Canine Rota Virus

Canine group A & C (GC/KS05 subtype G3P3) rotavirus are a zoonotic reoviridae which cause mild diarrhea, primarily in young dogs.

Canine rotavirus infection is considered a minor disease in young dogs (pups) because it is usually mild or unapparent; however, serologic investigations have shown a high prevalence of antibodies to rotavirus in adult dogs . Only a few cases of gastroenteritis due to this virus have been reported. Cases in puppies are characterized by mild gastroenteritis and isolation of virus and passage in unaffected puppies leads to diarrhea in experimental pups.

Although most canine rotaviral infections are considered host-specific, cases of human outbreaks associated with canine G3P strains have been reported in South-east Asia, underpinning the hypothesis that interspecies transmission or re-assortment between animals and humans viruses can occur.

Canine rotavirus is part of a larger group of RNA viruses from the family Reoviridae. Different strains of this virus can affect all species: from animals to humans. In fact, the rotavirus is one of the leading causes of diarrhea-based illness around the world, especially in children.

The rotavirus infection can affect dogs of all ages. If a puppy under 12 weeks old or a dog with a weak immune system, the risk is higher. Be on the lookout for watery diarrhea, the first telltale sign of rotavirus.

Rotavirus in dogs is rarely fatal unless the dog has a weak immune system or combines with another disease such as canine parvovirus or coronavirus. Although different strains of rotavirus can spread through all species, canine rotavirus does not typically affect humans. It can, however, be zoonotic (communicable) to humans. Therefore good hygiene is essential, especially where large populations of dogs with canine rotavirus are concerned.

There are eight different types of rotavirus. These are categorized into groups labeled from A to H. Rotaviruses in dogs are labeled under Group A.

This is also the group most likely to affect humans, although B and C have also caused outbreaks.

- Age :Although death from rotavirus is possible in small puppies, it is highly uncommon. Puppies who are past 12 weeks old generally do not show symptoms of canine rotavirus.
- Under normal conditions (temperature, humidity,sunshine), the viral particles can remain infective for up to seven months, making the soil and various crops a potential source of infection for animals and humans.
- Similarly, they remain infective in raw foods and water for over 14 days, causing, occasionally, food- or water-borne outbreaks of the disease. In addition, elimination of the virus is also difficult.
- Rotaviruses may retain their infectivity, even after use of various disinfectants (chloroform solution, sodium hypochlorite) or ultra-violet irradiation or temperature treatments,
- as only disinfectants containing ≥95% ethanol have been found to be effective against the virus.
- --The virus is transmitted primarily by the faecal oral and oral routes, when faecal traces or other contaminated material enter into the digestive tract of susceptible hosts.
- -Transmission via the respiratory route has also been suggested, but has not been adequately proven .

Each group is further divided into serotypes or strains. The G3 and P3 serotypes are most commonly found in dogs and rarely affect humans.

Rotavirus in dogs spreads through contact with contaminated fecal matter and other infected fluids. Dogs may not show symptoms and still carry the disease.

Rotavirus is mostly found in third world countries where humans and animals live in close proximity, increasing the chances for infection to spread. Fortunately, the effects of rotavirus in puppies are generally mild, specifically with watery diarrhea. In adult dogs, rotavirus is even less serious and symptomatic, though nursing dogs can pass antibodies on to susceptible pups.

pathogenesis

Pathological changes are almost exclusively limited to the small intestine. Rotavirus infects the mature non---dividing Enterocytes in the middle and top parts of the villi in the small intestine. At the cellular level, the infection is characterized by vacuolization blunting and

Shortening of the villi. Rotavirus also produces the enterotoxin NSP4, which Is thought to play an important role in the pathophysiology and clinical Symptom of rotavirus disease.
The incubation time is 24 to 48 hours and illness usually last from 3 to 5 days, Longer in immunocompromised individuals

Conditions which make rotavirus infection in dogs more likely include:

•Age: Puppies under 12 weeks old

•Weak immune system

•Combination with another virus such as canine parvovirus or coronavirus

•Poor hygiene

•Overcrowding

•Large populations of stray or feral dogs

Symptoms of rotavirus in dogs include:

- Watery diarrhea
- Mucus in feces
- Nausea or vomiting
- Lack of appetite
- Low-grade fever
- Lethargy

Diferential Diagnosis

Some causes for inflammation of the intestinal tract may consist of Rotavirus in puppies is sometimes indistinguishable from:

1-distemper infection, and canine reovirus (likewise called kennel cough).

1-canine parvovirus, corona virus ,and astrovirus (causes diarrhea) ,

2-canine distemper virus.

3- herpesvirus,

4- Clostridium perfringens enterotoxin A,

5-Escherichia coli.

6- intestinal nematodes and

7- protozoa,

Diagnosis

Lab tests to identify the infection might consist of laboratory evaluation of tissue samples, or tiny expedition of feces. One such test is ELISA (or enzyme-linked immunosorbent assay), a biochemical technique.

Treatment

RX

The effects of rotavirus in dogs are generally mild and tend to resolve within 10 days. The major concern is dehydration.

1- Treatment of canine rotavirus involves relief of symptoms such as diarrhea and other intestinal discomfort.

2- Supportive care includes replacing lost fluids and electrolytes.

3-Provide fresh water and food.

4-The veterinarian can advise of any diet restrictions.

5-Keep the ailing puppy warm and dry.

6- An important part of the process is waiting.A dog that has reached 15 to 20 weeks of age may not be as susceptible to CRV.

7-If the rotavirus infection is in fact combined with another disease, antibiotics or other medication will be administered. Antibiotics do not affect rotavirus but will limit bacterial infection from spreading.

Management

Since rotaviruses are zoonotic, it is necessary that pet owners keep infected dogs far from kids, babies in particular. When handling the fecal matter of an infected animal, it is particularly crucial to use preventative measures, such as using latex gloves and disinfecting the animal's living area.

Humans living in establishing countries are most at risk, typically experiencing lethal diarrhea. Price quotes recommend that in establishing countries approximately 500,000 children under age 5 die every year from rotavirus infections.

Prevention

The best security for a pup is to consume the milk of an immune bitch, as they produce antibodies that might safeguard versus the rotavirus.