DANADA VETERINARY HOSPITAL, P.C.

Parvovirus Infection in Dogs

Canine parvovirus (CPV) infection (sometimes called “parvo”) is a contagious viral infection that surfaced in the late 1970s. The virus has a selective effect on the most rapidly dividing cells of the body. For this reason, the lining of the small intestine and the cells of the bone marrow are most severely affected. GI symptoms and immunocompromise can occur rapidly and the disease has a high fatality rate if untreated.

Contributing Factors

Several factors contribute to the clinical course of parvovirus infection in dogs. These include stress, under-vaccination, age, concurrent infection with other diseases or parasites. Various studies have also identified certain breeds with higher incidence rates. These include Rottweiler, Doberman pinscher, black Labrador Retriever, American Pit Bull Terrier, and the German Shepherd dog.

Parvoviral enteritis (intestinal inflammation) may affect dogs of all ages but is most common in dogs less than one year of age. Young puppies less than five months of age are often the most severely affected and the most difficult to treat.

Prevalence

Canine parvovirus has been reported worldwide and is currently considered one of the four core viruses that all dogs in the world should be vaccinated for. The others are Rabies, Distemper, and Hepatitis.

Causes/Transmission

The causative agent of CPV disease is a very hearty virus. Unlike most other viruses, CPV is stable in the environment and is resistant to the effects of heat, detergents, and alcohol. CPV has been recovered from dog feces even after three months at room temperature. Since the virus is so resistant to decay, it can survive for long periods and be transmitted to any dog by simple contact with a contaminated object (called a “fomite”). Examples of fomites include shoes, clothing, play toys, insects, and feet of the infected dog.

Feces of the infected dog contain millions of viral particles. Susceptible dogs become infected by ingesting (swallowing) the virus. There does not have to be direct contact between the two dogs. Dogs that become infected with the virus and show clinical signs will usually become ill within 7-10 days of the initial infection.

Clinical Signs

Clinical signs may be variable, but generally take the form of severe vomiting and bloody diarrhea. Vomiting is usually the first sign to develop after infection. Diarrhea typically begins about 24 hours later and may or may not contain blood. Some dogs exhibit anorexia (loss of appetite), depression, and fever. Due to fluid losses patients can be profoundly lethargic and mentally inappropriate.

Diagnosis

The clinical signs of CPV infection can mimic other diseases causing vomiting and diarrhea; consequently, the diagnosis of CPV is sometimes a challenge for the veterinarian. The positive confirmation of CPV infection requires the demonstration of the virus in the stool or the detection of anti-CPV antibodies in the blood serum. The detection of virus in the stool is easily done with a point-of-care test that takes just a few minutes. This test can sometimes be negative very early in the disease course.

A presumptive diagnosis may be based on the presence of a reduced white blood cell count (leukopenia) along with clinical symptoms. If further confirmation is needed, stool or blood can be submitted to a veterinary laboratory for the other tests. The absence of leukopenia does not mean that the dog cannot have CPV infection. Some dogs that become clinically ill may not necessarily be leukopenic.

Treatment

The traditional therapy for parvo focuses on treating the damage done by the virus. Since the lining of the intestine is compromised, diarrhea results. This can lead to severe dehydration, loss of sodium and potassium, and may provide intestinal bacteria with access to the blood stream (septicemia). Therefore, treatment involves intravenous fluid replacement, attention to electrolytes, and prevention of septicemia with antibiotics.

In 2023, a single dose monoclonal antibody was conditionally released marking the first true anti-viral treatment for parvo. This treatment uses antibodies against the virus to help clear infections faster, leading to faster recovery and less fatalities. In studies, all treated animals improved faster than those who did not receive the treatment, and none of the treated puppies died. The speed of recovery is almost as important as the lack of mortality because it may help to greatly reduce treatment costs and allow more pet parents to afford life-saving therapy.

Prognosis

If untreated, 90% of affected dogs will die from parvo infections. Five percent will fully recover, and 5% will recover with some lasting illness.

Prior to the release of the monoclonal antibody treatment, the recovery rate for treated animals was 90%, with 10% of these patients having lasting issues. The hope is that the monoclonal antibody therapy will improve recovery to closer to 100% and help to reduce treatment costs associated with this disease.

Transmission to Humans

There is no documented evidence to suggest that humans may become infected with CPV.

Prevention

Proper vaccination offers the best protection against CPV. A properly vaccinated dog should have little to no risk of infection. Puppies receive a parvo vaccination as part of their multiple-agent vaccine given at 8, 12, and 16 weeks of age. In some situations, veterinarians will give an additional booster at 18 to 20 weeks of age. After the puppy series of vaccinations, all dogs should be boostered at 16 months, and then every 3 years to maintain proper immunity. Pregnant bitches should be boostered within two weeks of whelping to transfer protective antibodies to the puppies.

The stability of the CPV in the environment makes it important to properly disinfect contaminated areas. This is best accomplished by cleaning food bowls, water bowls, and other contaminated items with a solution of one cup of chlorine bleach in a gallon of water (500 ml in four liters of water) or an approved parvocidal cleaner.