Famciclovir

**Dose:** Ideal dose still being established and its safety investigated

**Option:** 90 mg/kg PO q8h associated with significant improvement in cats with experimental primary herpetic disease

**Option:** 40 mg/kg PO q8h produced plasma penciclovir concentrations similar to those achieved with above dose

- Also produced tear penciclovir concentrations likely effective against feline herpesvirus type 1 (FHV-1)

Famciclovir is a prodrug that must be converted to its active metabolite penciclovir, a purine analog with in vitro efficacy against FHV-1. Because cats are markedly deficient in the enzyme required for this conversion, famciclovir metabolism is limited and nonlinear.

Lysine

**Dose:** 500 mg PO q12h

- Must be administered as twice-daily bolus
- Unsuccessful when 250 or 500 mg administered only once daily to shelter cats and when patients permitted ad lib access to diet fortified with lysine

Lysine limits in vitro replication of FHV-1 at high concentrations and with concurrent depletion of arginine; however, this effect was not seen in media containing physiologic lysine and arginine concentrations. In experimental conditions, lysine supplementation may reduce viral shedding in cats latently infected with FHV-1 and clinical signs in cats undergoing primary exposure.

Cidofovir

**Dose:** 1 drop of 0.5% ophthalmic solution to affected eye q12h

- Do not administer systemically.

Cidofovir is a cytosine analog that creates metabolites with a relatively long tissue half-life, permitting it to be used less frequently than other antiviral drugs; when applied topically to cats experimentally infected with FHV-1, cidofovir reduced viral shedding and clinical disease. Reports showed that cidofovir can be associated with stenosis of the nasolacrimal drainage system components during experimental topical use in humans and rabbits, but this adverse effect has not been noted in cats.

Trifluridine

**Dose:** 1 drop of 1% ophthalmic solution to affected eye at least 5 times daily

- Do not administer systemically.

Trifluridine is a thymidine analog with in vitro efficacy against FHV-1 and excellent corneal epithelial penetration. It often is
not well tolerated by cats, likely because of a stinging reaction also reported in humans; no controlled studies assessing its use in cats have been conducted.

**Idoxuridine**

**Dose:** In United States, can be obtained from compounding pharmacists only; following forms recommended (do not administer systemically)

**Compounded form:** 1 drop of 0.1% ophthalmic solution to affected eye at least 5 times daily¹⁹

**Compounded form:** 1/4-inch strip of 0.5% ophthalmic ointment to affected eye at least 5 times daily¹⁹

Like trifluridine, idoxuridine is a thymidine analog with in vitro efficacy against FHV-1.⁴,²⁰ It was commercially available as an ophthalmic solution or ointment for humans with disease attributable to herpes simplex virus type 1 (HSV-1), is well tolerated by most cats, and seems efficacious in many; however, no controlled studies assessing its use in cats have been conducted.

**Vidarabine**

**Dose:** In United States, can be obtained from compounding pharmacists only; following form recommended (do not administer systemically)

**Compounded form:** 1/4-inch strip of 3% ophthalmic ointment to affected eye at least 5 times daily¹⁹

Vidarabine, an adenosine analog with in vitro efficacy against FHV-1,²⁰ affects a different viral replication step than do trifluridine and idoxuridine and thus may be effective in patients with a disease apparently resistant to these drugs; no controlled studies in cats have been conducted.

**Acyclovir**

**Dose:** 1/4-inch strip of 0.5% ophthalmic ointment to affected eye at least 5 times daily; not available in the United States²²

Acyclovir is a purine analog with relatively low in vitro potency against FHV-1,⁴,²⁰,²² and poor absorption following oral administration.²³ It is also associated with nephrotoxicity and bone marrow suppression²²; therefore, systemic administration is not recommended in cats.

Cats treated topically 5 times daily with acyclovir ophthalmic ointment experienced a median time of 12 days to resolution of clinical signs,²² whereas resolution in cats treated q8h took approximately twice as long and occurred only when therapy was increased to 5 times daily. Toxicity was not seen with topical application.²²

**Valacyclovir**

**Dose:** Use contraindicated in cats

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When applied topically to cats experimentally infected with FHV-1, cidofovir reduced viral shedding and clinical disease.¹⁵

FHV-1 = feline herpesvirus type 1
Valacyclovir, an acyclovir prodrug, enhances acyclovir bioavailability, thereby increasing plasma acyclovir concentrations in cats to levels associated with bone marrow suppression and fatal hepatic and renal necrosis.\(^{24}\) Valacyclovir should never be administered systemically to cats.

**Ganciclovir**

Dose: No data available for cats
- In humans, available for systemic (IV, PO), intravitreal, and topical ophthalmic (0.15% gel) administration

Ganciclovir, a purine analog, appears to be at least 10-fold more effective against FHV-1 than is acyclovir.\(^{4,25}\) However, in humans this agent is relatively more toxic than other antivirals, and there are no reports on its safety or efficacy in cats; thus, it should not be used systemically in cats at this stage. There are no reports of its topical use in cats.

**Closing Remarks**

Based on current evidence for safety and efficacy of antiviral drugs in cats infected with FHV-1, optimal therapy appears to be famciclovir given orally 3 times daily.\(^{1-3}\)

- If topical therapy is preferred and owners can administer drugs frequently, then topical idoxuridine is usually well tolerated and often effective.\(^{4,20}\)
- For owners who cannot manage therapy more often than q12h, the only topical antiviral with proven efficacy is cidofovir.\(^{15,16}\)
- Lysine can be useful adjunct therapy in some patients, especially to reduce frequency and severity of recrudescent disease episodes.\(^{8-11,14}\)

—Must be administered q12h, not ad lib with food

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DAVID J. MAGGS, BVSc (hons), DACVO, is professor of comparative ophthalmology at University of California, Davis, with 5 years’ experience in mixed practice. He graduated from University of Melbourne before completing small animal and equine internships at Colorado State University and a research fellowship and comparative ophthalmology residency at University of Missouri. He is an editorial board member for *Journal of Feline Medicine and Surgery*, founding member of American Board of Veterinary Ophthalmology, and 2012 WVC Small Animal Continuing Educator of the year. Dr. Maggs is also co-editor of *Slatter’s Fundamentals of Veterinary Ophthalmology*. His major interests include ocular surface disease, particularly feline herpesvirus.

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