Oral presentations

Comparing the prevalence of pulmonary hypertension in Cavalier King Charles Spaniels and other breeds in dogs with myxomatous mitral valve disease

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OBJECTIVES

To determine if Cavalier King Charles spaniels (CKCS) are more likely to develop pulmonary hypertension (PH) as a result of myxomatous mitral valve disease (MMVD) than dogs of other breeds and also assess whether PH impacts upon survival. A secondary objective was to explore any association between the presence of macroplatelets and PH.

METHODS

Retrospective review of 187 dogs diagnosed with MMVD identified from electronic patient records, 94 CKCS and 93 non-CKCS. Eligible dogs were >5 years of age, weighed <20 kg and had structural cardiac changes due to MMVD on echocardiography (nodular thickening of the mitral valve, dilated left atrium and ventricle) with or without congestive heart failure (CHF). Data retrieved were analysed for the presence of PH (based on tricuspid regurgitation velocity >2.8 m/s), CHF, selected echocardiographic variables and macroplatelets. Survival analysis was also performed, on both cardiac and all-cause mortality.

RESULTS

71/94 CKCS and 52/93 non-CKCS developed PH ($p=0.005$). 57/94 CKCS and 45/93 non-CKCS were in left-sided CHF ($p=0.093$). PH was associated with a greater likelihood of CHF ($p<0.001$) and death (both cardiac ($p<0.001$) and all-cause mortality ($p=0.011$)). CKCS were more likely to experience cardiac death than non-CKCS ($p=0.004$). Macroplatelets were not associated with PH development ($p=0.376$).

STATEMENT (CONCLUSIONS)

CKCS were more likely than non-CKCS to develop PH due to MMVD in this study population. Further investigations are required to determine the reason for this. Macroplatelets were not associated with the development of PH.

Expression of 11-beta hydroxysteroid dehydrogenase 2 is not altered in canine congestive heart failure

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OBJECTIVES

The enzyme 11-beta hydroxysteroid dehydrogenase 2 (11 β HSD2) in the distal nephron protects the mineralocorticoid receptor from activation by cortisol,

allowing it to interact with aldosterone. Mutations of 11 β HSD2 in humans have been shown to cause apparent mineralocorticoid excess, which is characterised by sodium and water retention. Canine congestive heart failure (CHF) is also associated with sodium and water retention. This may, in part, be explained by dysregulation of 11 β HSD2 driving cortisol-stimulated mineralocorticoid receptor activity. Therefore, it was hypothesised that expression of renal 11 β HSD2 is downregulated in canine CHF.

METHODS

Tissue was collected from the renal medulla of dogs that had been euthanased for behavioural reasons, non-cardiac disease or CHF. Dogs euthanased for behavioural reasons were used as a healthy control population. Animals with renal disease or hyperadrenocorticism were excluded. Quantitative polymerase chain reaction (qPCR) was then performed to detect differences in relative 11 β HSD2 expression. One-way ANOVA with Tukey's post-hoc test was used to evaluate differences in δ Ct between groups referenced to GAPDH and mitochondrial ribosomal protein S25.

RESULTS

There was no difference ($P=0.15$) in the relative renal medullary expression of 11 β HSD2 between dogs euthanased for behavioural reasons ($n=10$), non-cardiac disease ($n=6$) and CHF ($n=9$). Dogs euthanased for CHF had underlying dilated cardiomyopathy or atrioventricular valve dysplasia.

STATEMENT (CONCLUSIONS)

There is no evidence that modification of expression of 11 β HSD2 contributes to the development of canine CHF. However, translational and post-translational modifications of 11 β HSD2 and also breakdown of cortisol may be altered, and this warrants further investigation.

Echocardiographic reference intervals in UK Deerhounds

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OBJECTIVES

To screen a UK population of clinically healthy Deerhounds to generate breed specific echocardiographic reference ranges for the breed and to identify the prevalence of preclinical DCM in this population.

METHODS

A prospective, longitudinal study of asymptomatic Deerhounds ≥ 4 years of age undergoing auscultation, Doppler echocardiography with ECG and cheek swab sampling.

RESULTS

Deerhounds were classified as affected (preclinical DCM) if they scored >6 according to the ESVC taskforce ($n=13$); and normal (N) if they scored ≤ 3 according to the ESVC taskforce ($n=53$). Twelve hounds were classified as equivocal (4, 5, 6). Seven dogs had arrhythmias, of which 6 were ventricular and 1 was in atrial fibrillation. The 53 N dogs consisted of 26 males and 27 females; median left ventricular internal diameter in diastole value for the male dogs was 55 mm and 51 mm for the females. Median left ventricular internal diameter in systole value for the male N dogs was 40 mm and 37 mm for the N females. Variables of systolic function were assessed in both male and female N hounds, with median Simpson's ejection fraction being 52% and 51% respectively and median fractional shortening being 28% for both sexes. Median end-systolic volume index was 47 ml/m² in the female N population and 54 ml/m² in the male N population.

STATEMENT (CONCLUSIONS)

Deerhounds have a high prevalence of DCM, ranging from 17% (excluding the equivocal group) to 32% (including the equivocal group). They should be actively screened for disease using echocardiography.

A case-control study of end-stage hypertrophic cardiomyopathy in cats

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OBJECTIVES

Hypertrophic cardiomyopathy (HCM) is considered end-stage (ES-HCM) when systolic dysfunction develops.

Although widely reported in human literature, only case reports of ES-HCM have been reported in cats. We aimed to compare the clinical characteristics of cats with HCM and ES-HCM.

METHODS

Medical records were searched for cats with HCM, defined as LV wall thickness ≥ 6 mm without an underlying cause. A subgroup of cats with LV fractional shortening $<30\%$ were classified as ES-HCM, and case matched to cats with 'classic' HCM by breed, sex and age.

RESULTS

Prevalence of ES-HCM was estimated at 5.2% of the HCM population. The majority of cats were Domestic Shorthairs, with British Shorthairs appearing over-represented. Cats with ES-HCM were more likely to present without a murmur ($p<0.001$), with an arrhythmia ($p=0.004$) and in CHF ($p=0.006$). Echocardiographic findings showed cats with ES-HCM were likely to have regional LV wall hypokinesia ($p<0.001$), left atrial enlargement ($p<0.001$) and presence of spontaneous echo contrast/thrombus in the left atrium