Extended-Release Diltiazem—Not the Answer

Hypertrophic cardiomyopathy (HCM) is a common disease of cats. Two goals of treatment are to reduce the ventricular hypercontractility and improve diastolic compliance. Beta-adrenoreceptor blockers, such as atenolol and calcium-channel blockers (such as diltiazem), are often used. Diltiazem is usually prescribed at a dose of 7.5 mg PO every 8 hours, but the 30-mg tablet is difficult to cut and thus causes compliance problems. A sustained-release product was investigated to see if it could be given once a day to cats. This study had two parts. The first part studied 10 privately owned, clinically normal cats and 3 cats with HCM. All were given sustained-release diltiazem (Dilacor XR—Watson Labs, Inc, Corona CA) at 60 mg PO once daily for 7 consecutive days. On day 7, serum samples were obtained at 6, 12, 18, and 24 hours after diltiazem administration. After 60 days, 5 of the normal cats were given 30 mg diltiazem for 7 days and serum samples were collected again. Cats given the 60-mg tablets had serum diltiazem concentrations that were above or equal to the recommended serum diltiazem concentration for humans at all 4 sampling times. Two cats had serum concentrations below the recommended levels at 18 and 24 hours. Some cats given the 30-mg diltiazem dose had serum concentrations above the recommended range in humans at 6 and 12 hours and below the recommended range at 18 and 24 hours. In the second part of the study, adverse clinical signs associated with once-daily PO administration of the sustained release drug were studied retrospectively. The cats in this study had been diagnosed with HCM by echocardiography. Nine of the 25 cats experienced adverse reactions; signs resolved in 7 cats when the drug was withdrawn. Adverse clinical signs included decreased appetite, vomiting, lethargy, weight loss, and diarrhea. The daily dose given to most cats was relatively high. The dose of conventional diltiazem would have ranged from 3.0 to 6.3 mg/kg divided three times daily, but the dose in these cats equaled a daily dose of 8.2 to 16.7 mg/kg. Based on the results of this study, sustained-release diltiazem was not recommended for cats.

COMMENTARY: Repeated dosing in cats with chronic conditions continues to be a challenge, and this study indicates that the tested formulation of extended-release diltiazem is not recommended in cats. Serum drug levels were erratic, incidence of undesirable side effects was high (36%), and tablets were difficult for clients to manipulate. The search must continue to find an optimal formulation of diltiazem for use in treating an important feline cardiac pathology.—Bess P. Brosey, MZS, DVM, Diplomate ABVP & ACVIM