

Prevalence of bacteremia in dairy cattle with acute puerperal metritis

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Introduction

Dairy cattle are susceptible to numerous disorders in the immediate post-partum period. Acute puerperal metritis (APM), defined as the presence of a fetid, watery uterine discharge, an enlarged, flaccid uterus, and overt signs of systemic illness that may include fever, dehydration, depression, and toxemia, is one of the most commonly encountered infectious diseases in modern dairy practice. After calving, more than 90% of cattle experience some degree of contamination of the uterine lumen with bacteria. Through the processes of uterine involution and normal immune function, most cattle clear this contamination and experience no complications. However, cattle with retained placenta, hypocalcemia, and significant negative energy balance fail to clear uterine contamination and develop APM. Bacteremia has been documented in approximately 32% of adult dairy cattle with coliform mastitis. In cows with acute coliform mastitis, the presence of bacteremia, particularly blood borne infection with organisms such as *E. coli*, *Pasteurella multocida* and *Mannheimia hemolytica*, had a significant impact on cow survival. The purposes of the study reported here were to investigate the prevalence of bacteremia in dairy cattle with naturally occurring APM, determine if an association exists between the bacteria cultured from the bloodstream and those present in uterus and identify factors that may be of use in predicting occurrence of bacteremia in cattle with APM.

Materials and Methods

Cows were examined at the time of identification of APM. A complete blood count, serum biochemical

analysis and bacteriologic culturing of blood and lochial fluid were performed on each animal at the time of diagnosis. The same samples were collected from healthy herd mates of a similar parity and days in milk. Blood culture results and clinicopathological parameters were compared between groups. Conditional logistic regression was used to evaluate factors associated with APM, while multivariate logistic regression was used to evaluate factors associated with bacteremia.

Results

Bacteremia occurred in 53.1% (9/17) of cattle with APM and 53.3% (8/15) controls. *Bacillus* spp. was the organism most commonly isolated from the bloodstream in cattle of both groups. Bacteremic cattle in both groups were significantly less likely to have basophils in the peripheral circulation and more likely to have higher serum globulin concentrations.

Significance

Bacteremia is a common occurrence in post-partum dairy cattle. It is likely that bacterial colonization of the involuting uterus, periparturient immunosuppression, and systemic inflammation play a role in the high frequency of bacteremia. Further study is warranted to investigate the modes by which bacteria colonize the bloodstream in this population of animals and the significance of bacteremia on health and productivity of affected animals.