Efficacy of Intramammary Extended Therapy Using Ceftiofur (Spectramast® LC) against Clinical Mastitis of Holstein Cows

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Introduction

Little research has focused on extended therapy for cows with clinical mastitis during lactation. Ceftiofur should be effective against a wide range of mastitis pathogens including gram-positive and gram-negative bacteria. It could be considered as a reasonable choice for treatment of clinical mastitis. The objective of the present study was to determine if extended therapy would increase cure rates of a ceftiofur treatment for non-acute clinical mastitis, for all bacteria and more specifically for *Staphylococcus aureus* and streptococci. The hypothesis was that extended therapy would enhance the cure rate of ceftiofur for non-acute clinical mastitis.

Materials and Methods

Holstein dairy cows (n = 241) from 22 dairy herds from Quebec and Ontario, Canada were included. For each case of non-acute clinical mastitis, 125 mg of ceftiofur hydrochloride (Spectramast® LC) was administered via intramammary infusion for two or eight consecutive days. Allocation to treatment groups was randomized. A clinical cure was defined as milk appearing normal 21 days after the last treatment. A bacteriological cure was defined as a treated infected mammary quarter that was bacteriologically negative for the presence of previously identified bacteria at 7, 14, and 21 days after the last treatment. Mixed logistic regression was used for statistical analysis, the fixed factor was the treatment, the random factor was the herd and co-factors were days-in-milk, severity of mastitis, and the quarter. Results were considered significant if $P < 0.05$.

Results

The clinical cure rate was 89% (n=98/110 for each group) for both treatment regimens for all bacteria. The bacteriological cure rates for the two- and the eight-day regimen were 32% (n=15/47) and 61% (n=25/41), respectively, for all bacteria, 64% (n=9/14) and 82% (n=9/11), respectively, for streptococci, and 0% (n=0/20) and 47% (n=9/19), respectively, for *Staphylococcus aureus*. There were 16 new intramammary infections: 10 in the two-day regimen and six in the eight-day regimen. There were 11 recurrences of mastitis: eight in the two-day regimen and three in the eight-day regimen. The clinical cure rates were not different between groups. The extended therapy group had significantly better bacteriological cure rate for all bacteria ($P = 0.007$) and for *Staphylococcus aureus* ($P = 0.001$) but not for streptococci ($P = 0.50$).

Significance

The extended therapy appears to be a reasonable choice for the treatment of non-acute clinical mastitis, especially if *Staphylococcus aureus* is the suspected pathogen. More analysis is needed to determine if it is an economical choice.