

with severe PH. However, TAPSE was within confidence interval for all dogs.

In group 1, only 25% of dogs had evidence of PH with mild enlargement of pulmonary arteries. However, in group 2, two dogs with severe PH had normal pulmonary vasculature on X-ray, questioning the sensitivity of thoracic radiography for PH.

In conclusion, based on Doppler-echocardiography, the prevalence of moderate and severe PH in dogs naturally infected with *A. vasorum* seems more important than previously described. Systematic ultrasound scanning of dogs infected with *A. vasorum* is advised to evaluate presence and severity of PH.

Disclosures: No disclosures to report.

ESVC – P – 5

SYMMETRIC DIMETHYL-ARGININE IN DOGS WITH MYXOMATOUS MITRAL VALVE DISEASE WITH AND WITHOUT PULMONARY HYPERTENSION. H. Poser, M. Berlanda, S. Graziotto, T. Badon, B. Contiero, C. Guglielmini. University of Padua, Legnaro, Italy

The symmetric Dimethyl-Arginine (SDMA) is produced by protein metabolism and eliminated by renal clearance. In the recent years, it has been used as a marker of kidney disease as it correlates with the glomerular filtration rate. In humans, SDMA is increased in patients with cardiovascular disease and has a negative prognostic value. The aim of the study is to assess the SDMA in dogs with myxomatous mitral valve disease (MMVD) at various disease stages, to evaluate the effect of pulmonary hypertension (PH) and the possible influence of cardiovascular therapies.

Dogs visited between May-2014 and September-2016 were retrospectively recruited if they had a diagnosis of MMVD after complete cardiovascular assessment (physical examination, thoracic radiogram, ECG, trans-thoracic echocardiography), CBC, biochemistry profile and a sample of serum stored at -20°C ($n = 45$). A control group of healthy dogs was also included ($n = 8$). Dogs with MMVD were divided according to the ACVIM guidelines in stage B1 ($n = 9$), B2 ($N = 11$), C+D ($N = 17$). Dogs in the ACVIM-groups were further subdivided into treated ($N = 0, 3$, and 14), and non-treated ($N = 9, 8, 3$) for groups B1, B2 and C+D, respectively. Dogs were considered affected by PH if they had tricuspid regurgitation with peak velocity >3 m/sec and no right ventricle outflow tract obstruction ($N = 11$). SDMA was determined by a referring laboratory using a routinely available immunoassay. Selected echocardiographic, CBC, biochemical parameters, and SDMA were compared among ACVIM-groups using Kruskal-Wallis test; the same test was used to assess the combined effect of therapies and ACVIM-group on serum urea nitrogen (BUN), creatinine and SDMA. Correlations between SDMA and echocardiographic, CBC, and biochemical variables were assessed using Pearson's test. Man-Whitney test was used to assess differences of SDMA between PH-groups.

SDMA was increased in ACVIM-group C+D compared to group B1 ($P = 0.035$) and B2 ($P = 0.021$); BUN was increased in group C+D compared to healthy ($P = 0.01$), B1 ($P = 0.007$) and B2 ($P = 0.009$), while creatinine was not significantly different among groups. SDMA was positively and significantly correlated with BUN ($r = 0.55$; $P < 0.001$), Creatinine ($r = 0.529$; $P < 0.001$), Sodium ($r = 0.448$; $P = 0.003$), Left-atrium to Aorta ratio ($r = 0.335$; $P < 0.025$) and Mitral Valve E-wave velocity ($r = 0.334$, $P = 0.27$). Treatment did not significantly affect SDMA, BUN, or creatinine in any ACVIM-group. No significant difference of SDMA was observed between PH-groups.

Increased SDMA is observed in the advanced stages of canine MMVD and likely reflects reduced renal function better than BUN and creatinine. Therapies and PH do not seem to affect SDMA in dogs with MMVD.

Disclosures: Disclosures to report.

SDMA was determined by IDEXX Laboratories and the cost of the analysis was partially reduced.

