

Information resource for veterinarians

Feline Infectious Peritonitis is most commonly seen in kittens and cats younger than 3 years-of-age. There is a higher prevalence in shelter cats, breeding cats or multi-cat household. FIP cases may present as a cat having a persistent and often high fever that fails to respond to antibiotic therapy. The owner may report lethargy, poor appetite, weight loss. Clinical signs can be highly variable but may include mental dullness, increased respiratory effort, abdominal distension, ocular or neurological signs, along with potentially a great range of other findings.

Diagnosis

- » Hyperglobulinaemia
- » Elevated Total Protein
- » Non-regenerative anaemia
- » Elevated ALT, ALP, AST, elevated bilirubin
- » Albumin to globulin ratio of < 0.8
- » Fluid analysis for cases of 'wet' FIP typical changes include:
 - » Protein $> 35\text{g/L}$ in all cases
 - » Low cellularity ($< 20\,000$ cells/ml) containing mainly non-degenerate neutrophils and macrophages
 - » FNA of mass lesions pyogranulomatous lesions i.e. predominantly macrophages with no microorganisms present

Effusive disease is obviously much easier to diagnose as the fluid provides a convenient sample which can be examined cytologically and then subjected to immunofluorescence (IFA) for FIP antigen or PCR

- » Direct Immunofluorescence (IFA) for FIP antigen in body cavity fluid sample in 'wet' FIP cases (not blood) (available through Vetnostics or Veterinary Diagnostic Pathology Services (VDPS))
- » FIP PCR on fluid sample ('wet' FIP) (IDEXX)
- » Immunohistochemistry or immunocytochemistry from an FNA or biopsy sample from an enlarged lymph node ('wet' or 'dry' forms)
- » Brain MRI and/or CSF tap ('dry' FIP)
- » Co-morbidities such as toxoplasmosis and/or mycoplasmas (if anaemic) could be present, so ruling out these diseases via toxoplasma titres (IgG and IgM) and a Mycoplasma PCR test is helpful.
- » Testing for FIV and FeLV is recommended.

Initial Treatment in hospital

Acute illness may require 3 or 4 days of inpatient therapy whereby patients begin their treatment with remdesivir along with IV fluid therapy. Pleural effusion is not uncommon.

1. Remdesivir is administered at a high dose intravenously (15 mg/kg).
2. The dose is continued IV SID until a clinical improvement has occurred and the cat is suitable for oral medications.
3. Remdesivir is provided by BOVA as a 100 mg vial which is reconstituted as per their instructions
4. Draw up the dose of the already reconstituted 10mg/kg Remdesivir, then make it up to 10ml with saline. Give the 10ml SLOWLY over 30 minutes.
5. Note that many cats can appear somewhat depressed for a few hours after the IV infusion of remdesivir
6. Complications reported in FIP cats in the first few days of treatment can include worsening of a pleural effusion, new onset pleural effusion, or seizures. Close monitoring is essential.

The 84 day course of tablets need to be ordered directly from BOVA for each case. Updates can be found on the BOVA Website:

Daily s/c injections or starting oral treatment (GS-441524) from the outset: as per Taylor et al 2024, is an alternative option.

- » Tablets have been available since 2021 in Australia from BOVA
- » Effective, well-tolerated
- » Treat for 12 weeks (84 days)
- » The dose of GS-441524 tablets in kittens should be recalculated on a weekly basis upwards as they grow to prevent underdosing.
- » Cats that start their FIP treatment with the oral GS-441524 tablets generally improve within the first week of starting treatment. If this does not occur, then it is better to seek further diagnostics (if FIP has not been definitively diagnosed)

Oral Dose recommendations for GS-441534 (Howard 2024):

Effusive 'wet' FIP	10mg/kg once daily orally
Non-effusive 'dry' FIP	15-20mg/kg once daily orally
Ocular FIP	15mg/kg once daily orally

Molnupiravir

Molnupiravir is another oral alternative that has recently been reported (Sase 2023). This case series suggests that molnupiravir might be an effective and safe treatment at a dose of 10-20 mg/kg twice daily for 84 days.

Prognosis

- » Emergency treatment usually begins in the ICU for critically unwell cats, including a once a day IV infusion of Remdesivir (can also be given s/c)
- » Additional therapeutics such as IV infusions, anti-nausea medications, thoracocentesis, oxygen therapy or feeding tubes may also be required in some cases
- » 85% success rates, complications can include worsening respiratory signs, seizures, or failure to respond
- » Some cats may be suitable to start tablets right away
- » Relapse rates and survival times are currently not known
- » Total cost of the 3 months of medication may be in the range of \$3000-4500 for the medication alone. All other costs are to be estimated as normal- please contact MASH to discuss.

References

- » Hughes D, Howard G, and Malik R (2021). Treatment of Feline Infectious Peritonitis in Cats with Remdesivir- A Clinical Review. The Veterinarian, April 2021
- » Sase, O. Molnupiravir treatment of 18 cats with feline infectious peritonitis: A case series .J Vet Intern Med. 2023 Sep-Oct;37(5):1876-1880.Epub 2023 Aug 8.
- » Tasker S (2018) Diagnosis of feline infectious peritonitis Update on evidence supporting available tests. Journal of Feline Medicine and Surgery. (2018) 20, 228-243
- » Taylor S BVetMed(hons) CertSAM DipECVIM-CA MANZCVS FRCVS Séverine Tasker BSc(hons) BVSc(hons) DSAM PhD DipECVIM-CA FHEA FRCVS Daniëlle Gunn-Moore BSc(hons) BVM&S PhD MANZCVS FHEA FRSB FRCVS Emi Barker BSc(hons) BVSc(hons) PhD PGCertTLHE DipECVIM-CA MRCVS Stephanie Sorrell BVetMed(hons) MANZCVS DipECVIM-CA MRCVS An update on treatment of FIP using antiviral drugs in 2024: growing experience but more to learn 'FIP advice' email address (fipadvice@gmail.com)



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