



## Eye Disease in Cats: New Review, Lingering Questions



Records of 45 cases of feline eosinophilic keratoconjunctivitis (EKC) were reviewed. Median age at presentation was 5 years, and domestic shorthair cats accounted for 77.8% of cases.

EKC is a progressive proliferative infiltrative keratopathy involving superficial vascularization of the cornea, progressing to involvement of the conjunctiva and third eyelid. Infiltration by eosinophils is the disease hallmark. In 75.6% of examined cases, presentation was unilateral; right and left eyes were affected with similar frequency, and the superotemporal quadrant of the cornea was most commonly affected (76.8%). Topical corticosteroids were prescribed in 95.6% of cases; 21 cats also received a topical antiviral treatment. Other treatments included topical cyclosporine A, L-lysine, topical olopatadine, and systemic corticosteroids. Mean and median times to improvement were 2.3 months and 1.5 months, respectively. Corneal ulceration was noted at or before diagnosis in 66.7%; 37.8% of all cases had a history of corneal ulceration. Eosinophils were present in 92.0% of corneal scrapings and FHV-1 viral DNA was detected in 54.5% of the 33 tested cats. FHV-1 DNA was detected in 66.7% of cats presenting with or having a history of corneal ulcer. This is significantly greater than the 22.2% of viral-infected cats with no history of corneal ulcer, suggesting that EKC cats presenting with corneal ulceration should be tested for FHV-1. In addition, cats with

EKC-associated corneal ulceration may be started on antiviral therapy before PCR results are obtained.

### ■ Global Commentary

This study served as a good review of what we know of feline EKC, including the confusion surrounding the name of the disorder, involvement of FHV-1 in its pathogenesis, clinical presentation, and diagnosis. It also provided new information regarding significant differences in FHV-1 prevalence between cases presenting with and without corneal ulceration. However, it lacked treatment and therapeutic guidance. Since FHV-1 is so prevalent in cats, many specialists will not prescribe topical steroid therapy (as recommended in the study) without concomitant antiviral treatment. Without such treatment, steroids may induce FHV-1 reactivation and worsen patient condition. In fact, because of the involvement of FHV-1 in feline EKC pathogenesis, some advocate beginning treatment with antiviral medications and only subsequently adding steroids in cases that do not improve.

The antiviral treatment provided to some patients is rather limited, although this may be because of restricted local availability. Ganciclovir has not been evaluated in vivo in cats, and studies of the efficacy of lysine and interferon have shown variable efficacy. Topical cidofovir and systemic famciclovir are becoming drugs of choice, where available.—*Ron Ofri, DVM, PhD, DECVO*

### ■ ■ Source

Feline eosinophilic keratoconjunctivitis: A retrospective study of 45 cases (56 eyes). Dean E, Meunier V. *J FELINE MED SURG* 15:661-666, 2013.

# Atopica®

(Cyclosporine capsules, USP) MODIFIED

**Brief Summary:** For full product information see product insert.

**Caution:** Federal (USA) law restricts this drug to use by or on the order of a licensed veterinarian.

**Description:** ATOPIKA (cyclosporine capsules, USP) MODIFIED is an oral form of cyclosporine that immediately forms a microemulsion in an aqueous environment.

**Indications and Usage:** ATOPIKA is indicated for the control of atopic dermatitis in dogs weighing at least 4 lbs body weight.

**Dosage and Administration:** The initial daily dose of ATOPIKA is 5 mg/kg/day (3.3-6.7 mg/kg/day) as a single daily dose for 30 days. Following this initial daily treatment period, the dose of ATOPIKA may be tapered by decreasing the frequency of dosing to every other day or two times a week, until a minimum frequency is reached which will maintain the desired therapeutic effect. ATOPIKA should be given at least one hour before or two hours after a meal. If a dose is missed, the next dose should be administered (without doubling) as soon as possible, but dosing should be no more frequent than once daily. See Product Insert for dosing chart.

**Contraindications:** ATOPIKA is contraindicated for use in dogs with a history of neoplasia.

**WARNINGS:** ATOPIKA (cyclosporine) is a potent systemic immunosuppressant that may increase the susceptibility to infection and the development of neoplasia.

