

Incidence and Effect on Outcome of Neutropaenia in Dogs with Acute Haemorrhagic Diarrhoea Syndrome (AHDS)

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Introduction

Acute Haemorrhagic Diarrhoea Syndrome (AHDS) is a disease characterised by the acute onset of haemorrhagic diarrhoea and is typically a diagnosis of exclusion. Various aetiologies have been proposed including type 1 hypersensitivity reaction to food components and bacterial endotoxin. Neutrophilic left shift and neutropaenia have been reported to be associated with this syndrome, suspected to be secondary to extensive mucosal inflammation and necrosis.

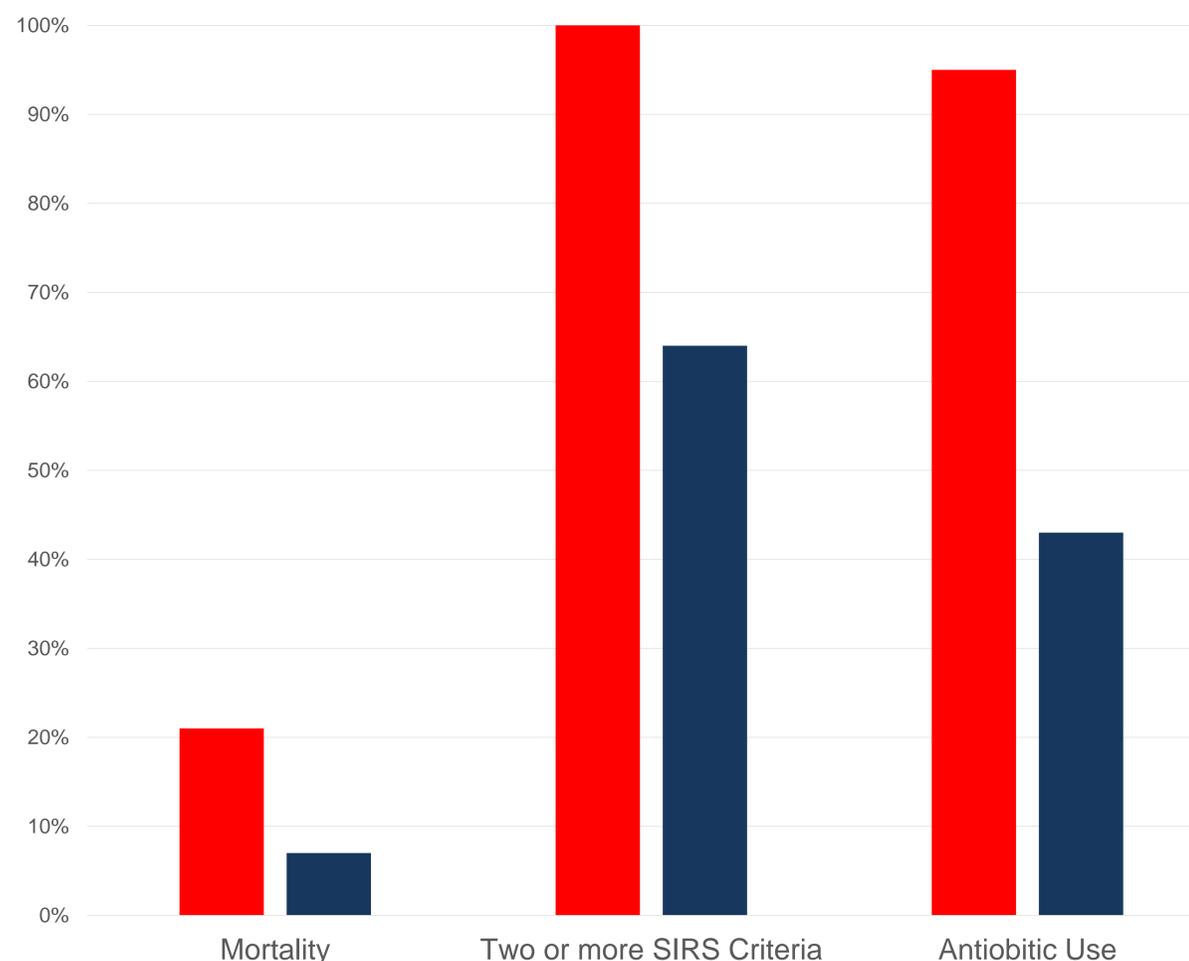
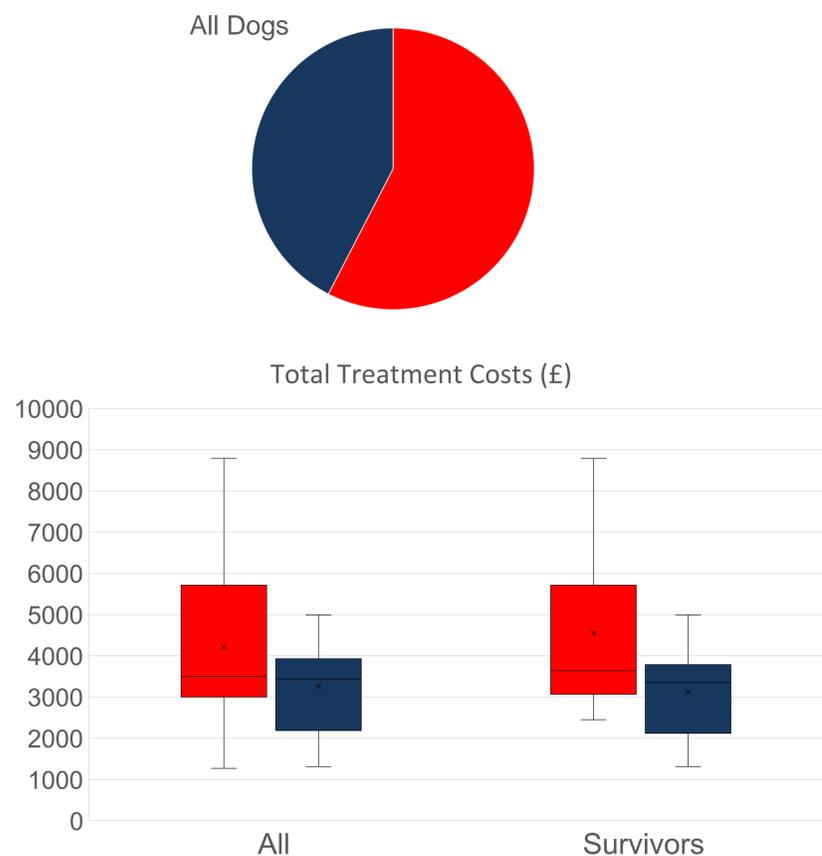
Methods

