

Novel Influenza A Infection - Avian Influenza



Causative agents

There are various types of influenza viruses. Apart from those which can circulate among humans and cause seasonal influenza, many other influenza A viruses are found in birds and other animal species. These viruses are distinct from human seasonal influenza viruses and are not easily transmitted to humans. However, some of these animal viruses may occasionally infect humans. These are known as novel influenza A viruses and avian influenza viruses are one example.

Avian influenza is caused by those influenza A viruses that mainly affect birds and poultry, such as chickens or ducks. Some avian influenza viruses can infect and spread to other animals, such as mammals, as well. Human cases infected with avian influenza A (e.g. H3N8, H5N1, H5N6, H7N9, H9N2, H10N3 and H10N5) viruses have been identified in recent years.

Since they do not commonly infect humans, there is little or no immune protection against them in the human population. However, if an avian influenza virus acquires the capacity to spread easily from person to person, either through adaptation or acquisition of certain genes from human viruses, an influenza pandemic can occur.

Clinical features

Illness in humans from avian influenza virus infections have ranged in severity from no symptoms or mild, flu-like symptoms (e.g. fever, cough, sore throat, muscle aches) to severe respiratory disease (e.g. chest infection) that resulted in multi-organ failure and even death. Eye infection (conjunctivitis), gastrointestinal symptoms (e.g. nausea, vomiting and diarrhoea) and neurological symptoms (e.g. seizures) have also been reported. Disease severity will depend upon the subtype of avian influenza virus causing the infection and the characteristics of the infected individual. Avian influenza A(H5N1), A(H5N6) and A(H7N9) viruses have been responsible for most human infections from avian influenza A viruses worldwide to date, including the most serious illness with high mortality. On the contrary, human infection with avian influenza A(H9N2) virus is generally resulted in milder clinical disease.

Mode of transmission

Infected birds shed avian influenza viruses through their saliva, mucous and faeces. Other animals infected with avian influenza viruses may have virus present in respiratory secretions, different organs, blood, or in other body fluids, including animal milk. People mainly become infected with avian influenza virus through contact with infected birds, poultry or other animals (live or dead), or contaminated surfaces with saliva, mucous and animal faeces or environments (such as wet markets and live poultry markets). Human-to-human transmission is inefficient. Outbreaks of avian influenza in poultry have been reported in some countries from time to time, and some cases of human infection have occasionally been reported.

In a rare occasion, people become infected through contact with infected animals other than birds and poultry. For example, the United States reported in April 2024 a human case of avian influenza A(H5N1) virus infection after exposure to dairy cattle presumably infected with avian influenza virus.

Incubation period

Ranged from 1 to 10 days depending on the specific subtypes of avian influenza A viruses.

High risk groups

People in close contact with live poultry are more susceptible to contracting avian influenza. The elderly, children and people with chronic illness have a higher risk of developing complications such as bronchitis and chest infection.

Management

Patients should get adequate rest and drink plenty of fluids. Supportive treatment can relieve symptoms. People with flu-like symptoms should seek medical advice, especially those with weakened body resistance, or if their condition deteriorates (e.g. developing persistent high fever or shortness of breath). Avian influenza A (including H5N1, H5N6 and H7N9 viruses) are generally more severe than common flu, and most patients require hospital care. Some anti-viral drugs may be effective in treating the condition.

Prevention

Infected birds, poultry or other animals (live or dead) or their excrement may carry avian influenza virus. Therefore, members of the public should avoid touching their secretions and excrement, and pay attention to the following issues to prevent avian influenza:

1. Handling poultry

- When buying live chickens, do not touch them and their droppings. Do not blow at their bottoms. Wash eggs with detergent if soiled with faecal matter and cook and consume them immediately. People handling chilled poultry or poultry carcasses are reminded to observe strict personal and hand hygiene. They should never touch the mouth, nose or eyes when handling any poultry, poultry products or eggs. Afterwards, they must wash hands thoroughly with liquid soap and water, and used knives and chopping boards must be thoroughly cleaned before they can be used again.
- Eggs should be cooked thoroughly until the white and yolk become firm. Do not eat raw eggs or dip cooked food into any sauce containing raw eggs. Poultry should be cooked thoroughly. If there is pinkish juice running from the cooked poultry or the middle part of its bone is still red in colour, the poultry should be cooked again until fully cooked.

