

An Overview of Avian Flu

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ABSTRACT

Avian flu is a highly transmissible disease which causes severe health problems. First case in humans was reported in Hong Kong. Influenza virus A (H5N1) possesses great zoonotic potential. Type A influenza can be divided into 2 categories namely low pathogenic and high pathogenic viruses. Type B influenza virus is generally found only in humans while type C causes mild ailment in humans. It mainly affects the respiratory system and results in throat pain, shortness of breath, pneumonia, cough, and respiratory failure. Direct contact with the infected or dead birds may also lead to infection.

Introduction

Other names of Avian flu are Fowl plague, Brunswick disease, Bird flu, Fowl pest, and Peste Aviary. It is a transmissible disease that can be spread through the bird influenza viruses. There are various types of bird influenza viruses including A, B, and C, among which type A is typically known as negative single, stranded RNA [1]. This virus can inflict disease on domesticated birds (chickens, turkeys, ducks, and geese), wild aquatic animals, and other species of animals including humans as well. H5N1 and H7N9 are the two strains which are known to inflict disease in humans [2]. It can cause severe health problem in humans especially in young ones and infants and cause fatality. Signs and symptoms may be seen within 2 to 7 days of infection that include cough, pain in muscles, irritation in throat, headache, and fever. Avian influenza A (H5N1) is the most infectious amongst the other types and have high mortality rate.

Etiology and Pathogenesis

This virus can cause infection in domesticated birds and spread through the excreta of wild ducks naturally. At first it was considered that the bird flu cannot be transmitted into humans but in 1997[3], 1st case of human influenza virus A (H5N1) was reported in Hong Kong. In the same year eighteen cases were recorded in which 6 patients died due to this infection. The subtypes (H5 and H7) of type A cause severe ailments in the birds that can be transmitted to the other various kinds of birds. Most of the types of this infectious virus are not of zoonotic importance, but influenza virus A (H5N1) can be pandemic as well as epidemic in humans. Based on its pathogenesis, type A influenza can be divided into 2 categories low pathogenic and high pathogenic viruses [4]. Low pathogenic avian influenza viruses affect respiratory tract while highly pathogenic cause damage to cardiovascular system, nervous system, and visceral organs.

Type B influenza virus is generally found only in humans. This type is not further divided into its subtypes like type A virus. This type cannot inflict pandemics but can inflict epidemics in human beings. Type C influenza virus cannot inflict severe disease but can cause mild ailment in human beings. This type of virus does not cause pandemics as well as epidemics [5].

Some types of the influenza outbreaks are H5N1 in Hong Kong, H7N7 in Netherlands, H9N2 in Hong Kong and China [6]. Outbreaks occur in the year 2004-05 are H5N1 and H7N3 in Canada, H10N7 in Egypt, and H5N1 in thirteen different countries. However, H5N1 spread in Indonesia, China, Egypt, and Nigeria. Outbreaks are seen in Asia, Africa, some parts of Europe and North Africa. Since 2015, only sporadic human cases have been recorded.

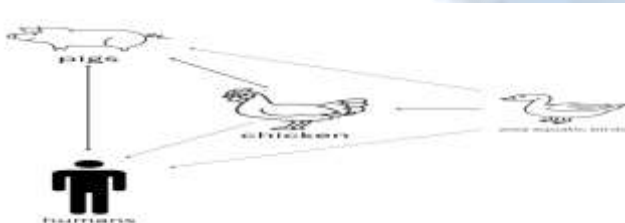


Figure 1: Transmission pattern of Avian Influenza

Clinical Signs and Symptoms

Mainly this virus affects the respiratory system, causing pain in the throat, shortness of breath, pneumonia [7], acute respiratory problem, cough, and respiratory failure. Signs and symptoms include body pain, muscle pain, headache, nausea, vomiting, diarrhea, running and stuffy nose, pink eyes, and ever about 100 degrees Fahrenheit or 38 degrees Celsius. Avian flu can

inflict a variety of serious complications that may cause pneumonia, elevation in liver enzymes, GIT manifestation,s and renal failure [8].

Preventive Measures

Most of the people infected with the influenza are seemed to have direct contact with the infected or dead birds so the most important precaution for the avian influenza virus is to dodge straight contact with domesticated birds and wild aquatic birds. We should just see them from space. Wild birds might be infected but may seem normal so we should avoid them. We must not touch the exteriors contaminated with the mucous, saliva, or excreta of the birds. Don't get closer to the dead birds because they might be infected. The vaccine is available for the H5N1 strain which is very helpful for the prevention of the bird influenza virus. We should avoid eating raw poultry products and use properly cooked food [9].

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