The association between β-hydroxybutyrate concentration at diagnosis of left displaced abomasum in dairy cows and removal from the herd post-surgical correction

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Introduction

Left displaced abomasum (LDA) is an economically important disease of dairy cattle. This study investigated the sensitivity and specificity of various β-hydroxybutyrate (BHB) concentrations measured at the time of LDA surgery, and its association with removal from the herd within 30 days after LDA surgery.

Materials and Methods

Cows were enrolled in the study if an LDA was diagnosed by a veterinarian, the cow was between 5 and 30 days-in-milk, and rectal temperature at LDA diagnosis was between 100.5°F and 103.5°F (38°C to 39.7°C). Blood BHB concentration was determined cow-side with a commercially available meter (Precision XTRA, Abbott Diabetes Care) prior to surgery. All cows with LDA (n = 138) underwent surgical correction by either standing right-flank omentopexy or pyloricantropexy. At 30 days after surgical correction of the LDA, information on whether the cows remained in the herd was obtained. Receiver operator characteristic curves were used to estimate the most accurate BHB concentration that was associated with being culled, and this value was used in a Poisson regression model to estimate the risk ratio of being culled.

Results

While controlling for parity, cows with BHB concentration < 1.2 mmol/L at the time of surgery were 2.5 times more likely (95% confidence interval, 1.3 to 5.0) to leave the herd within 30 days after surgical correction of LDA compared to cows with BHB concentration ≥ 1.2 mmol/L at the time of LDA surgery.

Significance

For dairy cows, BHB concentration at the time of LDA diagnosis can be used as a prognostic indicator of the likelihood of culling after surgical LDA correction.