

the persistence of *E. coli* infections. Finding 33% of non-treated *E. coli* cases to be persistently infected is consistent with our earlier study where 39% (114 cases) persistent *E. coli* (Ackerman, AABP 2003). Treatment had no effect on reducing the number of cows or quarters lost to production. Isolation of *E. coli* early after treatment was correlated with the *E. coli* isolation at 21 days post-treatment. Therefore, it appears that a

single sample following treatment accurately identifies persistent *E. coli* infections. Because of the low incidence of persistent *E. coli* infections in clinical mastitis, treatment of these cases with antibiotic will not produce an economic benefit by either reducing their persistence in the herd or reducing the number of cows and quarters lost to the infection.

Efficacy of an Internal Teat Sealant, OrbeSeal^a, for Reduction of Clinical Mastitis during the First 60 Days Post-partum

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Introduction

Clinical mastitis (CM) events often occur during the post-partum period and are important economically. Many CM cases result from infections that have been established during the dry period. In one study, 38.1% of clinical cases had the same bacteria isolated at some point during the dry period.⁴ Risk factors for development of new intramammary infections (IMI) in the dry period have been reviewed.² Among the risk factors identified was failure to develop a natural keratin seal in 23.4% of teats.² These open quarters were 1.8 times more likely to develop a new intramammary infection (IMI). Efficacy of the internal teat sealant, OrbeSeal* (OS) for prevention of new IMIs during the dry period has been well established.^{1,3,5-7} The objective of this study was to evaluate the efficacy of OS infused at dry-off for the reduction of new cases of CM during the first 60 days of lactation, as compared to routine intramammary dry cow antibiotic therapy (DCT).

Materials and Methods

The trial was part of a larger project conducted on 945 cows from 16 farms to determine the effect of OS on new IMI during the dry period. For the CM component, data were available from 328 cows, from seven commercial dairy herds. For the study, quarter milk samples were collected aseptically at three points in time: two weeks prior to the dry-off date (S1), the day of dry-off (S2), and between 1-8 days in milk (S3). The S1 was

performed to identify cows with quarters harboring an existing IMI. At the time of dry off, S2 samples were taken and cows that were free of IMI at the S1 culture were placed in study part A. These animals were randomly assigned to receive either the internal teat sealant, OrbeSeal^a or DryClox® (DC; Ayerst Laboratories, Montreal, Canada) in ipsilateral quarters. Cows with one or more quarters found to be culture positive at S1 were placed in study part B, and were randomly assigned to receive OrbeSeal^a in ipsilateral quarters following infusion of all quarters with DC. All treatments were given after the final milking. Cows then entered the dry period (average 56.5 days, range 30-90 days). Within one week after calving, S3 samples were collected. Additionally, producers were asked to identify and sample any quarter showing signs of clinical infection for the first 60 days of lactation.

Results

Of the 328 cows included in this part of the study, 218 were culture negative (study part A) and 110 were culture positive in at least one quarter (study part B) at S1 sampling. In total, CM was reported in 31 quarters in 27 cows during the 60 days post-calving, an incidence rate of 1.2% per quarter-month and 4.8% per cow-month at risk. Two cases were excluded because the dry period exceeded 90 days. Quarters treated with DCT only had an incidence rate of 1.6% per quarter-month at risk, whereas quarters treated with OS only and both OS and DCT had incidence rates of 0.95% and 0.65% per quar-

ter-month, respectively. The role of OrbeSeal^a is to act as a physical barrier to environmental organisms, therefore statistical comparison of the incidence rate was conducted excluding CM cases caused by *Staphylococcus aureus*, *Corynebacterium bovis* and *Actinomyces pyogenes*. While statistically significant differences were not found, there was a strong trend toward decreasing CM in OS-treated animals. Using DC-treated animals as reference, the odds ratio of having CM was .48 (p=0.19) for animals receiving OS alone and .28 (p=0.12) for animals receiving both OS and DC.

Significance

Prevention of new dry cow IMI is a control point for decreasing clinical mastitis post-calving. Preliminary findings from this project revealed that the odds of culture-negative quarters developing new IMI were 1.4 times higher in quarters treated with DCT compared with OS (p=0.07). In this study, there was a strong trend toward decreased CM due to environmental pathogens in OS-treated animals. These findings highlight the importance of establishing and maintaining an excellent dry cow udder health program, which emphasizes all management strategies to reduce new IMI. The addition of internal teat sealants could play an important role in dry cow programs by increasing protection against environmental pathogens acquired in the dry period.

Footnote

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Antimicrobial Treatment Strategies for Streptococcal and Staphylococcal Mastitis

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Introduction

Mastitis is one of the most costly diseases encountered by a dairyman. Traditional therapy aimed at curing clinical mastitis cases includes intramammary (IMM) antimicrobial therapy. Most, if not all, commercially available IMM antimicrobial products are effective only against gram-positive organisms, mainly streptococcal and staphylococcal species. In spite of multiple available IMM antimicrobial products, cure rates for clinical mastitis run about 46% for strep spe-

cies, 21% for staph species, and 9% for *Staphylococcus aureus* mastitis. This study investigated the use of systemic antimicrobial therapy (ampicillin) in conjunction with IMM antimicrobial therapy for strep species., staph species., and *S. aureus* on a commercial dairy.

Materials and Methods

On a 3,000 Holstein cow commercial dairy, milk from clinical mastitis cases was cultured on blood agar using standard culture techniques (2). All cows with a