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## **FAST ASSESSMENT OF PULMONARY HYPERTENSION TYPE IN DOGS USING BASIC ULTRASONOGRAPHY TECHNIQUES**

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### **Abstract**

Pulmonary hypertension (PH) is a complex hemodynamic condition defined by increased pulmonary vasculature pressure. The precise diagnostic can be obtained by evaluating the clinical status of the patient, performing complex imaging methods and by direct assessment of pulmonary arterial pressure. Invasive methods are considered golden standard; however, these techniques are limited in animals with respiratory failure. Previous studies aimed to evaluate the cut-off value of the PV/PA ratio in different types of PH in dogs. Therefore, the aim of this study is to correlate the type of PH with the changes of the pulmonary vein to pulmonary artery ratio (PV/PA) in dogs assessed by transthoracic echocardiography. The ratio was assessed using the right parasternal long axis view of the heart in B-mode and M-mode. This retrospective study included thirty-nine dogs presented for cardiologic examination at our Veterinary Teaching Hospital. Dogs were divided in three groups as following: control group (n=10), precapillary PH group (n=16) and postcapillary PH group (n=13). The median and interquartile range (M±IQR) of the PV/PA ratio were 0.95 (0.79–1.5) in the control group, 0.85 (0.55-0.92) in precapillary PH group and 1.86 (1.44-2.16) in the postcapillary PH group. The area under the curve (AUC) for the PV/PA ratio comparison between the control and postcapillary PH groups was 1 (P<0.05), suggesting a cut-off ratio of 1.17 for the postcapillary PH group. This value is lower than the previous suggested value (>1.7). The importance of this finding derives from the ability to observe early changes induced by PH in dogs diagnosed with different stages of myxomatous mitral valve disease (MMVD), even when the tricuspid regurgitating jet cannot be assessed.

**Key words:** pulmonary hypertension; precapillary; postcapillary; pulmonary vein; pulmonary artery; PV/PA ratio.

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