Oral presentations

Rhythm disturbances in dogs and cats with congestive heart failure and their impact on prognosis

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OBJECTIVES

Do rhythm disturbances in dogs and cats with congestive heart failure contribute to a poorer prognosis?

METHODS

This study retrospectively reviewed 101 cases of congestive heart failure, 47 dogs and 54 cats and the presence or absence of a concurrent rhythm disturbance at diagnosis was determined. The nature of rhythm disturbance

and the underlying cause for the heart failure were also recorded. The data was analysed using Microsoft excel and SPSS statistics. The median survival time was calculated for animals with and without a rhythm disturbance and Mann-Whitney U and Log-Rank tests were used to evaluate any significant difference in survival time.

RESULTS

Rhythm disturbances were more prevalent in dogs with congestive heart failure, with 60% having a concurrent rhythm disturbance compared to 46% of cats. Supraventricular dysrhythmias, in particular atrial fibrillation, were most common and accounted for 68% of all rhythm disturbances in dogs, more variation was shown in cats. The median survival time for dogs with a rhythm disturbance was 84 days compared to 203 days for those without, for cats these were 39 and 41 days respectively. In dogs, a significant difference in survival time after diagnosis with congestive heart failure was identified between the two groups ($U = 150$, $p = 0.017$ /Log-Rank, $p = 0.030$). In cats, no significant difference was detected ($U = 347$, $p = 0.792$ /Log-Rank, $p = 0.323$).

STATEMENT (CONCLUSIONS)

This study suggests that rhythm disturbances complicating congestive heart failure contribute to a poorer prognosis in dogs but are less detrimental in cats.

A retrospective study into the association between survival time and markers of renal dysfunction and heart failure severity in dogs with acute congestive heart failure

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OBJECTIVES

To evaluate markers of renal dysfunction, heart failure severity and treatment versus survival in dogs with acute congestive heart failure.

METHODS

Retrospective study of dogs admitted with congestive heart failure between October 2006 and February 2018. The effect of disease duration, cause of heart failure, atrial fibrillation, furosemide dose, blood pressure, urea, creatinine, sodium, potassium, lactate, phosphorus, respiratory rate, dobutamine administration, and pimobendan administration on survival from admission were analysed with Kaplan Meier graphs, and log-rank analysis.

RESULTS

83 dogs met the inclusion criteria (36 female, 47 male). Reduced survival time was associated with chronic disease ($p = 0.049$); blood pressure ≤ 112.5 mm Hg ($p = 0.0002$); mean furosemide dose > 8 mg/kg ($p = 0.043$); mean potassium level ≤ 3.77 mmol/l ($p = 0.004$); dobutamine administration ($p = 0.001$); and mean respiratory rate ≤ 48 ($p = 0.039$). Survival time was increased with plasma urea between 13.1–18.78 mmol/l ($p = 0.016$); mean sodium concentration 145.7–150.25 mmol/l ($p = 0.027$); and mean phosphorus concentration ≤ 1.79 mmol/l ($p = 0.021$).

STATEMENT (CONCLUSIONS)

We found no association between creatinine concentrations and survival, although survival was worse for both low and high urea concentrations. Only higher

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furosemide doses were associated with worse survival, identifying worse cases or suggesting a detrimental effect of over-diuresis. Lower blood pressure was also associated with decreased survival, probably because of

lower cardiac output and worse cardiac disease. The relationship between heart failure, renal function and diuresis should be explored prospectively in larger study populations.

The effect of heart disease on red cell mass

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OBJECTIVES

This study aims to demonstrate whether a link exists between increasing severity of heart disease and red blood cell count in dogs with Myxomatous mitral valve disease.

METHODS

Data were obtained from 426 dogs enrolled in a longitudinal study from first opinion practices based in London between 2004 and 2017. PCV was compared between dogs at different American College of Veterinary Internal Medicine (ACVIM) stages of disease and factors related to changes in PCV were evaluated including; age, sex, breed, total protein, blood urea nitrogen, the left atrial

to aortic root ratio and the normalised left ventricular internal diameter (LVIDDN).

RESULTS

One-way ANOVA showed a significant difference ($p < 0.001$) between all four ACVIM stages. Dogs in stage B2 (41.12 ± 6.15 , $p < 0.001$) had a significantly lower PCV than all other stages (A: 46.14 ± 4.97 , $p < 0.001$, B1: 43.44 ± 5.80 , $p = 0.012$, C: 43.98 ± 4.57 , $p = 0.048$). The results additionally demonstrated that the mean PCV of dogs in stage A was the greatest and differed significantly from both stage B1 ($p = 0.007$) and B2 ($p < 0.001$).

A multivariable linear regression analysis revealed that patient age (-0.154 ± 0.111 , $p = 0.006$), ACVIM stage (-0.122 ± 0.496 , $p = 0.40$), LVIDDN (-0.160 ± 1.122 , $p = 0.008$) and breed (0.471 ± 0.661 , $p = 0.001$) all had a significant and independent effect on PCV.

STATEMENT (CONCLUSIONS)

There is a link between mitral valve disease and red blood cell count in dogs, which differs from human disease. A decrease in red blood cell count is seen with diseased progression until patients enter congestive heart failure when there is an increase.

A new hope? Transvascular pulmonic stents in six dogs with severe pulmonic stenosis

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OBJECTIVES

Dogs with type B (hypoplastic) pulmonic stenosis have been traditionally considered poor candidates for minimally invasive treatment. We report six cases of type B pulmonic stenosis treated using pulmonic stents.

METHODS

Retrospective description of six dogs with pulmonic stenosis undergoing a transvascular pulmonic stent procedure in two cardiology referral centres, describing the approach and short-term outcomes.

RESULTS

Six dogs underwent a pulmonic stent procedure over a 12-month period. All dogs were diagnosed with severe, type B pulmonic stenosis based on echocardiographic criteria. Five French Bulldogs and one English Bulldog were treated. Two patients presented with signs of right sided congestive heart failure, two with erythrocytosis (concurrent right-to-left intracardiac shunts), one with syncope and one with marked exercise intolerance/lethargy. Five dogs successfully received balloon-expandable metallic stents via a venous approach. In one dog, the stent could not be positioned appropriately and a hybrid procedure was successfully performed to place the stent retrograde, via the left pulmonary artery. No major complications were reported, although all dogs experienced reduced cardiac output and arrhythmias during stent deployment. All dogs experienced an improvement in clinical signs at one month post-operatively.

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