

Predicting Survival in HCM Cats

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Although cardiac biomarkers have been used to diagnose occult and symptomatic hypertrophic cardiomyopathy (HCM) in cats, data is limited regarding their prognostic utility. In humans with HCM, single measurements of N-terminal B-type natriuretic peptide (NTproBNP), cardiac troponin I (cTnI), or both, act as independent predictors of cardiac death. This prospective study sought to investigate if the same is true in cats with HCM. Cats ($n = 41$) with HCM had echocardiographic measurements taken concurrently with the analysis of circulating plasma concentrations of NTproBNP and cTnI. Long-term outcome data were analyzed for associations with time to cardiac death.

cTnI values >0.7 ng/ml were associated with shorter time to cardiac death independent of heart failure or left atrial dilatation/dysfunction. The prognostic value of cTnI is similar to previously reported data in humans and cats. NTproBNP values >250 pmol/L were associated with death, but not significantly when controlling for clinical signs or left atrial size/function. Although elevations of NTproBNP and cTnI each were significantly associated with a worse prognosis, a combination of both biomarkers did not provide additional prognostic data beyond a cTnI >0.7 ng/ml alone. Presence of congestive heart failure, dilated left atrium with reduced function, reduced left ventricular systolic function, presence of restrictive mitral inflow, and regional left ventricular hypokinesis were all significantly associated with decreased time to cardiac death as previously reported. This study demonstrated the independent prognostic value of a single measurement of cTnI in cats diagnosed with HCM.

Global Commentary

HCM is the most common cardiac disease in cats. Echocardiographic evaluations are often expensive or not readily available in general practice, leading to development and investigation of using circulating biomarkers such as NT-proBNP or cTnI for diagnostic, therapeutic, or prognostic information. This study compared these biomarker levels with echocardiographic diagnosis and long-term outcome in cats with HCM. A plasma concentration of cTnI >0.7 ng/ml was found to be significantly associated with severity of disease and long-term survival. Median survival time of cats with cTnI >0.7 ng/ml was 40 days while cats with cTnI ≤ 0.7 ng/ml was 1,274 days. NT-proBNP did not seem to have similar prognostic correlations. Given that cTnI is an enzyme with a short half-life (hours) that is released acutely from ischemic or necrosing cardiac tissue, it seems reasonable for cTnI to be significantly elevated in cats with more severe disease or suffering from congestive heart failure (CHF). In general practice, when attempting to give a prognosis for a patient with HCM and suspected CHF, commercial cTnI could be used as an indicator of disease severity.—Amara Estrada, DVM, DACVIM (Cardiology)

Source

Plasma cardiac troponin I concentration and cardiac death in cats with hypertrophic cardiomyopathy. Borgeat K, Sherwood K, Payne JR, et al. *JVIM* 28:1730–1737, 2014.

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