the initial influenza infection when susceptibility is the highest due to viral attenuation of innate and adaptive immune responses.

Common pathogens include *Staphylococcus aureus* and *Streptococcus pneumoniae*.

This is an important differential diagnosis to consider in a patient with persistent fever and other clinical signs indicating progression of illness.

If left untreated, this can rapidly progress to respiratory failure and, potentially, death.

Although rare, neurological complications following an influenza infection are more common in children than adults, and can include encephalitis and febrile seizures.

Neuraminidase inhibitors remain the only available treatment for influenza. These are most effective when started as soon as possible within the first 48 hours of symptom onset.

Influenza vaccination remains the mainstay for disease prevention and should be considered for all children, but particularly those in high-risk subgroups.

The quadrivalent influenza vaccine is government-funded on the National Immunisation Program for children over the age of six months who have specific medical conditions.

Most jurisdictions in Australia are also funding an influenza vaccine program this year for healthy children aged six months up to the age of five.

For all other children, the quadrivalent influenza vaccine is available via private prescription.

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