

Effect of oral administration of L-lysine on conjunctivitis caused by feline herpesvirus in cats

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Abstract

Objective—To determine whether oral administration of L-lysine to cats would lessen the severity of conjunctivitis caused by feline herpesvirus (FHV-1).

Animals—8 healthy young adult cats.

Procedure—Cats received oral administration of lysine monohydrochloride (500 mg, q 12 h) or placebo (lactose) beginning 6 hours prior to inoculation of virus. The left conjunctival sac received a 50- μ l suspension of FHV-1 grown in cell culture (1.8×10^8 tissue culture infective dose₅₀) on day 1. Cats were evaluated and scores given for clinical signs each day for 21 days. Samples for virus isolation were collected from the eye and throat every third day. Plasma lysine and arginine concentrations were measured prior to the study and on days 3, 14, and 22.

Results—Cats that received lysine had less severe conjunctivitis than cats that received placebo. Virus isolation results did not differ between the groups. Plasma lysine concentration was significantly higher in cats that received lysine, compared with control cats, whereas plasma arginine concentrations did not differ between groups.

Conclusions and Clinical Relevance—Oral administration of 500 mg of lysine to cats was well tolerated and resulted in less severe manifestations of conjunctivitis caused by FHV-1, compared with cats that received placebo. Oral administration of lysine may be helpful in early treatment for FHV-1 infection by lessening the severity of disease. (*Am J Vet Res* 2002;63:99–103)

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Effects of L-lysine and L-arginine on in vitro replication of feline herpesvirus type-1

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Abstract

Objective—To determine the effects of various concentrations of L-lysine and L-arginine on in vitro replication of feline herpesvirus type-1 (FHV-1).

Sample Population—Cultured Crandell-Reese feline kidney (CRFK) cells and FHV-1 strain 727.

Procedure—Uninfected CRFK cells or CRFK cells infected with FHV-1 were cultured in Dulbecco's modified Eagle's medium or in 1 of 7 test media containing various concentrations of lysine and arginine. Viral titer and CRFK growth rate were assessed in each medium.

Results—Media depleted of arginine almost completely inhibited viral replication, whereas 2.5 or 5.0 µg of arginine/ml of media was associated with a significant increase in FHV-1 replication. In media with 2.5 µg of arginine/ml, supplementation with 200 or 300 µg of lysine/ml reduced viral replication by 34.2 and 53.9%, respectively. This effect was not seen in media containing 5.0 µg of arginine/ml. Growth rates of CRFK cells also were suppressed in media containing these concentrations of amino acids, but they were not significantly different from each other.

Conclusions and Clinical Relevance—Arginine exerts a substantial growth-promoting effect on FHV-1. Supplementation of viral culture medium with lysine attenuates this growth-promoting effect in media containing low concentrations of arginine. Analysis of data from this study indicates that high concentrations of lysine reduce in vitro replication of FHV-1 but only in media containing low concentrations of arginine. Clinical trials will be necessary to determine whether supplemental administration of lysine, with or without arginine restriction, will be useful in the management of cats with FHV-1 infections. (*Am J Vet Res* 2000; 61:1474–1478)

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