Field Evaluation of a *Mycoplasma bovis* Bacterin in Young Dairy Calves

Fiona Maunsell, *BVSc, MS, DACVIM*[1]; **Art Donovan,** *DVM, MS*[2]; **Carlos Risco,** *DVM, DACVT*[2]; **Mary Brown,** *PhD*[1]; **Jorge Hernandez,** *DVM, MPVH, PhD*[2]; **Shelly Lanhart,** *CVT*[2]; **David Bray,** *MS*[3]
[1]*Departments of Pathobiology*
[2]*Large Animal Clinical Sciences, College of Veterinary Medicine*
[3]*Department of Animal Sciences, College of Agricultural and Life Sciences, University of Florida, Gainesville, FL*

Introduction

The objective of this field trial was to determine the efficacy of a commercially produced *Mycoplasma bovis* (*Mb*) bacterin for the prevention of *Mb*-associated disease (respiratory disease, otitis media, arthritis) and mortality in dairy calves from birth to 90 days of age. Additional objectives were to compare vaccinated and placebo-treated calves with respect to 1) weight gain from birth to 90 days of age, 2) rates of nasal colonization by *Mb* and 3) *Mb*-specific serum immunoglobulin concentrations.

Materials and Methods

Healthy heifer calves from three north-central Florida dairies that had a history of endemic *Mb* infection were randomly assigned to either a vaccinated or a control group at three days of age. A 1-ml dose of a *Mb* bacterin that has a conditional license for use in US feeder and stocker calves (Texas Vet Lab, Inc., San Angelo, TX) or a sterile vaccine vehicle (control group) was administered subcutaneously in the neck at three days and two weeks of age. A 2-ml dose was administered at five weeks of age. Investigators and farm personnel were blinded as to which calves were vaccinated. Calves were followed until 90 days of age and all episodes of disease and mortality were recorded by farm personnel using standardized case definitions. Sick calves were treated as per normal farm protocols. Cause of death was verified by necropsy whenever possible. Study personnel visited each of the dairies weekly to collect calf health records, monitor compliance and collect samples. Because passive transfer of colostral antibodies may influence the response to vaccination or infectious agents, serum total protein concentrations were measured at two-to-nine days of age.

A subset of calves from two of the herds were studied more intensively. These calves were weighed at birth and 90 days of age. Blood samples and nasal swabs were collected weekly until 8 weeks and then at 90 days of age. Serum was analyzed for *Mb*-specific antibody concentrations (IgA, IgG, IgM) by ELISA. Swabs were cultured to detect nasal colonization with *Mb*.

Results

Between March and December, 2002, some 330 calves from two herds (167 and 163 calves, respectively) were enrolled in the study. Despite a history of *Mb* infection, the third herd did not experience any *Mb*-associated disease during the study and is excluded from analyses. Of the 291 calves for which data collection is complete, the incidence risk for respiratory disease, otitis media and arthritis from birth to 90 days of age was 0.58, 0.26 and 0.02, respectively. The mean age at first treatment for respiratory disease, otitis media and arthritis was 27, 31 and 14 days, respectively. The mortality rate from *Mb*-associated disease was 0.07. Because the study is double-blinded and data analysis is incomplete, preliminary group comparisons could not be presented at the time of abstract submission. However, vaccinated and placebo-treated calf comparisons for morbidity and mortality rates, rates of nasal colonization with *Mb*, weight gains from birth to 90 days of age and *Mb*-specific serum antibody concentrations will be presented at the meeting.