LEFT ATRIAL FUNCTION DIFFERS BETWEEN DOGS WITH DIFFERENT SEVERITIES OF MYXOMATOUS MITRAL VALVE DISEASE

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Left atrial measurements are crucial in assessing severity of cardiac disease in dogs with myxomatous mitral valve disease (MMVD). However, linear and area dimensions might not provide a comprehensive assessment of patient status, and cannot differentiate between severe subclinical (B2) and clinical disease (CHF). Estimates of left atrial function could provide additional information to help categorize these patients.

We examined 87 dogs with MMVD (25 Normal, 9 B1, 40 B2 and 13 C) presented for cardiac evaluations by 2D echocardiography. Left atrial linear and area dimensions in right parasternal short and long axis views were obtained at 3 time points - early diastole (LA_{MAX}), just prior to mitral valve opening, at the onset of atrial systole (LA_P) and just prior to mitral valve closure (LA_{MIN}). We calculated 4 indices of LA function: total LA emptying fraction (LA_{TEF}), active LA emptying fraction (LA_{ACT}), passive LA emptying fraction (LA_{PAS}) and LA reservoir function (LA_{RES}) for all 4 sets of measurements. We examined the differences in selected LA function indices between different disease stages with a Kruskal Wallis Test with post-hoc multiple comparisons. We also examined the diagnostic accuracy of selected indices of LA function in differentiating dogs in Stage B2 and Stage C (CHF) using ROC analysis.

Three functional indices consistently differed across the various stages of MMVD - LA_{TEF}, LA_{ACT} and LA_{RES}. These differences were most apparent in the RPLA view for linear measurements and RPSA view for area measurements. Dogs with CHF had worse function than all other groups, which differed variably depending on the functional index being examined. $LAarea_{ACT}$ showed the best ability to discriminate between B2 and CHF dogs, with a 95% specificity, 69% sensitivity and an AUC of 0.84, but this was no better than use of LA:AO measurements.

Our data suggest that LA function differs between dogs with differing severities of MMVD, but does not provide a clear distinction between dogs with subclinical disease and CHF.

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