Pulmonary lesions and clinical disease response to *Mannheimia haemolytica* challenge 10 days following administration of tildipirosin or tulathromycin

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Introduction

Bovine respiratory disease (BRD) causes significant economic loss to the beef cattle industry. *Mannheimia haemolytica* (MH) is considered the predominant bacterial pathogen associated with BRD. The purpose of this randomized, blinded, controlled clinical trial was to evaluate the effect of metaphylactic administration of tildipirosin or tulathromycin 10 days prior to experimental inoculation with MH on the development of pulmonary lesions in beef heifers.

Materials and Methods

Thirty-three beef crossbreed heifers were randomly allocated to 1 of 3 replicates and to 1 of 3 treatments (tildipirosin, tulathromycin, or saline) within replicate. Calves within each replicate received an MH challenge by means of endoscopic delivery 10 days after treatment administration and were housed in individual indoor stalls for 3 days after challenge. Total lung lesion scores were calculated on the basis of a standardized formula. Rectal temperature and individual heifer clinical illness, respiration quality, and appetite scores were recorded daily following challenge.

Results

The percentage of pulmonary lesions ranged from 3.3% to 39.8% for all calves, and 11 of 12 (92%) of calves administered tildipirosin had < 10% pulmonary lesions. Significant ($P < 0.05$) differences in lung lesion scores were identified among treatment groups. Lung weight expressed as a percentage of body weight was significantly ($P < 0.05$) lower for calves administered tildipirosin, compared with that for calves administered tulathromycin or saline solution. The probability of calves receiving abnormal clinical illness scores and appetite scores was significantly lower ($P < 0.05$) for calves administered tildipirosin, compared with that for calves administered tulathromycin or saline solution.

Significance

Results indicated that calves treated with tildipirosin 10 days prior to MH challenge had less pulmonary damage, lower lung weight as a percentage of body weight, and fewer clinical signs of illness, compared with calves administered tulathromycin or saline solution.