

...More to the AIP Story

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Introduction

Acute interstitial pneumonia (AIP) is the second leading cause of respiratory fatality in feedlots. This disease is also known as atypical interstitial pneumonia, pulmonary adenomatosis, acute bovine pulmonary emphysema, bovine asthma, fog fever, and acute respiratory distress syndrome (ARDS). The many names signify the variance of the disease as well as the many attempts for determining the etiology. The sporadic occurrence and difficult identification of clinical cases complicate AIP research. Research to date has eliminated some possible causes but still the pathogenesis is unknown.

Materials & Methods

Bovine samples were gathered from three feed yards by research assistants during three summers. Samples were collected from AIP cases without previous antibiotic treatment and control cases. Lung and liver bacterial culture swabs and tissue samples, blood samples, and rumen pH were aseptically collected from each AIP case and control. Lung bacterial swabs were cultured for mycoplasma and bacteria. Swabs from the liver were cultured for aerobic and anaerobic bacteria. Lung and liver samples frozen were for viral studies using PCR and those in formalin were for histopathology and mycoplasma immunohistochemistry. All samples were shipped to diagnostic laboratories.

Results

Three summers of sample collecting gathered 23 AIP cases and 30 control cases. AIP lung samples showed 44% had significant bacterial growth but no bovine respiratory syncytial virus (BRSV) was present. AIP case liver samples showed 14% had significant bacterial growth. Neither significant bacterial growth nor BRSV appeared in the lungs of the control cases. Only 3% of the controls had significant bacterial growth apparent in the liver samples.

Discussion

These results indicate that bacterial respiratory pathogens are present and may contribute to the development of fatal feedlot AIP. However, the frequency varies widely between different feedlots. Thus, aggressive bacterial respiratory treatment may deem beneficial at certain yards, but not others; further research will be necessary to determine important risk factors at such yards before preventative strategy recommendations can be made. Also, the incidence of AIP appears to vary greatly from year to year at feedlots. It is not clear why this is true; further research aimed at following feedlots with a history of relatively high prevalence of AIP over several years could help determine factors that impact annual AIP incidence.

