Evaluation of Pimobendan in Healthy Cats: An Echocardiographic Study of Acute Cardiovascular Effects
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Pimobendan is an inodilator utilised extensively in the treatment of canine congestive heart failure. Several retrospective studies evaluating clinical records have suggested that it is well tolerated in cats; however, its efficacy in this species remains ill-defined. Moreover, a recent pharmacokinetic study found peak plasma concentrations of the drug to be around ten times greater than those reported in the dog, thus highlighting interspecies differences in the pharmacokinetics and, potentially, pharmacodynamics of this drug. This study was conducted to evaluate the cardiovascular effects following oral doses of pimobendan in healthy cats.

A placebo-controlled, randomised, operator-blinded crossover study was conducted in eight healthy cats (weight range 3.69–4.83 kg) to evaluate the effect of two doses of pimobendan (high dose [HD]: 1.25 mg Vetmedin chewable tablet PO; low dose [LD]: 0.625 mg Vetmedin chewable tablet PO) and placebo ([PL]: water PO) on cardiovascular parameters over time. Standard echocardiography (2-D, M-mode, and spectral Doppler) and oscillometric blood pressure measurements (Vet HDO) were performed repeatedly for 12 h following dosing. Each measured parameter was evaluated for between- and within-treatment effects over time using linear mixed modeling with REML estimation to account for inter-cat variability. Heart rate was used as a proxy for the level of anxiety experienced by the cats, and adjustment for this was performed through inclusion of heart rate as a fixed effect in the final model.

The effect of treatment with pimobendan was most evident in the left ventricular internal diameter in systole (LVIDs). Maximal effects occurred 2 h following treatment with HD and LD. The predicted mean reduction from baseline following heart rate adjustment at this time for LVIDs was 1.96 mm (24% reduction) and 1.68 mm (20% reduction) for HD and LD, respectively. Although there were no significant differences between HD and LD in the magnitude of effect at any given time point, LVIDs remained significantly reduced from baseline and the PL group for longer in the HD (40 min to 10 h following dosing) than in the LD group (2 to 4 h following dosing). Significant treatment effects on aortic velocity and fractional shortening were also present, but to a lesser degree.

These results demonstrate that treatment with pimobendan results in measurable changes to systolic indices in cats. A dose-dependent increase in duration of effect was also observed. Further studies are required to characterise the optimal dose of pimobendan in cats and to evaluate its efficacy in clinical patients.

DISCLOSURES
Disclosures to report.

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