Clinical and echocardiographic predictors of outcomes in dogs with degenerative mitral valve disease

Purpose

To evaluate the clinical utility of resting respiratory rate and four different echocardiographic measurements of left atrial dimensions in predicting the onset of congestive heart failure in dogs with myxomatous mitral valve disease.

Background

Myxomatous mitral valve disease (MMVD) is the most common acquired heart disease in dogs. MMVD occurs when there is degeneration in one of the heart valves (mitral valve) that prevents complete closure of the valve. This allows some backflow and congestion of the blood, which can lead to enlargement of the heart, and eventually, congestive heart failure (CHF). Left atrial enlargement is an independent predictor of CHF. There are multiple echocardiographic methods to determine left atrial enlargement. Although some methods have been reported to be repeatable and accurate, their predictive value has not been investigated yet. Also, the value of serial echocardiographic measurements at consistent time intervals has not been evaluated.

Resting respiratory rates can be measured by owners at home to aid in monitoring their pet with heart disease. Studies have demonstrated that measuring the resting respiratory rate can be a valuable tool for monitoring patients with congestive heart failure. The utility of monitoring the trend of the respiratory rate to predict the onset of congestive heart failure has not been investigated.

This study aims to evaluate the sensitivity and specificity of four different echocardiographic measurements of left atrial dimensions, as well as the change in respiratory rate and the left atrial size over time, in predicting the risk of the onset of CHF in dogs with MMVD.

This study is funded by the Veterinary Memorial Fund.

Eligibility

- Dogs of any age, weight, sex, or breed with the diagnosis of ACVIM Stage B2 MMVD

Exclusion Criteria

- Dogs will be excluded if they have concurrent congenital or acquired heart diseases different from MMVD.
- Dogs with life-limiting comorbidities, such as cancer or significant kidney disease, will be excluded.
- Dogs that require sedation at the initial echocardiographic examination will be excluded.

Study Design

Owners of enrolled dogs will complete a brief online evaluation of their dog's health every six months and obtain a daily resting respiratory rate using an app. If an enrolled dog exhibits clinical signs of CHF, chest x-rays will be obtained and will be reviewed by a board-certified radiologist. A recheck echocardiographic exam will be performed every 6 months until the onset of CHF or at the end of the study period (2021).

Compensation

There are no costs to you for your dog to participate in the study. Study-related exams, respiratory rate monitoring app, echocardiograms, and chest x-rays are provided at no cost for the duration of the study.

Contact

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