

# Efficacy of Ceftiofur Hydrochloride Administered Parenterally for Five Consecutive Days for Treatment of Acute Postpartum Metritis in Dairy Cows

John R. Chenault, Joseph F. McAllister, S. Theodore Chester, Kenneth J. Dame and Fabian M. Kausche. Pharmacia Animal Health, Kalamazoo, MI 49001

## Introduction

The objective of this study was to evaluate under clinical, field conditions the efficacy of ceftiofur hydrochloride [HCl] as EXCENEL™ RTU Sterile Suspension administered parenterally at doses of 1.1 or 2.2 mg ceftiofur equivalents (CE)/Kg body weight (BW; 0.5 or 1.0 mg CE/lb BW) for 5 days for the treatment of acute postpartum metritis in dairy cows.

## Materials and Methods

The study was conducted during 2000 at eight commercial dairies in the USA using a common protocol. Dairy cows (n=406), 1 to 14 d postpartum, with rectal temperature (RT)  $\geq 103^{\circ}\text{F}$  ( $39.5^{\circ}\text{C}$ ) and a fetid vaginal/uterine discharge (FD) were enrolled. Eligible cows were assigned randomly in blocks to three treatment groups; saline control or ceftiofur HCl at either 1.1 mg or 2.2mg CE/Kg BW administered SC or IM for 5 days [study day (SD) 1 = day of enrollment/first day of treatment]. Cows were administered supportive fluid therapy and/or escape therapy at the discretion of the investigator. On SD 6, 10 and 14, each cow was examined, rumen contractions (RC), heart rate (HR), and scleral injection (SI) and dehydration score (DS) were recorded and cows determined to be “cured” or “failed to cure”. Cured was defined as not receiving escape therapy, RT  $< 103^{\circ}\text{F}$  ( $39.5^{\circ}\text{C}$ ) and absence of FD. Failed to cure was defined as receiving escape therapy and/or RT  $\geq 103^{\circ}\text{F}$  and/or presence of FD. RT was taken on SD

1-6, 10 and 14. Cure rates were statistically analyzed, sequentially, on SD 14 then 10 then 6 and if statistical superiority was detected for a treatment group relative to control, the analyses for that treatment was stopped. RT also was analyzed. Protocol deviations or missing observations resulted in 353, 363 and 362 cows included in analyses on SD 6, 10 and 14, respectively.

## Results

On SD 14, cure rate (as defined above) for the 2.2 mg CE/Kg BW group was significantly higher than that of the control group. On SD 14, 10 or 6 there was no evidence that the 1.1 mg CE/Kg BW treatment group had a significantly higher cure rate (as defined above) than the control group. However, expanding the definition of cure to included the other clinical observations (HR, SI, RC, DS), the 1.1 mg CE/Kg BW dose was distinguishable, statistically, from the control group. During the 5 days of treatment, the two ceftiofur treatment groups had similar patterns in RT reduction that were significantly lower ( $p \leq 0.012$ ) than the pattern in RT reduction observed in the control group.

## Conclusions

Ceftiofur HCl administered at 2.2 mg CE/Kg BW for 5 days is efficacious for the treatment of acute postpartum metritis in the dairy cow. By expanding the definition of cure, the 1.1 mg CE/Kg BW dose could be distinguished from control and therefore is defined as effective for the treatment of acute postpartum metritis.

Treatment Group	Cure rate (%)					
	Study Day					
	6		10		14	
	%	N	%	N	%	N
Saline	23	117	44	118	63	116
1.1 mg CE/Kg BW	27	117	47	122	66	123
2.2 mg CE/Kg BW	NT†		NT		77*	123

†Not tested \* Significantly greater than saline ( $p=0.006$ ; one sided)

**PHARMACIA** Animal Health