

Title:

Changes in the Teat Canal during Dry-off Period Assessed Using Ultrasonography in Japanese Holstein Dry Cows

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Introduction

The risk of coliform mastitis during the lactation cycle increases immediately after dry-off and around calving. This study clarified whether the characteristics of the teat canal described previously in multi-lactation dry cows (MLDC) are also found in Japanese dry cows.

Materials and Methods

In Experiment 1, the teat canal scores (TCS) of 15 teat canals of four dry cows fed at the Nihon University farm were determined after observation by ultrasonography. In Experiment 2, the TCS of 353 dry-cow teats were observed by ultrasonography. The TCS values were compared with lactation number and the somatic cell score (SCS) at milk test.

Results

In Experiment 1, approximately 30% of teat canals had not closed approximately 10 days after dry-off. In Experiment 2, 13% of prepartum heifers and 26% of MLDC had TCS values of 1 (i.e., teat canal opened) ($P<0.01$). The percentage of TCS=1 cows was approximately 13% for prepartum heifers and first-lactation dry cows, and >30% for MLDC ($P<0.01$). The SCS of MLDC with TCS values of 1 were higher than in other lactation cows ($P<0.01$); further, SCS decreased as TCS values increased.

Discussion and Conclusions

The percentage of prepartum heifers and first-lactation dry cows with non-keratin plugs was lower than in MLDC, suggesting that milking history affects opening of the teat canal. Furthermore, non-keratin plugs were associated with increased SCS in the subsequent postpartum period. To prevent postpartum mastitis, the use of teat sealant was considered to be effective for preventing bacterial infection during the dry-off period.