

Comparison of Systemic and Intramammary Dry Cow Treatments

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Introduction

The non-lactating (dry) period is an important time for udder health in that infections can be either acquired or cleared. Intramammary dry cow therapy with antibiotics is routinely used. The inclusion of systemic antibiotics with intramammary therapy in a previous study gave better cures during the dry period. The use of tylosin administered in the dry period has been previously proposed because it is able to penetrate udder tissue. The objective of this study was to compare the use of tylosin in the dry period alone, or in combination with intramammary antibiotics, as compared to the use of intramammary treatment alone.

Materials and Methods

On a large commercial dairy farm, cows were selected at the end of lactation and randomly assigned to one of 4 groups of dry cow treatment: Group 1 (n=88), cephapirin (Tomorrow®, Fort Dodge) intramammary and teat sealant (Orbeseal®, Pfizer); Group 2 (n=83), tylosin 12 grams intramuscular (Tylosin®, Agripharma) cephapirin intramammary and teat sealant; Group 3 (n=82), tylosin 12 grams intramuscular and teat sealant; Group 4 (n=76) tylosin 12 grams intramuscular only. For this study 329 cows were enrolled at dry-off and followed for a 100 days after calving. Quarter milk samples were collected at dry-off, one and two weeks after calving. Bacterial cure was defined as a positive bacteria culture on blood agar at dry-off and negative to culture on both milk samplings after calving. Somatic cell counts were obtained from DHI test records at dry off, 30 and 60 days after calving. Somatic cell counts were compared using oneway ANOVA and bacteria cure rates were compared using Chi Square. Dairy Comp 305 records used to monitor health records and mastitis events.

Results

Of the 329 cows enrolled in the dry cow treatment trial, 278 had complete records and were included in the results. Somatic cell counts for all 4 treatment groups decreased after calving (Graph 1). The combination of intramammary and systemic antibiotics gave the best response at the first test date after calving (Graph 2) but no differences were detected by the second test date (Graph 3). All treatments had a high cure rate when used in the dry period. Bacterial cures for Gram-positive infections were greater ($P>0.01$) for the combination of intramammary and systemic antibiotics with a teat sealant, 44 cures of 47 infections (94%) as compared to systemic antibiotic only with 57 cures of 73 infections (78%) (Table 1). There was no difference among the other treatment groups. The combination of intramammary and systemic antibiotics with teat sealant also had the highest projected 305ME production for all the treatments (Graph 4) with an additional 2000 lbs. (1010 kg) of milk. There were no differences in 305ME levels for the other 3 groups.

Significance

The use of systemic tylosin in combination with the intramammary antibiotics increased the effectiveness of the dry period treatment. The apparent good diffusion into the gland by the tylosin, improved the cure rate of Gram-positive infections. There were no differences between the use of tylosin plus teat sealant and intramammary treatment plus teat sealant at dry-off. Adding the teat sealant to the systemic treatment with tylosin at dry-off improved the response of the treatment. Further studies are needed to validate this effect in other dairy herds and evaluate the interaction that may have occurred using the teat sealant with these antibiotic therapies.