

Acute Kidney Injury in acute heart failure in dogs and cats

Acute Kidney Injury (AKI) is a known complication of acutely decompensated heart failure in people and has been shown to affect mortality. The occurrence and consequences of this are currently questioned within veterinary literature. This study retrospectively assessed data from dogs and cats presenting in acute heart failure to assess the incidence of AKI and investigate possible risk factors. For the purposes of this study AKI was defined as an increase in creatinine of 44 μ mol/L or more whilst hospitalised. Animals presenting with azotemia were not included in the AKI group.

Seventy-four cases of acute heart failure were identified. Thirty-nine (53.7%) out of 74 cases were dogs and 35 (47.3%) cases were cats. Fifty seven cases (77%) were newly diagnosed heart disease rather than known pre-existing disease. Six cases (8%) did not survive to discharge of which 2 had confirmed AKI. Due to the low numbers that did not survive to discharge further analysis using this group was not performed.

Twenty three cases were defined as having AKI from the study population (31.1%). This is similar to the human literature where figures between 20 and 40% are reported. Fifteen cases (20.3%) presented with azotemia. The median hospital stay was 8 days (range 1-15days).

Two likely risk factors for AKI were identified. Blood pressure was shown to be significantly different in patients with AKI compared to those without ($p=0.039$). Creatinine at discharge was not found to be related to blood pressure ($r=-0.120$). AKI was also associated with an increased length of hospital stay ($p=0.00$). It is possible that this association is due to severity of disease, those with more severe disease being more likely to develop azotemia and therefore requiring longer hospitalisation. Other parameters investigated such as age, type of heart disease, sodium and total protein were not identified as risk factors for AKI in this study. This preliminary study provides interesting information and has identified an association between blood pressure and the presence of AKI. Further work needs to be performed, as the severity of the renal injury concentration doesn't seem to be associated with blood pressure and the influence of AKI on mortality has yet to be determined.