

The Hope Line

Summer 2020

Shedding New Light on Coronaviruses in Cats!

Due to the global outbreak of novel coronavirus “COVID-19”, pet owners are seeking veterinary advice regarding coronaviruses in pets. One dog in Hong Kong tested positive via nasopharyngeal swab PCR sample but never showed clinical signs, and at least one tiger at the Bronx Zoo tested positive for COVID-19 after displaying signs of a dry cough. However, the Agricultural Fisheries and Conservations Department has stated that there is no evidence that dogs can transmit the virus to humans (and vice versa). The verdict is still out on whether domestic pets can become infected or ill. This newsletter will focus on feline coronavirus, as canine strains cause mild, self-limiting disease.



For further information on COVID-19, pet owners should be directed to the AVMA’s website.¹

Nonetheless, attention toward COVID-19 prompts renewed interest in OTHER common coronavirus strains in our pets.

OVERVIEW

- Feline enteric coronavirus affects up to 90% of multi-cat households, leading to transient diarrhea (or no clinical signs at all).
- Feline infectious peritonitis (FIP) occurs when enteric coronavirus mutates after replicating in monocytes and macrophages. Clinical signs overlap with neoplasia, inflammatory bowel disease, and infections. The USDA-licensed FIP vaccine is not recommended by the American Association of Feline Practitioners due to limited efficacy and possible antibody-dependent enhancement (ADE).
 - Bimodal distribution (cats less than three years and greater than ten years of age) with Abyssinian, Birman, Bengal, Ragdoll, Himalayan and Rex breeds being predisposed.
 - Clinical signs: uveitis, fever, icterus, abdominal pain, anorexia, effusions and neurological signs.
 - Hallmark clinicopathological findings: Hyperglobulinemia in 50-70% of cats (albumin:globulin ratio <0.4 is strongly suspicious of FIP; >0.8 can rule it out) and cytopenias are common CBC findings.

DIAGNOSIS

- Serology is non-specific (many non-FIP cats have high titers)
- RT-PCR on cavity effusions is 72-100% sensitive and 98% specific.²
- Immunocytochemistry on cavity effusions is 50-90% sensitive.
 - Effusions consist of non-degenerate neutrophils/macrophages and >3.5 g/dl total protein.
- Rivalta test on effusions is 60-90% sensitive and 50-90% specific.
- Effusion A:G ratio of <0.4 is 82% sensitive and 80% specific.
- IHC for viral antigen on tissue samples is the gold standard ! 62% sensitive and 100% specific. Perivascular pyogranulomatous inflammation is a hallmark of disease.

TREATMENT

- Polypropyl Immunostimulant (PPI): One/three cats that were treated for 4.5 months survived for 14 months. The other two lived two years after diagnosis.⁴ The Winn Foundation reported that 13/58 cats with dry FIP treated with PPI lived six months or more; 3/58 were alive one year later. However; “No placebo control group was part of this study, so clear benefit with PPI treatment cannot be made.”
- Prednisone: Since FIP has an immune-mediated component, immunosuppressants may be useful. Prednisolone (2-4 mg/kg/day PO then gradually tapered to q 10-14 days) may slow progression of disease. Chlorambucil and Cyclophosphamide have also been reported.

See reverse side for more treatment options

Shedding New Light on Coronaviruses in Cats Continued...

- Antiprotease Inhibitors (3CLpro GC376): Reversal of clinical signs and lymphopenia occurred in 6/8 experimentally infected cats by day 14-20 of treatment. Another study reported that 19/20 cats were healthy within 2 weeks of treatment but 13/20 relapsed 1-7 weeks later.³
- Nucleoside Analogs (GS-441524): **currently being studied** as an antiviral agent which inhibits FIP replication in cultured cells and naturally infected feline macrophages. In one study, treatment resulted in rapid clinical improvement in 10/10 cats within 2 weeks. In another study, 31 cats with naturally-acquired FIP (26 effusive, 5 non-effusive) were treated for 12 weeks. Four with severe disease died or were euthanized within 2-5 days. A fifth cat died after 26 days of treatment. Eighteen of the remaining 26 cats were clinically healthy at the time of study publication. Optimum dosage was determine to be 4 mg/kg SC q 24 hrs for 12 weeks, and no adverse effects were reported.⁵



Here at SEVO-Med we are wishing you, your patients, and team a healthy remainder of 2020!

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References:

1. <https://www.avma.org/resources-tools/animal-health-and-welfare/covid-19>
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