Pimobendan Use in Cats

Although pimobendan is not labeled for use in cats, several retrospective studies have reported the use of pimobendan in cats with congestive heart failure (CHF) secondary to a variety of cardiomyopathies and other forms of heart disease (**TABLE 1**), with and without ventricular systolic dysfunction (**SEE CASE SCENARIO**).[1-3] A retrospective case-control study of cats in heart failure with hypertrophic cardiomyopathy (HCM) that did receive versus did not receive pimobendan reported a survival benefit (103 days compared with 626 days, in favor of pimobendan).[3]

DOSING

Pimobendan dosing for cats is similar to that for dogs (0.25 to 0.3 mg/kg PO q12h).

INDICATIONS

In cats, the predominate type of cardiomyopathy is hypertrophic with preserved or normal ventricular systolic function. The rationale for using a positive inotrope in cats with HCM is not entirely clear; however, it may be associated with improved ventricular relaxation via phosphodiesterase III (PDEIII) inhibition, enhanced atrial and auricular contraction and emptying, and/or reduced platelet aggregation.[4,5]

Cats with hypertrophic obstructive cardiomyopathy have HCM with evidence of left ventricular outflow tract obstruction. Obstruction in cats with HCM is often intermittent, variable in severity, and exacerbated by elevated heart rates. Because outflow tract obstruction is a relative contraindication for pimobendan use in cats with cardiomyopathy, an echocardiogram is recommended before administrating it to cats with CHF that are stable or easily stabilized with conventional therapy (stage C).

However, in cats with refractory CHF (stage D), pimobendan can be considered as rescue therapy without first performing echocardiography. Additional prospective evaluations will help establish the evolving role of pimobendan use in cats.

ADVERSE EFFECTS

Adverse effects in cats have been fairly uncommonly reported. They include agitation and gastrointestinal upset (eg, anorexia, vomiting, constipation).[1]

CONTRAINDICATIONS

Left ventricular outflow tract obstruction can be caused by systolic anterior mitral valve motion, asymmetric septal hypertrophy, or both. Worsening obstruction, tachycardia, and hypotension have been documented in one cat with left ventricular outflow tract obstruction.[2] Therefore, caution is recommended for pimobendan use in cats suspected or known to have left ventricular outflow tract obstruction.[2]

CASE SCENARIO

You are re-evaluating a 10-year-old, 6-kg, neutered male domestic shorthair cat with hypertrophic cardiomyopathy and CHF (stage C) and a short history of hyporexia. His medical management has been benazepril, furosemide, and clopidogrel for 8 months (when echocardiography was last performed). Over the past 3 weeks, the furosemide dose has been titrated up to manage clinical signs associated with recurrent pulmonary edema. On today's visit, you detect tachypnea and muffled hearts sounds and subsequently diagnose pleural effusion. Blood work shows that his blood urea nitrogen and creatinine have also increased.

What should you do next? Pleural effusion is probably a consequence of CHF. Thoracocentesis can be performed for immediate improvement, but a change in medications is probably required to prevent or reduce the rate of fluid re-accumulation. However, an increase in furosemide may be detrimental to the kidneys.

Echocardiography is a reasonable choice for this cat to determine if systolic dysfunction has developed as part of disease progression or if there is any evidence of a left ventricular outflow obstruction. Echocardiography is performed and confirms left ventricular systolic dysfunction and severe left atrial enlargement with spontaneous contrast, indicting a risk for arterial thromboembolism.

TABLE 1 Pimobendan Use in Cats with Cardiomyopathy

CARDIOMYOPATHY[a]	PIMOBENDAN INDICATION		
	STAGE B2	STAGE C	STAGE D
Arrhythmogenic right ventricular cardiomyopathy with reduction in ventricular systolic function	Consider[b]	Recommended	Recommended
Dilated cardiomyopathy	Consider[b]	Recommended	Recommended
Hypertrophic cardiomyopathy	Not indicated/ unknown	Consider[b]	Recommended
Hypertrophic obstructive cardiomyopathy	Relative contraindication	Relative contraindication	Consider as rescue therapy with owner approval[b]
Unclassified cardiomyopathy with normal ventricular systolic function	Not indicated/ unknown	Consider[b]	Consider[b]
Unclassified cardiomyopathy with reduced ventricular systolic function	Consider[b]	Recommended	Recommended

[a]*Diagnosis based on echocardiography.*
[b]*In the absence of a clear indication, consultation with a cardiologist is recommended before starting pimobendan.*

Is pimobendan indicated for this cat? Yes, pimobendan can be considered for this cat because of the left ventricular systolic dysfunction and recurrence of CHF despite appropriate treatment (now considered stage D) in the face of azotemia. In addition, pimobendan may benefit cats at risk for arterial thromboembolism by improving left atrial and auricular emptying and possibly inhibiting platelet aggregation. However, if it was not already part of the treatment plan, antiplatelet therapy is also indicated at this time. If the owners declined echocardiography but agreed to pimobendan, its use as a rescue agent would be reasonable in a case like this.

References

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