ESVC – P – 6

LEFT VENTRICULAR HYPERTROPHY IN DOG: AN ECHOCARDIOGRAPHIC STUDY. C. Locatelli¹, A. Savarese¹, P.G. Brambilla¹, I. Spalla². ¹University of Milan, Milan, Italy, ²Royal Veterinary College, Hawkshead Lane, Hatfield, Hertfordshire, UK

The assessment of the severity of left ventricular (LV) hypertrophy in human medicine consists of three main cardiac parameters: LV wall thickness, LV mass (LVM) and LV geometry. The latter is assessed either by LVM/body surface area (BSA) and relative wall thickness, RWT. Based on LV geometry, the LV is classified as normal if LVM/BSA and RWT are within reference ranges, concentric remodeling as normal LVM and increased RWT, concentric hypertrophy as increased LVM and RWT and eccentric hypertrophy as normal/decreased RWT and increased LVM. Data about normal values for LVM and RWT are scant in dogs.

The aims of this retrospective study were: (i) to determine normal values for LVM/BSA e RWT (M-mode derived) in healthy dogs, (ii) to evaluate the effect of sex, age and breed on these echocardiographic parameters and (iii) to compare LVM/BSA e RWT in healthy (>7 years) and hypertensive dogs.

The clinical archive (2015–2016) of the cardiology unit of DIMEVET (University of Milan, Italy) was searched for all dogs with a complete echocardiographic examination and systemic blood pressure determination. Dogs were grouped into healthy (based on no cardiac, metabolic or renal disease) or hypertensive (according to ACVIM guidelines). From the digitally stored echocardiographic M-mode data, LVM/BSA and RWT were calculated. LVM was derived from geometric formula and indexed to BSA. RWT was calculated as the ratio between $2 \times$ posterior wall thickness and LV internal diameter at end diastole.

Eighty-three healthy dogs (48 female/35 male) and 26 hypertensive dogs were included in the study. The mean (SD) LVM/BSA and RWT were respectively 151 g/m^2 (57) and 0.53 (0.10) in healthy dogs. No difference in sex and age (dogs >7 years vs. <7 years) was found. Sighthound dogs ($n = 20$) showed a statistically larger LVM/BSA (221 g/m^2 vs. 129 g/m^2 , $P = 0.00$) with similar RWT than non-sighthound dogs ($n = 63$) (0.54 vs. 0.53, $P = 0.74$). Hypertensive dogs showed otherwise a statistically different RWT (0.69 vs. 0.55; $P = 0.011$) from healthy dogs >7 years with similar LVM (153 vs. 132 g/m^2 , $P = 0.098$).

The results of our study suggest that these echocardiographic parameters may be of help in routinely classifying the hypertrophy pattern/LV geometry in dogs. In contrast with human findings, no sex difference was found in LVM/BSA. Sighthound dogs tended to show greater LVM/BSA values, likely to represent physiologic hypertrophy (normal RWT with increased LVM/BSA). Dogs with systemic hypertension had increased RWT with normal LVM and this could represent the first response of the LV to pressure overload.

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ESVC – P – 7

PULMONARY VEIN TO PULMONARY ARTERY RATIO IN HEALTHY AND CARDIOMYOPATHIC CATS. V. Patata¹, D. Caivano², F. Porciello², M. Rishniw³, O. Domenech⁴, F. Marchesotti⁴, M.E. Giorgi², H. Poser⁵, C. Guglielmini⁵, F. Spina², F. Biretoni². ¹Istituto Veterinario di Novara, Novara, Italy, ²Department of Veterinary Medicine, University of Perugia, Perugia, Italy, ³Veterinary Information Network, Davis., USA, ⁴Department of Cardiology, Istituto Veterinario di Novara, Novara, Italy, ⁵Department of Animal Medicine, Production & Health, University of Padua., Padua, Italy

Recognition of congestive heart failure (CHF) in dyspneic cats is crucial for correct intervention. The pulmonary vein (PV) to pulmonary artery (PA) ratio (PV/PA) has been proposed as an index that might help discriminate dogs in CHF but has never been studied in cats. We sought to determine reference intervals for various, previously published, PV and PA variables in healthy cats. We then examined these variables in cats with subclinical and clinical (CHF) cardiomyopathies to determine the diagnostic utility in identifying CHF.