

Evaluation of the Efficacy of Halofuginone Lactate (Halocur®) as an Aid in the Prevention of Cryptosporidiosis in Ontario Dairy Calves

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Introduction

Cryptosporidium parvum is a common cause of diarrhea in calves less than one month of age. Prevalence of shedding of *C. parvum* and clinical disease is high on many dairy farms. Control of cryptosporidiosis is difficult. There are currently no approved products in North America for prevention of this disease. In Europe, halofuginone lactate (Halocur®) is marketed for the prevention of cryptosporidiosis by reducing and delaying excretion of *C. parvum* oocysts and in preventing diarrhea. The objective of this study was to evaluate the efficacy of halofuginone lactate as an aid in the prevention of cryptosporidiosis in dairy calves.

Materials and Methods

Commercial dairy farms with a history of high prevalence of neonatal diarrhea were selected to participate in this randomized double-blind study from February to July 2003. A total of 507 replacement heifer calves from 24 farms were enrolled at birth and randomly assigned to one of two experimental groups. The treatment group received 5 mg of halofuginone lactate orally once daily for seven days, beginning on the first day of life. The control group received an equal volume of 10 ml of placebo, administered in an identical manner. Fecal samples were collected from 305 of the calves on a weekly basis at 3 to 9, 10 to 16, and 17 to 23 days of age. Fecal samples were collected from an additional 202 calves once between 14 and 21 days of age. Feces were examined for presence of *C. parvum* oocysts using sucrose flotation and microscopy. Blinded farm personnel monitored the clinical condition of calves.

Results

There was a high prevalence of diarrhea in the study animals; approximately 50% of the calves developed diarrhea at least once in the first three weeks of life. Overall calf prevalence of *C. parvum* isolation was 44%. The greatest number of positive samples were found in calves at two and three weeks of age. Prevalence of *C. parvum* isolation was significantly reduced in halofuginone-treated calves as compared to placebo-treated calves, with rates of shedding of 39 and 50%, respectively ($p < 0.05$). In the subset of calves sampled on three consecutive weeks, there were significant differences between treatment groups in incidence of *C. parvum* isolation in all three weeks of the study period ($p < 0.05$). However, there was no difference in the incidence of diarrhea between groups. In the overall study population, halofuginone treatment was associated with a significant decrease in mortality in calves up to three weeks of age ($p < 0.05$). Halofuginone-treated calves were 2.4 times less likely to die than placebo-treated calves ($p < 0.05$).

Significance

In summary, halofuginone lactate treatment was associated with a significant reduction in the shedding of *C. parvum*, and with reduced mortality, in dairy calves. Halofuginone has considerable promise as an aid in the prevention of *C. parvum* infection in dairy calves.