Assessing Heatstroke Prognosis

Heatstroke in dogs is a severe syndrome characterized by core body temperatures >41°C (105.8°F) and CNS depression or seizures. It can be caused by exposure to extreme environments or strenuous physical exercise. The medical records of 126 dogs treated for heatstroke were reviewed to develop a scoring system to help assess disease severity and prognosis. Logistic regression analysis was used to assess clinical data from the first 24 hours of hospitalization to determine which were associated with outcome. In the second analysis, multivariable logistical regression was used to determine sensitivity, specificity, and optimal cutoff points. Overall mortality rate was 53%. Clinical signs positively associated with mortality included acute collapse, petechiae, changes in mental status, and seizures. The presence of shock was also a negative predictor. Coagulation abnormalities and disseminated intravascular coagulation were signs of severe disease. Higher scores in the scoring system developed by the authors corresponded to lower probability of survival. Models used by the authors were deemed comparable in accuracy to those used for assessing critical illness in humans. Although the scoring system should not be used as the sole predictor of outcome, it can be used early in the hospitalization of dogs with heatstroke and to help assess disease severity.

Global Commentary

Heatstroke is a common condition with reported mortality rates from 50%-64%. The authors used a data set from 126 dogs with naturally occurring heat stroke over a 9-year period. Logistic regression and multivariate analysis were used to create a scoring system model that used patient information such as: presence of acute kidney injury; presence of disseminated intravascular coagulation; heart rate; and body condition score. The model predicted mortality with 83% sensitivity and 81% specificity in their population. Two important limitations: 1) any predictive model is intended for large populations, and application to individual patients must be approached cautiously; 2) the model should be further validated by application on a different (ideally prospective) population of dogs with heatstroke.—Jonathan Bach, DVM, DACVIM, DACVECC

Source


Bacteremia in Dogs with AHDS

Idiopathic acute hemorrhagic diarrhea syndrome (AHDS), formerly referred to as idiopathic hemorrhagic gastroenteritis, is characterized by acute-onset vomiting; anorexia; lethargy; hematemesis; and severe, malodorous, hemorrhagic diarrhea. The diagnosis is made presumptively based on characteristic clinical signs and exclusion of an underlying cause for hemorrhagic diarrhea. Several bacterial translocation risk factors—including intestinal bacterial overgrowth, host immune defense deficiency, and GI mucosal barrier damage—exist in dogs with idiopathic...
AHDS. However, frequency and clinical relevance of bacterial translocation in idiopathic AHDS is unknown.

This prospective study’s objective was to determine the frequency of bacteremia in dogs with idiopathic AHDS and its influence on various clinical and laboratory parameters, duration of hospitalization, and survival. The study included 87 dogs with idiopathic AHDS and 21 healthy control dogs. Two separate blood cultures were taken from the same site at a 30-minute interval. There was no significant difference in the prevalence of positive blood cultures in dogs with idiopathic AHDS (11%) vs controls (14%). Further, there was no difference in the severity of clinical signs, laboratory parameters, duration of hospitalization, or survival in blood culture-positive vs blood culture-negative dogs with idiopathic AHDS. The authors concluded that incidence of bacteremia with idiopathic AHDS is low. Further, because the disease’s clinical course and survival were not different in blood culture-positive vs blood culture-negative dogs, antibiotic treatment is not recommended as a routine treatment in dogs with idiopathic AHDS.

Commentary
The work presented here demonstrates a similar number of positive blood cultures in dogs with idiopathic AHDS and clinically normal control dogs. These findings fail to support the theory that bacteremia plays a significant role in this disease’s pathogenesis or progression. All 87 dogs survived to discharge; 45 received antibiotics. The overall favorable outcome and low incidence of positive blood cultures (similar to that of normal dogs) do not support routine antibiotic use in patients with AHDS. Previous work by this group of researchers demonstrated a higher incidence of bacterial invasion of Clostridium perfringens in small intestinal endoscopic biopsies in dogs with AHDS compared with normal control dogs. Further work is necessary to have a full understanding of this condition’s pathophysiology.—Julie Walker, DVM, DACVECC

Source