

# Assessment of events occurring during the previous lactation, the dry period, and peripartum as risk factors for early lactation mastitis in cows administered different intramammary dry-cow treatments

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## Introduction

The objective of this study was to investigate the association of events occurring during the previous lactation, the dry period, and the peripartum period with the incidence of early lactation mastitis in cows administered intramammary ceftiofur hydrochloride or penicillin dihydrostreptomycin dry-cow treatment.

## Materials and Methods

Cows (n = 402) from 2 large dairy farms in central Florida were randomly assigned to 1 of 2 dry-cow treatments (ceftiofur hydrochloride or penicillin dihydrostreptomycin) at the time of dry-off processing. Composite milk samples were collected at dry-off and after calving for bacteriological examination and somatic cell count. Peripartum health disorders including calving difficulty, metritis, ketosis, and left displaced abomasum were monitored during the first 30 days-in-milk (DIM). Milk production and individual somatic cell count scores (SCCS) were recorded monthly by the Dairy Herd Improvement Association (DHIA). Outcomes of interest were the risk of clinical mastitis during the first 30 and 60 DIM and the risk of subclinical mastitis (SCM) at the first 2 monthly DHIA tests after calving up to 70 DIM. Additionally, the SCCS and the presence of mastitis pathogens in milk at dry-off and at calving were analyzed. Explanatory variables consisted of events that occurred during the previous lactation, at dry-off and during the dry period, at calving, and within the first 30 DIM.

## Results

Multiple events that occurred during the previous lactation including low milk yield, intermediate lactation length, clinical mastitis, and mean lactation SCCS had a significant effect on the incidence of mastitis in the subsequent lactation. Similarly, intramammary infections with environmental bacteria at dry-off increased the risk of clinical mastitis during the first month after calving. Cows treated with ceftiofur hydrochloride had lower odds of developing clinical and subclinical mastitis in the subsequent early lactation than did cows treated with penicillin dihydrostreptomycin.

## Significance

To our knowledge, the efficacy of intramammary infusion of ceftiofur hydrochloride for the treatment of intramammary infection at dry-off and for prevention of new intramammary infections during the dry period has not been investigated outside of pre-approval drug studies. Results of the present study indicated that, under the particular conditions of this study population, the use of different dry-off antimicrobial treatments had a significant effect on mastitis incidence early during the subsequent lactation. Cows administered ceftiofur hydrochloride intramammary dry-cow treatment had a lower incidence of clinical and subclinical mastitis during the first 30 and 60 DIM of the subsequent lactation, compared with that for cows administered penicillin dihydrostreptomycin intramammary dry-cow treatment.