

Avian Flu - What is the risk to humans?

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Introduction

The current Asian avian flu outbreaks in Thailand, Vietnam, Cambodia, South Korea and Japan has brought to the fore the risk posed by zoonotic diseases to humans. Zoonotic diseases are primarily diseases of vertebrate animals that are naturally transmitted to humans. As at 27 January 2004, the number of confirmed deaths related to avian flu in humans rose to eight cases, mostly in children, who were in close contact with live poultry in Thailand and Vietnam. What is worrying is the similarity of the present outbreaks of avian flu with the SARS outbreaks of November 2002. More than 10 pandemics of influenza-like illness have occurred since the end of the 16th century with disastrous consequences.

What is avian flu?

Influenza viruses are classified as *orthomyxoviruses* and based on the reaction of their nucleoprotein antigen with specific antibody, they occur in three types (A, B and C) and numerous subtypes. Influenza A virus is the most frequent cause of clinical influenza and pandemics. Type B causes epidemics every five years, while type C is endemic causing mild respiratory disease sporadically. The avian influenza virus is a type A and serotype H5N1 flu virus. The World Health Organisation is concerned about the possible transmission and combination of the H5N1 virus with another flu virus in humans, resulting in a dangerous new strain that could spread easily from person to person.¹ This is a real threat as all the human cases so far are believed to have resulted from close contact with live poultry. The economic impact of the

present avian flu epidemic is yet to be fully assessed in Thailand, which is the fourth largest poultry exporter in the world. In recent weeks, it lost about six million chickens due to death or slaughter because of a disease identified by the government as a combination of fowl cholera and non-influenza respiratory disease.

What is the risk to humans?

Influenza A and B constantly change their antigenic form by antigenic 'drift' (gene mutation) and, less frequently, by antigenic 'shift' (influenza A only) when the genomes of two existing subtypes are mixed by genetic reassortment.² The H5N1 influenza virus caused the 1997 and 2003 outbreaks in Hong Kong and the vaccine developed for it is not expected to be of any substantial value due to viral mutation that has already occurred since the 2003 winter months. What is frightening about the current outbreaks has been the shedding of large amounts of the virus in respiratory secretions, whereas in the past the birds shed the virus in faeces. There are other obstacles to the rapid development of a vaccine for the H5N1 flu virus. Flu vaccines are normally grown in chicken eggs, and this will not be useful for the H5N1 because it is deadly to chicken embryo. The viable option will be to use 'reverse genetics', which involves merging selected genetic material from the natural virus with a laboratory virus, with the resulting virus stimulating an immune response, but no disease when injected into humans.

What should the family practitioner look out for?

The incubation period of influenza

virus is 48 hours and any patient who presents with flu-like symptoms and has just returned from Asia should be considered as suffering from possible avian flu until otherwise proven wrong. The case should be notified to the appropriate health authorities for surveillance purposes. Usually, after 2-3 days, the acute symptoms rapidly subside without complications. In severe cases, pneumonia and hemorrhagic bronchitis usually occur within hours of the disease, and may progress to pulmonary oedema and death as soon as 48 hours after onset. The latter is the clinical picture of severe disease most likely to occur during a pandemic with a new influenza A serotype and in patients with neurologic, pulmonary or cardiac risk factors. What is crucial is the early identification of patients with severe disease or risk factors who need intensive care. For most patients, the management is symptomatic (bed rest, analgesic, antipyretic, nasal decongestant). Amantadine has a beneficial effect on the fever and respiratory symptoms if given early in uncomplicated influenza A, but it is not listed in the Essential Drug List of South Africa. Finally, routine prophylactic antibiotics is not recommended as this is a viral infection and the excuse to prescribe them for possible infections only propagates antibiotic resistance in the community. ✎

References

1. CIDRAP. Avian flu reported in Thailand, Cambodia. www.cidrap.umn.edu/cidrap/content/hot/flu/news/jan2304avian.html (accessed 27 January 2004) (accessed 27 January 2004)
2. Nicholson KG. Managing Influenza in Primary Care. Blackwell Science, London UK. 1999: 1-4.