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Conceptual Paper

Canine Parvo Viral Infection

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Introduction

The canine parvo viral infection is not a common disease among canines until 1978 it was first noticed in 1976 and peaking in 1978,1979 and 1980 as an outbreaks of severe gastroenteritis among groups of dogs.

Etiology

Canine parvo virus is a nonenveloped single stranded DNA

It belongs to order Parvo viridae , family Proto parvo virinae , genus Canine parvo virus 2. it has multiple strains, some of them are CPV-2a, CPV -2b, CPV- 2c.

The CPV -1 or the Minute virus of canines, was described in 1970. It causes resorption and abortion in pregnant bitches.

The genetic structure of CPV -2 is closely related to feline panleukopenia virus (FPV) by only 3 or 4 DNA sequence changes. so, it is believed that the CPV-2 is a genetically mutated version of FPV.

Epidemiology

Initially, as there was no previously exposed immunity, the virus spreads rapidly and leads to high morbidity and high mortality.

Young puppies usually between 6 weeks and 6 months age are most susceptible, especially if they are unvaccinated. Canine parvo virus can persist in the environment for about 7 months. Some stray dogs act as carriers of the disease.

The disease has 2 forms - Enteritis and Myocarditis.

Pathogenesis

The virus sheds from the infected dog into the environment along with feces and transmission occurs via feco-oral route. the virus the gets ingested and enters the oropharynx where it multiplied within 2- 3days and spreads to different body parts through the hematogenous route.

The virus effects the lymph nodes, bone marrow, intestinal villi and heart. The parvo virus shows tropism to rapidly dividing cells. when the virus reaches the intestinal villi though th blood stream it destroys the epithelial cells leading to bloody feces, as the intestine acts as barrier to various gut microbes, its damage leads to septicemia which eventually leads to DIC, shock and death.

The Bone marrow get affected along with lymphnodes leading to lymphopenia.

Myocarditis of disease occurs in newborn puppies where the myocardial cells are actively dividing. but due to the innate immunity from the maternal antibodies, this form is not commonly reported.

The incubation period of the virus is 5-7 days, but the virus begins to shed in feces from 4th or 5th day of infection.

Clinical Signs

Clinical signs appear from 7th day of infection. The disease manifestations include lethargy, increased body temperature, abdominal pain, inappetence, vomiting, diarrhea often brownish red tinge with foul odor which is characteristic of parvo viral infection in severe cases dehydration, recumbency and eventually death occur if untreated.

Diagnosis

By viral isolation, electron microscopy, fecal hemagglutination, ELISA.

Differential diagnosis

The parvo viral infection should be differentiated from acute enteritis where there will be no foul odor, intestinal parasites where there will be no vomiting (unless heavy worm burden), sudden diet change, bacterial infection which causes vomiting and diarrhea and stress

Treatment

There is no specific treatment for parvo viral infections but can be treated symptomatically fluid therapy usually preferred ringers lactate in severely dehydrated animals Antiemetics such as ondansetron antibiotics to prevent secondary bacterial infections like ampicillin, gentamicin Care must be taken during usage of aminoglycosides as they ARE nephrotoxic.

Supplements like probiotics. usually, anti-diarrheal drugs are not recommended (fecal matter and epithelial debris become toxic when remain inside body for long time). the course of treatment usually lasts for 7 days.

Management

Management includes isolating the dog from remaining dogs, providing bland diet if the dog will take food, avoiding milk for few days.

Prevention

Prevention is solely through vaccination at the age of 6 weeks the puppy recieves the first vaccination for parvo @ viral infection. Followed by a booster dose at 10 weeks and then annually.