

Title

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.

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 13.1-18.78mmol/l ($p=0.016$); mean sodium concentration 145.7-150.25mmol/l ($p=0.027$); and mean phosphorus concentration ≤ 1.79 mmol/l ($p=0.021$).

Impact/Clinical Significance

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

Funding/declaration of interest

I received no funding for this project and declare no conflict of interest.