Field Evaluation of a Mycoplasma \textit{bovis} bacterin in young dairy calves.

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Infection of dairy calves with \textit{Mycoplasma bovis} (\textit{Mb}) appears to be on the increase in the United States. \textit{Mycoplasma bovis}-associated diseases of calves (respiratory disease, otitis media and arthritis) are difficult to treat and may predispose the animal to mycoplasmal mastitis as an adult. Current methods of control are based upon prevention of exposure from adult cattle.

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

Healthy heifer calves from three Florida dairies that had a history of endemic \textit{Mb} infection were randomly assigned to either a vaccinated or a control group at 3 d of age. A 1-ml dose of a \textit{Mb} bacterin that has a conditional license for use in the United States (Texas Vet Lab, Inc.) or a sterile vaccine vehicle (control group) was administered subcutaneously in the neck at 3 d and 2 wk of age. A 2-ml dose was administered at 5 wk of age. Investigators and farm personnel were blinded as to which calves were vaccinated. Calves were followed until 90 d 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 2-9 d of age.

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

Between March and December 2002, 330 calves from two herds (167 and 163 calves, respectively) were enrolled in the study. Despite a history of \textit{Mb} infection, the third herd did not experience any \textit{Mb}-associated disease during the study and was 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 d 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 \textit{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. Vaccinated and placebo-treated calf comparisons for morbidity and mortality rates, rates of nasal colonization with \( Mb \), weight gains from birth to 90 d of age and \( Mb \)-specific serum antibody concentrations will be presented at the meeting.