

Correlation of Serum N-Terminal Pro B-Type Natriuretic Peptide With Pulmonary Hypertension in Heartworm-Infected Dogs During Adulticide Treatment

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In veterinary medicine, natriuretic peptides, including NT-proBNP, are important tools in the diagnosis and therapeutic monitoring of cardiac diseases. Increased concentrations of NT-proBNP have been described in dogs with post-capillary pulmonary hypertension (PH) due to left heart failure. Moreover, NT-proBNP concentrations are increased in humans and dogs with precapillary PH, and has been validated to determine severity, monitor response to treatment, and as a prognostic indicator. PH of precapillary origin is a frequent and severe consequence of heartworm disease (*Dirofilaria immitis*). Therefore, the aim was to evaluate NT-proBNP concentrations in 50 dogs with heartworm throughout adulticide treatment following the recommended protocol and 6 months after finishing (270 days). Parasite load and presence/absence of PH were echocardiographically assessed, following the ACVIM consensus statement guidelines; presence/absence of microfilariae was also determined. NT-proBNP levels were measured by using the VCHECK V200 Veterinary Immunoassay Analyzer (Bionote, USA). The cut-off value for healthy dogs was established by the manufacturer as 900 pmol/L. At the beginning of the adulticide treatment (day 0), 40% of the dogs showed PH, 50% showed high parasite burden, and 44% were microfilaremic. Mean NT-proBNP concentrations in dogs with PH were 3 times higher than in normotense dogs, being within reference values in the latter (2004.4±467.6 pmol/L vs. 689.9±257.1 pmol/L). No significant differences were observed in NT-proBNP results regarding parasite load and microfilaremia. Most dogs without PH maintained NT-proBNP concentrations within the reference ranges throughout the treatment, showing significant increases during the death of the adult parasites on days 60 and 90 ($p < 0.05$) (day 30: 683.9±105.9 pmol/L; day 60: 851.8±168.6 pmol/L; day 90: 936.1±189.2 pmol/L, day 270: 699.9±96.0 pmol/L). Dogs with PH showed a significant reduction in NT-proBNP concentrations on day 30 (947.2±388.3 pmol/L) ($p = 0.022$), while the values remain on day 60 (1402.4±360.0 pmol/L) ($p = 0.212$) and on day 90 (939.6±215.5 pmol/L) ($p > 0.05$). On day 270, the values were within physiological ranges (592.8±102.4 pmol/L), significantly lower than on day 0 ($p = 0.001$). The measurement of NT-proBNP concentrations seems to be useful in the determination of presence of HP in dogs with heartworm, being consistent with the results reported by other authors in dogs with precapillary HP caused by other pathologies of diverse origin. Moreover, NT-proBNP seems to be useful in the determination and monitoring of heartworm-infected dogs undergoing adulticide treatment.

DISCLOSURES

No disclosures to report.

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