2. Maintaining good personal hygiene

- Perform hand hygiene frequently, especially before touching the mouth, nose or eyes; after contact with animals or their environments or touching public installations such as handrails or door knobs; or when hands are contaminated by respiratory secretion after coughing or sneezing. Wash hands with liquid soap and water, and rub for at least 20 seconds. Then rinse with water and dry with a disposable paper towel or hand dryer. If hand washing facilities are not available, or when hands are not visibly soiled, hand hygiene with 70 to 80% alcohol-based handrub is an effective alternative.
- Cover your mouth and nose with tissue paper when coughing or sneezing. Dispose of soiled tissues into a lidded rubbish bin, then wash hands thoroughly.
- When having respiratory symptoms, wear a surgical mask, refrain from work or attending class at school, avoid going to crowded places and seek medical advice promptly.

- Build up good body immunity by having a balanced diet, regular exercise and adequate rest, do not smoke and avoid alcohol consumption.

3. Maintaining good environmental hygiene

- Regularly clean and disinfect frequently touched surfaces such as furniture, toys and commonly shared items with 1:99 diluted household bleach (mixing 1 part of 5.25% bleach with 99 parts of water), leave for 15 – 30 minutes, and then rinse with water and keep dry. For metallic surface, disinfect with 70% alcohol.
- Use absorbent disposable towels to wipe away obvious contaminants such as respiratory secretions, and then disinfect the surface and neighbouring areas with 1:49 diluted household bleach (mixing 1 part of 5.25% bleach with 49 parts of water), leave for 15 – 30 minutes and then rinse with water and keep dry. For metallic surface, disinfect with 70% alcohol.
- Maintain good indoor ventilation. Avoid going to crowded or poorly ventilated public places; high-risk individuals may consider putting on surgical masks while in such places.
- U-trap should be prevented from drying up and drain outlets should be disinfected regularly about once a week.
- Repair immediately if there is defect in the U-trap or foul odour coming out from drain outlets. Qualified technicians can be hired for inspection and repair.

4. Vaccination

- There is no registered vaccine for use in humans specific for avian influenza in Hong Kong.
- Seasonal influenza vaccine **cannot** prevent avian influenza, however it can help reduce the chance of complications and hospitalisation from seasonal influenza as well as reduce the risk of co-infection with human and avian influenza A viruses. Given influenza vaccines are safe and effective and that serious influenza infection can occur even in healthy individuals, seasonal influenza vaccination is suitable for personal protection against clinical influenza for all persons aged 6 months or above except those with known contraindications. The Scientific Committee on Vaccine Preventable Diseases recommends a number of priority groups for seasonal influenza vaccination based on a range of scientific considerations taking into account local disease burden and international experience.

5. Antiviral drugs

- Whether a doctor prescribes antiviral drugs (e.g. Tamiflu) to a patient will depend on the circumstances and health needs of the patient, taking into consideration the presence of any contraindication and balancing the benefits of taking the antiviral drugs against the possible adverse side effects. Indiscriminate use of antiviral drugs may give rise to drug resistance.
- People who have had contact with infected birds may be given antiviral drugs preventatively. While antiviral drugs are most often used to treat influenza, they also can be used to prevent infection in someone who has been exposed to influenza viruses. Prophylaxis should be prescribed by registered doctors. Its effectiveness lasts as long as the drugs are being taken and ceases once the drugs are stopped. Self-medication is not encouraged because of the potential side effects and possibility of emergence of antiviral resistance.

Advice to travellers

- Avoid touching birds, poultry or their droppings and visiting wet markets, live poultry markets or farms when travelling to affected areas. Eggs and poultry can be eaten only if thoroughly cooked.
- Avian influenza viruses have been detected in many other species. Avoid close or unprotected exposures to sick or dead animals, including wild or domestic animals, and avoid contact with surfaces that appear to be contaminated with animal faeces, raw milk, or materials contaminated by birds or other animals with suspected or confirmed avian influenza virus infection.
- Travellers if feeling unwell when outside Hong Kong, especially if having a fever or cough, should wear a surgical mask and inform the hotel staff or tour leader and seek medical advice at once.
- Travellers returning from affected areas with avian influenza outbreaks should consult doctors promptly if they have flu-like symptoms, and inform the doctor of the travel history and wear a surgical mask to help prevent spread of the disease.



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