The Pulmonary Hypertension Remodeling/Hemodynamic-Induced Manifestations on Echocardiography (PRIME) Score for Predicting the Severity of Canine Pulmonary Hypertension

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Peak tricuspid regurgitation velocity (pTRV) is typically used to estimate pulmonary arterial pressure in dogs but is not always available. Echocardiographic remodeling changes have been proposed to assess the probability of canine pulmonary hypertension (CPHT). This study aimed to develop a composition score from routinely acquired echocardiographic images for predicting CPHT severity.

This multicenter study included 118 dogs; 59 echocardiographs were retrospectively reviewed to generate a weighted scoring system for predicting pTRV by multiple linear regression and 59 echocardiographs were used for validation. The accuracy for discriminating CPHT severity was evaluated using the area under the receiver operating characteristic curve (AUC).

A 25-point weighted pulmonary hypertension remodeling/hemodynamic-induced manifestations on echocardiography (PRIME) score was established, comprising semiquantification of right ventricular (RV) wall thickening (0/1/2 points), RV dilation (0/2/4/6 points), right atrial enlargement (0/2/4/6 points), pulmonary artery enlargement (0/2/4/6 points), intraventricular septum flattening (0/2/4 points), and midsystolic notching of the RV outflow profile (0/1 point).

Moderate (pTRV ≥3.4 m/s) and severe (pTRV ≥4.3 m/s) CPHT could be correctly predicted in 78% cases in the validation group with cutoff values of 4 and 9, respectively. Prediction further improved to 89% after excluding 12 cases with significant left atrial enlargement (echocardiographic left atrial/aorta ratio ≥2.0). Overall accuracy for predicting moderate-to-severe CPHT was excellent (AUC, 0.973; sensitivity, 87.0%; specificity, 91.7%). The PRIME score was positively correlated with pTRV (rs=0.89, p<0.001).

Thus, the PRIME score can adequately predict CPHT severity, especially in non–left heart disease cases.

DISCLOSURES

SPEAKER INFORMATION
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