

Owner-reported Incidence of Clinical Salmonellosis in Northeastern Dairy Herds

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Introduction

Bovine salmonellosis is important because of clinical effects and zoonotic potential. Our objectives were to determine the frequency of owner-reported salmonellosis in northeastern US dairy herds and to examine the relationship of salmonellosis with herd size and housing type.

Materials and Methods

The information analyzed was collected during enrollment for a prospective salmonellosis incidence study. Veterinary clinics in New York, Pennsylvania, Vermont and Connecticut were invited to enroll all the dairy herds for which they provided regular service. At the time of enrollment the herd veterinarian collected information on herd size, housing, vaccination status, organic and inorganic farming practices, record-keeping and previous salmonellosis. Enrolled herds were eligible for free salmonella testing.

Results

A total of 801 herds with milk cows were enrolled. Of these, 210 (25.9%) reported at least one previous case of clinical salmonellosis. One hundred thirty-three (16.6%) herds reported salmonellosis within the five years prior to enrollment, and 55 (6.9%) within the year preceding enrollment. Salmonellosis within the last five years was strongly related to larger herd size (for each additional 100 cows odds ratio=1.2; 95% CI 1.1, 1.3). Even when controlling for herd size, herds with freestall housing were more likely to have reported salmonellosis within five years (OR = 4.9; 95% CI 2.6, 9.0).

Significance

About one-fourth of participating herds reported prior diagnosis of clinical salmonellosis, and 6.9% within the previous year. Larger herd size and freestall housing were both associated with increased owner-reported salmonellosis.

The Effect of Metaphylactic Intramammary Infusion of 200 mg Cephapirin Sodium per Quarter in Dairy Cattle at 2-3 Weeks Prepartum on Selected Postpartum Production Parameters

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Introduction

The objective of this study was to determine the effect of a metaphylactic prepartum intramammary infusion of 200 mg cephapirin sodium (Cefa-Lak[®]) per quarter in heifers and mature dairy cows. Treated and control animals from a large, well-managed herd were evaluated for selected production parameters during the immediate post calving period.

Materials and Methods

The study was conducted from May 2004 through April 2005. At the time of enrollment (2-3 weeks prepartum) each eligible animal was randomly assigned to a treatment or a control group by coin flip. Of 422 heifers, 209 were treated with cephapirin sodium (administered by partial insertion [OptiSert[®]] following full teat and teat end preparation) and 213 heifers served as a con-

trol group. Of 573 adult cows, 290 were treated with cephaparin sodium (administered by partial insertion [OptiSert®] following full teat and teat end preparation) and 283 adult cows served as a control group. Daily milk production measurements were collected through 15 weeks of lactation. Somatic cell count measurements were determined from individual animal composite milk samples at twice weekly intervals for the first 10 to 14 days of lactation, and then at monthly intervals through 15 weeks of lactation.

Results

Data will be summarized and analyzed pending final collection in April 2005. The results of the project

will be available for presentation at the 2005 Annual Meeting of the AABP.

Significance

The results of this study should help veterinarians better evaluate management strategies, including routine pre-partum metaphylactic intramammary antibiotic therapy, to improve udder health and production in dairy cows.

Development of a New Diagnostic Test for the Detection of Passively Acquired Immunoglobulin G1 (IgG1) in Newborn Calves Using Immunostick ELISA Technology

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Introduction

It is generally accepted that there is no transfer of immunity *in utero* in the bovine. The calf is dependent on ingestion and absorption of immunoglobulins (antibodies) from colostrum by the endothelial cells of the small intestine for protection against neonatal disease. Absorption of immunoglobulins (Ig) is maximal at birth, declines rapidly and ceases by 24 hours post-partum. Because of modern dairy herd management practices worldwide, a high percentage of calves receive insufficient amounts of colostrum, and thus are deficient in protective antibodies and very susceptible to neonatal disease, particularly colisepticemia and diarrhea. Currently the level of immunity can be assessed by measuring the levels of IgG1 in the blood, but these tests frequently must be conducted in a veterinary laboratory. Because of the lag time in obtaining a result, the calf is often already 24 hours old, immunoglobulin absorption has ceased and it is too late to correct the defi-

ciency by feeding additional colostrum. This new test is non-invasive and measures the level of IgG1 in nasal mucus. The test can be conducted on the farm, and takes 35 minutes to complete. If immunity is minimal, then the calf can be immediately fed colostrum to boost its immunity.

Materials and Methods

With this new immunostick ELISA, IgG1 if present in the nasal mucus, is captured by a murine anti-bovine IgG1 monoclonal antibody (MAB). The presence of IgG1 is then detected visually using a murine anti-bovine light chain biotin conjugate and peroxidase labelled streptavidin. The test is partially quantitative, and the depth of color change is indicative of the level of IgG1 in the nasal mucus. Validation was carried out using serum and nasal mucus samples collected from 30 purchased calves within 24 hours of birth, and 200 healthy, colostrums-fed dairy calves between three and seven