Computerised medical records from January 2017 to December 2020 were retrospectively searched for dogs referred to the Emergency and Critical Care specialist service with acute onset of haemorrhagic diarrhoea. All dogs had haematology and blood smear analysis performed to assess neutrophil counts; dogs were considered neutropaenic if neutrophil counts were less than 2900 cells/ μ L. Dogs were excluded if an underlying disease process responsible for haemorrhagic diarrhoea was suspected and, in neutropaenic patients, if a source other than the gastrointestinal tract was a cause for this. All dogs had parvovirus ruled out through a negative in-house ELISA snap test, a negative laboratory PCR or both. Total treatment costs, fulfillment of systemic inflammatory response syndrome (SIRS) criteria and use of antibiotics were also recorded. Results were assessed for statistical significance using Fisher's exact tests.

Results

A total of 33 dogs were enrolled in the study. Of these, 19 dogs presented with or developed neutropaenia during the treatment course. Overall, 5/33 dogs (15%) were non-survivors, 4/19 (21%) neutropaenic dogs were non-survivors; whereas 1/14 (7%) non-neutropaenic dogs were non-survivors ($P = 0.3362$). Treatment costs for neutropaenic dogs were 28.8% higher than for non-neutropaenic dogs ($P < 0.001$). At admission, 19/19 (100%) neutropaenic dogs fulfilled two or more SIRS criteria, whereas only 9/14 (64%) non-neutropaenic dogs did ($P = 0.0084$). Antibiotics were administered in 18/19 (95%) neutropaenic dogs and 6/14 (43%) of non-neutropaenic dogs ($P = 0.0015$).

Neutropaenic Non Neutropaenic



Conclusions

The incidence of neutropaenia is high in dogs presenting with AHDS. Neutropaenia did not correlate with a statistically significant increase in mortality rate, however, neutropaenia in patients with AHDS is associated with a statistically significant increase in total treatment costs, increased likelihood to fulfill SIRS criteria and to receive antibiotics during hospitalisation.