

ANTIMICROBIAL TREATMENT STRATEGIES FOR STREPTOCOCCAL AND STAPHYLOCOCCAL MASTITIS

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Introduction

Mastitis is one of the most costly diseases encountered by dairy producers. Traditional therapy aimed at curing clinical mastitis cases includes intramammary (IMM) antimicrobial therapy. In spite of multiple available IMM antimicrobial products, cure rates for clinical mastitis run about 46% for *Streptococcus* spp, 21% for *Staphylococcus* spp, and 9% for *Staphylococcus aureus* mastitis (1). This study investigated the use of systemic antimicrobial therapy (ampicillin) in conjunction with IMM antimicrobial therapy for *Strep* spp, *Staph* spp., and *Staph aureus*.

Materials and Methods

Milk from lactating Holstein cows with clinical mastitis from a 3,000-cow dairy herd was cultured on sheep blood agar. All cows with a *Strep* spp(n=80), *Staph* spp.(n=60), or *Staph aureus* (n=25) positive culture result were enrolled in the trial and assigned one of three treatments based on a randomized six-block table. For *Strep* spp., cows were grouped as not treated, treated with IMM amoxiclast once a day for five days, or treated with IMM amoxiclast plus 30 cc ampicillin IM once a day for 5 days. For *Staph* spp and *Staph aureus* cows were grouped as not treated, treated with IMM pirsue once a day for five days, or treated with IMM pirsue plus 30 cc ampicillin IM once a day for 5 days. One milk sample was collected and cultured from the affected quarters 21-28 days after completion of antimicrobial therapy. A cow was considered cured if there was no growth at the 21-28 day culture. Days until clinical cure, days in hospital, somatic cell count (SCC), milk production, previous mastitis events, lost quarters, and whether the cow was sold/died were all recorded.

Results and Discussion

For cows with *Strep* spp mastitis in the no treatment group, 6/15 cows were cured, 4 cows lost a quarter and 10 cows were sold/died. Within the IMM amoxiclast group, 11/20 cows were cured, 4 cows lost a quarter and three cows were sold/died. Within the IMM amoxiclast plus IM ampicillin group, 16/20 cows were cured, three cows lost a quarter, and none were sold/died. For cows with *Staph* spp mastitis in the no treatment group, 3/8 cows were cured, 1 cow lost a quarter and 2 cows were sold/died. Within the IMM pirsue group, 5/9 cows were cured, 3 cows lost a quarter, and 1 cow was sold/died. Within the IMM pirsue plus IM ampicillin group, 4/14 cows were cured, 2 cows lost a quarter, and no cows were sold/died. For cows with *Staph aureus* mastitis in the no treatment group, 0/5 cows were cured, 5 cows lost a quarter and 2 cows were sold/died. Within the IMM pirsue group, 0/9 cows were cured, 1 cow lost a quarter, and 1 cow was sold/died. Within the IMM pirsue plus IM ampicillin group, 0/8 cows were cured and no cows lost a quarter or were sold/died.

Treatment with systemic ampicillin in conjunction with IMM therapy proved more effective in eliminating *Strep* spp organisms from the mammary gland and kept more cows in production over the traditional IMM therapy. The same is not true for *Staph* spp. or *Staph aureus*. Further investigation is needed to develop effective treatment strategies for *Staph* spp and *Staph aureus* mastitis clinical cases. A producer should rely on culture based treatment protocols as an effective and economical means to reduce mastitis in the overall herd.

References

1. Wilson, D.J. et. al. Efficacy of Florfenicol versus clinical and subclinical cases of bovine mastitis. *NMC proceedings* 1996; 164-165.