**Human Warnings:** Not for human use. Keep this and all drugs out of reach of children. **For use only in dogs.**

**Precautions:** Gastrointestinal problems and gingival hyperplasia may occur at the initial recommended dose. ATOPIKA should be used with caution with drugs that affect the P-450 enzyme system. Simultaneous administration of ATOPIKA with drugs that suppress the P-450 enzyme system, such as ketoconazole, may lead to increased plasma levels of cyclosporine.

The safety and effectiveness of ATOPIKA has not been established in dogs less than 6 months of age or less than 4 lbs body weight. ATOPIKA is not for use in breeding dogs, pregnant or lactating bitches.

Since the effect of cyclosporine use on dogs with compromised renal function has not been studied ATOPIKA should be used with caution in dogs with renal insufficiency.

There have been reports of convulsions in human adult and pediatric patients receiving cyclosporine, particularly in combination with high dose methylprednisolone.

Killed vaccines are recommended for dogs receiving ATOPIKA because the impact of cyclosporine on the immune response to modified live vaccines is unknown. As with any immunomodulation regimen, exacerbation of sub-clinical neoplastic conditions may occur.

**Adverse Reactions:** A total of 265 dogs were included in the field study safety analysis. One hundred and eleven (111) dogs were treated with placebo for the first 30 days. For the remainder of the study, all dogs received ATOPIKA capsules. Four dogs withdrew from the study after vomiting. One dog each withdrew from the study after diarrhea; vomiting, diarrhea and pruritus; vomiting, depression and lethargy; lethargy, anorexia and hepatitis; gingival hyperplasia, lethargy, polyuria/polydipsia and soft stool; seizure; sebaceous cyst; pruritus; erythema; or otitis externa respectively.

Vomiting (30.9%) and diarrhea (20.0%) were the most common adverse reactions occurring during the study. In most cases, signs spontaneously resolved with continued dosing. In other cases, temporary dose modifications (brief interruption in dosing, divided dosing, or administration with a small amount of food) were employed to resolve signs.

Persistent otitis externa (6.8%), urinary tract infections (3.8%), anorexia (3.0%), gingival hyperplasia (2.3%), lymphadenopathy (2.3%) and lethargy (2.3%) were the next most frequent adverse events observed. Gingival hyperplasia regressed with dose tapering. Owners of four dogs reported seizures while dogs were receiving ATOPIKA. In one dog, seizures were the result of a brain tumor diagnosed one month into the study. Another dog experienced seizures before and after the study.

The following clinical signs were reported in less than 2% of dogs treated with ATOPIKA in the field study: constipation, flatulence, clostridial organisms in the feces, nausea, regurgitation, polyuria/polydipsia, strong urine odor, proteinuria, pruritus, erythema/flushed appearance, pyoderma, sebaceous adenitis, crusty dermatitis, excessive shedding, coarse coat, alopecia, papillomas, histiocytoma, granulomatous mass or lesion, cutaneous cyst, epulis, benign epithelial tumor, multiple hemangioma, raised nodule on pinna, seizure, shaking/trembling, hind limb twitch, panting, depression, irritability, hyperactivity, quieter, increased light sensitivity, reluctance to go outside, weight loss, hepatitis.

**Clinical Pathology Changes:** During the study, some dogs experienced changes in clinical chemistry parameters while receiving ATOPIKA, as follows: elevated creatinine (7.8%), hyperglobulinemia (6.4%), hyperphosphatemia (5.3%), hyperproteinemia (3.4%), hypercholesterolemia (2.6%), hypoalbuminemia (2.3%), hypocalcemia (2.3%) and elevated BUN (2.3%).

**Post-approval Experience:** Neoplasms have been reported in dogs taking ATOPIKA, including reports of lymphosarcoma and mast cell tumor. It is unknown if these were preexisting or developed de novo while on ATOPIKA.

In post-approval drug experience reporting the following additional adverse reactions have been associated with ATOPIKA administration in dogs: vomiting, diarrhea, depression/lethargy, anorexia, pruritus, liver enzyme elevations, trembling, convulsions, polydipsia, polyuria, weight loss, hyperactivity, nervousness, neoplasia.

To report suspected adverse reactions or for technical assistance, call 1-800-332-2761.

Manufactured for: Novartis Animal Health US, Inc.  
Greensboro, NC 27408, USA

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