

Milk Production and Reproductive Performance in Postpartum Dairy Cows Diagnosed and Treated for Metritis Using a Health Monitoring Program

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Introduction

After calving, uterine health can be compromised by bacterial contamination that may result in metritis which lowers milk production, fertility and can be life threatening. Early treatment of metritis is justified on the basis of animal welfare and from an economical aspect of returning affected cows to their expected level of production. Postpartum (PP) health monitoring strategies are popular in many dairies because it allows the opportunity to identify sick cows early and provide therapy for metritis. However, it is not known if PP cows that undergo a health monitoring program and are diagnosed and treated for metritis have comparable reproductive performance and milk production to cows without metritis. Objectives were to determine milk production and reproductive performance in PP dairy cows diagnosed and treated for metritis using a health monitoring program.

Materials and Methods

The study used records from two dairy farms located in central California that included 2,300 cows. Both farms employed a PP health monitoring program for early diagnosis and treatment of disease. Daily rectal temperature (RT) of all cows was taken in the morning during the first 10 days PP, and health examinations were performed by on-farm personnel trained by the herd veterinarian. Cows that appeared sick (depressed, eyes tented) or had a RT $\geq 103^\circ\text{F}$ (39.5°C) were examined for metritis. The criteria for diagnosis of metritis were a watery, brown-colored, fetid discharge from the vulva, with a RT $\geq 103^\circ\text{F}$. Cows diagnosed with metritis received one of the following treatments: 1) ceftiofur Na (Ceft) at a dose of 1.0 mg/lb (2.2 mg/kg) subcutaneous (sc) for five days, 2) uterine infusion (UI) of 6 g of oxytetracycline diluted in 100 ml of sterile water intrauterus, or both (Ceft + UI). Beginning at 39 + 3 days PP cows underwent a Pre-synch/Ovsynch protocol with timed AI (TAI) at 67 + 3 days PP. The main outcomes of interest

were the effect of metritis on reproductive performance and milk production. Reproductive performance was evaluated by the pregnancy status (pregnant or not pregnant) to the first TAI diagnosed by palpation per rectum between 35 and 41 days post breeding and reconfirmed at 66 ± 3 days post TAI. Milk production was determined by average milk production per cow during the first three weeks after calving. Other explanatory independent variables considered in the analysis were parity (primiparous or multiparous), farm, retained placenta (failure to expel the placenta by 24 h after calving), metritis, and treatment (Ceft, UI or both). Pregnancy to the first TAI was analyzed by logistic regression using PROC LOGISTIC of SAS. Mean milk production was analyzed by ANOVA with PROC GLM of SAS.

Results

There was no effect of metritis on pregnancy to the first TAI when reconfirmed at 66 ± 3 days (29.9% vs 33.3% for metritis, no-metritis, respectively, $P = 0.94$). Considering only cows with metritis, treatment type did not have an effect on pregnancy per AI (Ceft 31.6%, UI 22.0% or Both 28.7%, $P = 0.52$) None of the explanatory variables considered had an effect on pregnancy per AI. Although milk production increased by week PP in all cows, those cows affected with metritis had significantly lower milk yield during this time after calving compared to cows without metritis ($P = 0.015$).

Significance

Following a PP health monitoring program, treatment of metritis improved fertility but not milk production in cows affected with the disease. This finding indicated that identification of cows with metritis early and prompt treatment may ameliorate the effects of metritis on reproduction. In contrast, despite successful treatment, cows affected with metritis had lower milk production early in lactation.