

Pulmonary Hypertension in Dogs

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In the Literature

Jaffey JA, Wiggen K, Leach SB, Masseau I, Girens RE, Reinero CR. Pulmonary hypertension secondary to respiratory disease and/or hypoxia in dogs: clinical features, diagnostic testing and survival. *Vet J.* 2019;251:105347.

FROM THE PAGE ...

Pulmonary hypertension is a common respiratory disorder in dogs and can be caused by various disorders with different pathophysiologic mechanisms. In clinical practice, the most common causes of pulmonary hypertension include left-sided heart disease and pulmonary arterial hypertension associated with respiratory disease and/or hypoxemia (RD/H). Despite the seemingly high prevalence of RD/H-associated pulmonary hypertension, little is known about its clinical presentation, diagnostic characteristics, prognostic variables, therapeutic responsiveness, and/or long-term outcome.

This retrospective study evaluated patients that had RD/H-associated pulmonary hypertension documented on echocardiogram. The mechanism of each patient's respiratory disease was characterized based on available diagnostic testing. The population was diverse and included both obstructive and restrictive disease processes.

The authors suggested a correlation between the severity of estimated pulmonary arterial pressures and patient outcome. Furthermore, intervention with phosphodiesterase-5 (PDE5) inhibitors was demonstrated to improve survival time. Although this information is preliminary and represents cumulative information of a diverse population, it shows that patients with RD/H-associated pulmonary hypertension could benefit from PDE5 inhibitors and that echocardiogram could potentially provide prognostic information.

This study provides a basis for additional studies. It demonstrates the variability in associated underlying etiologies and can help guide clinicians in identification of patients at risk for pulmonary hypertension. Additional studies evaluating therapy in subset groups will be necessary to optimize therapy and establish a better understanding of long-term outcome and progression.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Estimated systolic pulmonary arterial pressure (sPAP) is negatively correlated with survival. A sPAP ≥ 47 mm Hg has a sensitivity of 78% and a specificity of 63% for nonsurvival; a sPAP > 95 mm Hg has a specificity of 95% and a sensitivity of 17% for nonsurvival.
- 2** Treatment with a PDE5 inhibitor (ie, tadalafil, sildenafil) may help improve survival, as observed in this study. Patients that received PDE5 inhibitors (ie, tadalafil [median dose, 2 mg/kg PO every 24 hours; range, 0.9-2 mg/kg], sildenafil [median dose, 0.5 mg/kg PO every 8 hours; range, 0.5-3.3 mg/kg]) were 4 times more likely to survive as compared with patients that did not receive PDE5 inhibitors.
- 3** RD/H-associated pulmonary hypertension represents a diverse population of respiratory conditions, including restrictive and obstructive disorders (eg, conducting airways [ie, nasal/nasopharyngeal, laryngeal, trachea and mainstem bronchi], large airway obstruction [ie, bronchi], small airways [ie, bronchioles]).

Suggested Reading

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- Kellihan HB, Stepien RL. Pulmonary hypertension in dogs: diagnosis and therapy. *Vet Clin North Am Small Anim Pract.* 2010;40(4):623-641.
- Kellum HB, Stepien RL. Sildenafil citrate therapy in 22 dogs with pulmonary hypertension. *J Vet Intern Med.* 2007;21(6):1258-1264.
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- Paradies P, Spagnolo PP, Amato ME, Pulpito D, Sasanelli M. Doppler echocardiographic evidence of pulmonary hypertension in dogs: a retrospective clinical investigation. *Vet Res Commun.* 2014;38(1):63-71.

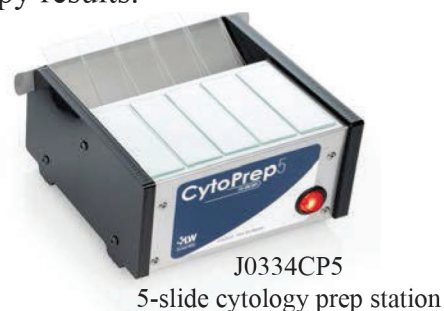
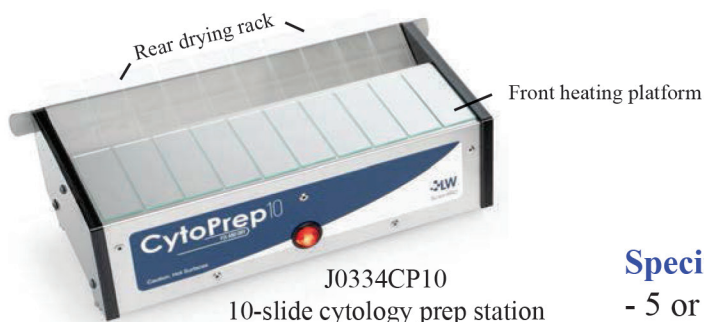


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