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Canine Influenza

Issue Description

Canine influenza or dog flu is influenza occurring in canines. Canine influenza is caused by varieties of Influenzavirus A, such as equine influenza virus H3N8, which in 2004 was discovered to cause disease in dogs. Because of the lack of previous exposure to this virus, dogs have no natural immunity to this virus. Therefore, the disease is rapidly transmitted between individual dogs. Canine influenza may be endemic in some regional dog populations of the United States. It is a disease with a high morbidity but a low mortality.

Other Names

CIV

History

The highly contagious equine influenza virus H3N8 was found to have been the cause of Greyhound race dog fatalities from a respiratory illness at a Florida racetrack in January 2004. The exposure and transfer apparently occurred at horse racing tracks, where dog racing also occurs. This was the first evidence of an influenza A virus causing disease in dogs. However, serum collected from racing Greyhounds between 1984 and 2004 and tested for canine influenza virus (CIV) in 2007 had positive tests going as far back as 1999. It is possible that CIV caused some of the respiratory disease outbreaks at tracks between 1999 and 2003.

H3N8 was also responsible for a major dog flu outbreak in New York state in all breeds of dogs. From January to May 2005, outbreaks occurred at 20 racetracks in 10 states (Arizona, Arkansas, Colorado, Florida, Iowa, Kansas, Massachusetts, Rhode Island, Texas, and West Virginia.) As of August 2006, dog flu has been confirmed in 22 U.S. states, including pet dogs in Wyoming, California, Connecticut, Delaware, and Hawaii. There are three areas in the United States that may now be considered endemic for CIV due to continuous waves of cases: New York, southern Florida, and northern Colorado/southern Wyoming. There is no evidence that the virus can be transferred to people, horses, cats, or other species.

The virus

Influenza A viruses are enveloped negative sense single-stranded RNA viruses. Genome analysis has shown that H3N8 was transferred from horses to dogs and then adapted to dogs through point mutations in the genes. The incubation period is two to five days and viral shedding may occur for seven to ten days following the onset of symptoms. It does not induce a persistent carrier state.

Symptoms

About 80 percent of infected dogs with H3N8 show symptoms, usually mild (the other 20 percent have subclinical infections), and the fatality rate for Greyhounds in early outbreaks was 5 to 8 percent, although the overall fatality rate in the general pet and shelter population is probably less than 1 percent. Symptoms of the mild form include a cough that lasts for ten to thirty days and possibly a greenish nasal discharge. Dogs with the more severe form may have a high fever and pneumonia. Pneumonia in these dogs is not caused by the influenza virus, but by secondary bacterial infections. The fatality rate of dogs that develop pneumonia secondary to canine influenza can reach 50 percent if not given proper treatment. Necropsies in dogs that die from the disease reveal severe hemorrhagic pneumonia and evidence of vasculitis.

Diagnosis

The presence of an upper respiratory tract infection in a dog that has been vaccinated for the other major causes of kennel cough increases suspicion of infection with canine influenza, especially in areas where the disease has been

documented. A serum sample from a dog suspected of having canine influenza can be submitted to a laboratory that performs PCR tests for this virus.

Treatment and prevention

Treatment is generally supportive care and antibiotics for secondary bacterial infections. The virus is easily inactivated with common disinfectants such as bleach solutions and quaternary ammonium compounds. There is no vaccine available at this time, but there has been investigation of a canarypox-vectored vaccine for equine influenza virus for use in dogs.

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