Impact of an injectable colostrum supplement on morbidity and mortality of pre-weaned dairy calves with failure of passive transfer.

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Introduction

The most important management issue for neonatal dairy calves is failure of passive transfer (FPT) of immunity from the dam. Calves with FPT have increased morbidity and mortality. An intravenously administered bovine colostrum IgG product is available as a supplement for calves with FPT. A common practice is to administer the product in three smaller subcutaneous doses, however the efficacy of such extra-label treatment has not been evaluated.

Objective

The objective of this study was to evaluate the impact of the extralabel use of an injectable bovine colostrum IgG supplement (IIgG) on the health of dairy calves with failure of passive transfer.

Materials and Methods

A prospective, cohort study was conducted on a 13,000-unit calf-raising operation in Northern Colorado. Whole blood was collected from one hundred-eighty 2-day-old calves. One-hundred bull calves with serum total protein 5.0 mg/dL or less were identified as having FPT and enrolled into 2 cohort groups matched for farm of origin and serum total protein. Treated (TX) calves received three 25-ml injections of IIgG subcutaneously at 12-hour intervals. Control (CTL) calves received no treatment. Morbidity (diarrhea, pneumonia) and mortality were evaluated up to weaning at 60-days of age. Chi-squared analysis was used to compare % morbidity and mortality between treatment groups.

Figure 1. **Serum Total Protein Frequency Histogram**

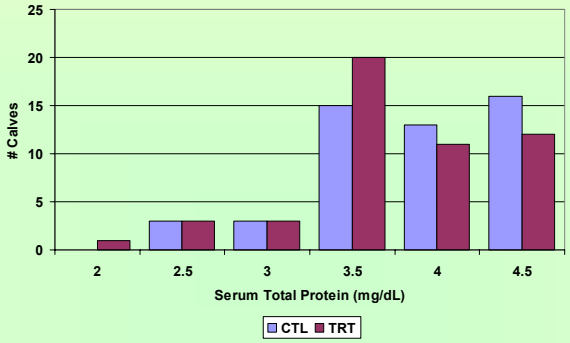
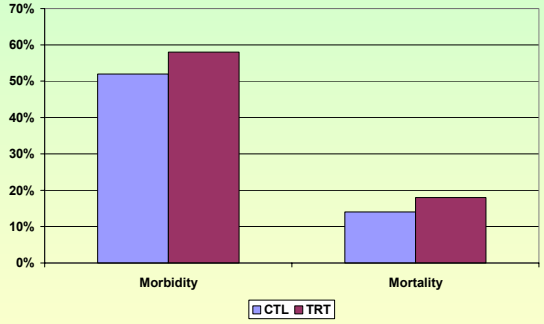


Figure 2. **Morbidity and Mortality in Treated and Control Groups**



Results

Serum total proteins ranged from 2 to 4.5 mg/dL and values were evenly distributed between CTL and TRT groups (Figure 1). There was no significant difference in percent morbidity between the TRT (58%) and the CTL (52%) groups (P=0.6879). When specific illness was evaluated, no significant difference was detected in % calves with pneumonia in TRT (32%) vs. CTL (32%) groups or in % calves with scours in TRT (28%) vs. CTL (14%) (P=0.1396). There was no significant difference in mortality between the TRT (18%) and CON (14%) groups (P=0.7858).

Conclusion

The results of this study suggest the extra-label use of an injectable, bovine colostrum IgG product does not improve health or survivability of dairy calves with FPT. This study further showed the utility of on farm clinical trials for making rational treatment decisions.