

Apparent Efficacy of Blanket Clinical Mastitis Treatment

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Introduction

Efficacy of a mastitis treatment depends largely upon the mastitis agent. Yet, a standard mastitis treatment protocol is used on many dairies to decrease the risk of drug residues in milk and because of logistical problems associated with obtaining culture results in a timely manner. However, blanket mastitis treatment regimens result in cases of clinical mastitis being improperly treated. The hypothesis is that over 50% of clinical mastitis cases are treated inappropriately.

Materials and Methods

This is a one year observational prospective study of clinical mastitis treatment on a 700 cow dairy. Clinical mastitis was identified by forestripping. Milk was aseptically collected for culture and SCC analysis prior to first treatment, during the course of treatment, after milk withdrawal time and one month after mastitis onset. Cows were classified as mild or severe. Mild cases were defined as cows with clinically abnormal milk and no systemic signs. Severe cases were defined as cows with clinically abnormal milk and signs of systemic illness. Treatments: cows with mild clinical mastitis were treated with ampicillin daily for 1-7 days and oxytetracycline 200 once or twice. Cows with severe clinical mastitis were treated with ampicillin once a day for up to nine days, oxytetracycline twice (days 1 and 3) and Banamine/Predef once. Culturing procedures and interpretation of culture results followed NMC methods. All isolates were identified by biochemical test strips (bioMerieux). The Kirby-Bauer technique was used to determine antibiotic sensitivities. The following rules were used to determine if the antibiotic usage was justified/appropriate: 1. If there was no growth, antibiotic usage was unjustified. 2. If the treatment did not obtain a bacterial cure, it was inappropriate/insufficient. 3. If

the bacterial organism was resistant to the antibiotic used, it was inappropriate. 4. If mild clinical mastitis, systemic therapy was unjustified.

Results

The results presented are preliminary as sample collection and analysis will continue through August 2008. Of 98 cases of clinical mastitis, 30% yielded no growth, 52% *E. coli*, 9% streptococci, 6% other, 2% other coliforms, and 1% staphylococci. Seventy-seven percent of the no growth cases were classified as mild whereas 53% of the *E. coli* cases were classified as mild. There was no obvious trend of the incidence or severity of *E. coli* cases by month but streptococci cases were rare until the winter months. Practically all cases received oxytetracycline 200, and 48% of isolates were resistant. *In vitro* susceptibility of gram-negative isolates to ampicillin were 38% resistant, 24% intermediate, and 42% susceptible. Twenty-six of 54 cases (48%) received inappropriate or unjustified treatment largely due to treatment of no growth cases and *in vitro* antibiotic resistance. In only 17% of cases (all severe) was all antibiotic usage justified. Estimates of antibiotic wastage due to treating no growth cases or antibiotic resistance equal ~\$200 for Hetacin K (90 tubes) and ~\$163 for oxytetracycline 200 (65 doses).

Significance

While the hypothesis has not proven true in this preliminary analysis, it can be concluded for this particular herd that inappropriate or unjustified mastitis therapy occurs nearly 50% of the time. These findings should reinforce the need for culture-based therapy which should increase bacterial cures, decrease unjustified drug usage, and decrease the risk of bulk tank residues.