

Avian Influenza : An Introduction

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Avian Influenza (AI) or fowl plague is an infectious, highly contagious viral disease primarily affecting all avian species including chicken, ducks, turkeys and all wild birds. Wild birds, in fact, are considered to be the natural reservoirs of the virus. In addition, the virus can infect pigs, whales, birds, and seals. Normally, human beings get infected accidentally with Avian Influenza type A virus.

Etiology and Epidemiology

The causal virus belongs to family Orthomyxoviridae, genus. Influenza virus A. There are three types A, B, C Influenza virus. However only type A has subtypes and has ability to infect human beings. Both virulent and avirulent viruses have 16 Haemagglutinins (H) and 9 Neuraminidase (N) on their surface and based on the combination of these antigenic proteins, different strains are found. Among these strains, H5N1, H3N2, H7N7 and H9N2 are capable of affecting humans. The viruses grow readily in embryonating chicken eggs and the agglutination of RBC. Specific haemagglutination inhalation is the basis for the serological test for influenza antibodies. This virus has been distributed worldwide and recovered frequently from clinically normal sea birds, migratory waterfowl, pet birds and species in live bird market.

Transmission of the disease

The disease is transmitted through the direct contact of infected birds or through the contaminated faeces or aerosol. The infected birds shed virus in saliva, nasal secretions, and faeces. Therefore, the equipment, instruments and farm staffs coming in contact with these contaminants

could act as means of transmission of infection. The virus can survive in the contaminated faeces for upto three months in general environment and for 4-30 days in water. Poultry farmers, caretakers, transport people, farm visitors and moving/migratory birds are the source of disease spread. In this process, human could also be infected with virus from the contaminated sources. However, human to human transmission has not yet been reported.

Clinical findings and symptoms

In poultry, the incubation period is highly variable and ranges from a few days to one week. The signs of disease range from only a slight decrease in egg production or reduced fertility to CNS involvement, but respiratory symptoms are most common. Other common signs are greenish diarrhea, cyanosis and oedema of head, comb and wattles, respiratory distress, discoloration of the shanks and feet. The location and severity of gross lesions are also highly variable and may consist of haemorrhages and necrosis in the respiratory and gastro intestinal tract, integument and uro-genital system.

Current situation of Avian Influenza

While all three types of influenza virus could affect humans, viruses of A type are primarily of concern in lower animals and birds. The current outbreak of avian influenza virus A (H5N1) was first detected in poultry in the Republic of Korea in Dec. 2003. The virus has been gradually expanding the host range i.e. domestic, wild and migratory birds, and animals such as pigs, cats and tigers. Although the avian influenza viruses are not easily transmitted to humans, but this may change

due to either mutation or genetic reassessment (mixing of human and animal influenza genes). Continuous transmission of avian influenza in poultry and human exposure in many countries increases the possibility of a pandemic virus emerging in the near future.

Influenza Pandemic

Influenza Pandemic is a serious threat to human population. Each century has witnessed an average of three pandemic of influenza occurring at an interval ranging from 10-50 year causing illness of unprecedented proportions. The great influenza pandemic of 1918-19 caused illness in more than 25% of the total world population, with an estimated 40-5 million deaths within a year. The pandemics of 1957 and 1968 respectively were caused by milder viruses, which killed 1. million people.

- In 1997 Hongkong witnessed an infection from birds to human with H5N1 influenza virus killing six people. A estimated 1.5 million birds were culled and destroyed. In 1999 again, Hong Kong experienced H9N2 virus infection. In 2003, a veterinarian died due to H7N7 influenza virus in Netherlands.
- Similarly, Thailand, Vietnam, Taiwan, South Korea, Japan, China, Indonesia and Cambodia have been affected by the influenza infection in Asian continent. According to different reports, 258 laboratories confirmed human cases (including 158 deaths) from Avian Influenza have occurred.
- Recently, in one study in Harvard University, London researcher Chris Murray has analyzed that if another flu pandemic strikes today, it could kill 81 million people worldwide.
- A 30 year old lady and nine year old girl have been reported dead due to avian influenza in Cairo, Egypt on December 2006

Prevention and precautionary measures

- Poultry farmers, poultry handlers, birds traders, laboratory personnel's, slaughterhouse workers and people working in close

association with the poultry birds should be aware of the consequences and should adopt precautionary measures.

- Avian influenza virus is present in dropping, respirator secretions, and blood of infected birds. Therefore, care should be taken while handling sick birds or those that have died unexpectedly. Influenza virus does not survive heat above 60 degree centigrade. Therefore, the meat and meat products or eggs boiled at 60 degree centigrade or above for 30 minutes, kills all the virus.
- Protective clothing (masks and gloves) should be used while handling diseased or suspected birds and hands should be washed with soap and water immediately.
- Avoid unnecessary contacts with live, sick and dead birds. Do not remove feathers or slaughter or handle infected birds at home.
- Children should not be allowed to touch, carry or play with birds since they may carry the virus.
- Cook poultry meat well before eating. Raw poultry products should not be eaten.
- Avoid going to the place where outbreaks are suspected live birds markets or slaughter areas.
- Chicken dropping from infected flock should not be used as fertilizers.
- Unusual death of birds should be immediately reported to local concerned veterinary authority.
- (Source: Sandesh, AHTCS, January-March, 2007, Page – 12)