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Editorial

The Bird Flu – What Lies Ahead?

T Tsang

The 'bird flu' is without doubt one of Hong Kong's most significant medical discoveries. A poll by the Hong Kong Medical Association ranked bird flu as the number one medical event in 1997. Its coverage flooded the international news, magazines and scientific journals. The disappearance of bird flu cases since the beginning of 1998 still leaves a lot of questions to be answered, a lot of work to be done.

The bird flu virus, more properly termed influenza A H5N1 virus, was first identified in August 1997 by scientists at the Centres for Disease Control and Prevention, Atlanta and the National Institute of Public Health Research Laboratory in Netherlands from a tracheal aspirate specimen of a boy who suffered from respiratory distress and died in May 1997. A quiescent period followed before more cases were found in November and December 1997. All together a total of 18 cases were confirmed.

There are several notable features about the cases. Eleven of the 18 cases are children under age 15. Initial clinical presentations are just like an ordinary flu, but this H5N1 virus has a propensity to cause pneumonia and respiratory distress rapidly in some patients, even those who are previously healthy. Six people had died while five other patients had history of respiratory distress, but some in the latter group required intensive care before they recovered. Young children seemed to have milder illnesses than adults.

We already know something about the transmission of the H5N1 virus. A cross sectional seroprevalence study, the result of which was released in December 1997, showed that poultry workers seemed to have a higher prevalence of antibody to the H5N1 virus than the rest of the population. Gene sequencing revealed the H5N1 viral genes to be entirely avian in origin. Analysis of the cases also found a number of them had had contact with live poultry during the incubation period, and in two cases, chickens infected with H5N1 were found near their residence. These pieces of evidence established the main mode of transmission as bird-to-man. The possibility of man-to-man transmission is still open, though it must be very inefficient at this time. Further cohort and case control studies have been done to quantify the risk associated with poultry exposure, the efficiency of man-to-man transmission etc and the results are still pending.

More research is also needed in the identification and treatment of influenza H5N1. Virus culture, the gold standard for H5N1 confirmation, takes time. There are a variety of diagnostic tests that yield more rapid results, but their specificity need to be improved. (Directigen tests only identify influenza A including H5 but cannot differentiate H5 from other group A influenza virus). The virus is sensitive to amantadine, but the drug has rather significant gastrointestinal and neurological side effects. Its analogue, rimantadine, is better tolerated but much more expensive. New antiviral drugs, the neuraminidase inhibitors, are under trial and show some promise.

Vaccination poses a tricky problem. WHO vaccine production centres are making progress in search of a 'seed virus' candidate suitable for making a vaccine. But even when a vaccine becomes available, the decision to use it is not at all straightforward. The US swine flu in 1976 is a classic example to learn from, in which hundreds of thousands of people were vaccinated for an epidemic that never came.

Above all there is the question of vaccine safety and liability issue. This is a new vaccine and we have little experience on. The WHO stance is that in the absence of efficient man-to-man transmission, vaccination of the population is not warranted.

The Hong Kong flu in 1968 was estimated to result in an attack rate of about 15%. Studies overseas cited an attack rate for community influenza epidemics ranging from 10% to 25%. It is of course uncertain if H5N1 could evolve into a pandemic strain with similar attack rates. But if it did, it would have very major socio-economic repercussions, not just in Hong Kong but worldwide.

Can we eradicate bird flu? Researchers tell us that influenza is a non-eradicable disease as wild birds harbour all varieties of influenza viruses. Some believe that previous influenza pandemics could have arisen from genetic reassortment of avian and human influenza virus in an intermediary vessel such as pigs. Viewed in this light, the slaughtering of chickens in December 1997 might reduce the chance of H5N1 reassorting with human influenza viruses (eg. H3N2) during the traditional flu season in the first quarter of 1998. Anyhow, while every measure is being taken to minimise the occurrence of bird flu in future, the chances are we will not be parted forever.

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