Evaluation of Morbidity and Mortality in Young Dairy Heifers After Vaccination with a *Pasteurella haemolytica* A1 Leukotoxoid.

R. D. Stevens, R. P. Ellis, D. A. Camden
Department of Clinical Sciences
College of Veterinary Medicine and Biomedical Sciences
Colorado State University
Fort Collins, CO, 80523

Respiratory disease is the most common problem in weaned dairy young stock and *Pasteurella haemolytica* biotype A, serotype 1 is the organism most frequently isolated from the lungs of calves affected with severe, fibrinopurulent bronchopneumonia. The ability of a *P. haemolytica* A1 leukotoxoid to protect colostrum fed, weaned dairy calves against respiratory disease was evaluated on 4 commercial dairy farms. Holstein heifer calves (n=736) were left as unvaccinated controls (group 1), or were vaccinated at 4 and 7 weeks of age (group 2), or at 7 and 10 weeks of age (group 3) with 2 ml. of Presponse (Langford Laboratories, Inc.) by intramuscular injection. Calves were monitored daily for signs of illness by dairy personnel. Clinical signs of respiratory disease included depression and inappetence, increased respiratory rate or cough, and elevated temperature (>40.0 C). Preliminary analysis, including calves from all farms combined, indicated that the incidence of respiratory disease in calves following vaccination did not differ significantly between treatment groups (22.0, 30.0, and 18.4% for groups 1, 2, and 3, respectively). Similarly, no significant difference was found in the number of calves repulled for retreatment 10 or more days after the initial disease incident (6.3, 8.9, and 4.5% for groups 1, 2, and 3, respectively), and mortality rates due to respiratory disease (3.1, 2.5, and 2.0% for groups 1, 2, and 3, respectively) did not differ significantly between the treatment groups. These results do not support the routine use of the vaccine in all dairy operations; however, it may be possible to realize a benefit from incorporating the vaccine in some replacement management schemes.

Comparison of Various Antibiotic Treatments in Cows Diagnosed with Toxic Puerperal Metritis

B.I. Smith, G.A. Donovan, C.A. Risco, and **J. Elliott**
University of Florida, Gainesville, College of Veterinary Medicine
Veterinary Medical Teaching Hospital, Rural Animal Medicine Service
P.O. Box 100136, Gainesville, Florida 32610-0136

A field trial was conducted using Holstein cows to investigate the efficacy of various antibiotics in treating toxic puerperal metritis. Cows were randomly assigned to one of three treatment groups. Group one received 18 million units of procaine penicillin intramuscularly for five days (group one = penicillin). Group two in addition to receiving 18 million units of procaine penicillin intramuscularly for five days, also received an intrauterine infusion of 6 grams of oxytetracycline diluted with 75 ml of sterile water on days one, three, and five (group two = penicillin + oxytetracycline. Group three received one gram of ceftiofur intramuscularly for five days (group three = ceftiofur). Dependent variables measured included daily rectal temperature for the five treatment days, and percent milk weight change compared to previous day for 12 days. Serum ionized calcium and interleukin-6, an indicator of acute inflammation and tissue injury, were measured from serum collected on days one, three, and five. Milk samples collected on day one and day six through twelve were used to measure antibiotic residues for each group. Day and treatment group affected the variables, however,

there was no interaction between treatment group and day. The penicillin and ceftiofur group had a lower rectal temperature than cows in the penicillin + oxytetracycline group during the five day treatment period. The percent milk weight change from the previous day was greater in the penicillin group than in the ceftiofur group but, not different from the penicillin + oxytetracycline group. There was no difference in serum ionized calcium concentration between groups during the five day treatment period. Temperature on the last day of treatment was not different among the three groups. Milk weight on day 12 was not different among the three groups. This study suggests that there is no difference in treatment efficacy of various antibiotics on cows affected with toxic metritis.

The Effect of Multiple Postpartum Prostaglandin Treatments on the Fertility of Dairy Cattle at Risk of Endometritis

Michaela Kristula, *DVM, MS*
Richard Bartholomew, *DVM*
Department of Clinical Studies
School of Veterinary Medicine
University of Pennsylvania
Kennett Square, PA

Abstract

This report focuses on the use of multiple doses of Prostaglandin to enhance fertility in animals at risk for endometritis. Cows at risk for endometritis were defined as those with retained placentas, assisted calvings, twins, or grossly abnormal uterine discharges. Cows were randomly assigned to a treatment group consisting of 3 injections of Prostaglandin $F_{2\alpha}$[a] ($PGF_{2\alpha}$) given at approximately weekly intervals (3-10 days (d), 10-17 d, 17-24 d) postpartum and a control group consisting of a single injection of $PGF_{2\alpha}$ given at 17-24 d postpartum. There was no added benefit of 3 injections of $PGF_{2\alpha}$ given at approximately weekly intervals (3-10 d, 10-17 d, 17-24 d) compared to a single injection of $PGF_{2\alpha}$ given at 17-24 d postpartum.

Prostaglandin (PG) is commonly used as a therapeutic agent in postpartum dairy cattle. The mechanisms of action of PG on the uterus are not well understood. Many protocols using various doses of PG in normal and diseased cattle have been evaluated. There are conflicting reports as to the benefits of these programs. This report focuses on the use of multiple doses of PG to enhance fertility in animals at risk for endometritis.

This study utilized 292 cows from three commercial dairy farms. Cows at risk for endometritis were defined as those with retained placentas, assisted calvings, or twins. These cows were enrolled in the study without rectal examination of the uterus. In addition, cows with grossly abnormal discharges or gas in the uterus as determined by rectal palpation 3-10 days (d) postpartum were enrolled in the study. Cows were randomly assigned to either the treatment or control group.

Cows in the treatment group received 3 injections of Prostaglandin $F_{2\alpha}$[a] ($PGF_{2\alpha}$). The first injection was given 3-10 d after parturition and subsequent injections were given at weekly intervals thereafter (10-17 d and 17-24 d postpartum). Cows in the control group received 2 injections of saline (3-10 d and 10-17 d postpartum) and one injection of $PGF_{2\alpha}$ between 17-24 d postpartum. Each herd used a farm specific breeding program. All cows in the study were checked for pregnancy 33-46 days after the last insemination.

Primary outcome variables were first-insemination pregnancy rates (number of pregnancies to first insemination/time), overall pregnancy rates (number of pregnancies/time) and average days to first insemination. The data was evaluated using survival analysis. There were no differences in first-insemination pregnancy rates or overall pregnancy rates between treatment groups. There was no difference in average days to first breeding between treatment groups as analyzed by the Wilcoxin Rank Sum test.