

Relationship between Teat-end Hyperkeratosis and Composite Milk Somatic Cell Count in a Dairy Herd in Iran

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Introduction

Teat-end health is a complex issue, and several studies have demonstrated the positive association between teat-end hyperkeratosis (TEHK) and subclinical mastitis. The objective of this cross-sectional study was to determine whether TEHK is associated with an increased risk of subclinical mastitis, as indicated by composite milk somatic cell count (CMSCC) in a Holstein dairy herd in the Tehran province of Iran. Cows were milked three times a day by a milking machine with an automatic cluster removal (ACR) default setting of 200 g/min. Post-milking teat dipping was done with a product containing 1% available iodine and 10% glycerin as an emollient.

Materials and Methods

Using a system of teat-end lesion classification (described by Shearn & Hillerton, 1996), all teats (n=536) were scored immediately after the clusters were removed. The degree of TEHK was determined using the unit scores 0 to 5. Teat-ends were classified as hyperkeratotic (scores 1 to 5) or normal (score 0). CMSCC was measured using the fluoro-opto-electronic cell counting method (COMBIFOSS 5000, Fossomatic, Foss Electric,

Denmark). Cows were classified as having the CMSCC more or less than the threshold value of 200,000 cells/ml. Statistical analysis was performed using a Chi-squared test (Yate's correction included) with 95% confidence interval (CI).

Results

Some 86.36% (19 out of 22) of cows with CMSCC>200,000 had at least one hyperkeratotic teat-end, whereas this was only 56.25% (63 out of 112) in cows with CMSCC<200,000 (P<0.05). Cows with at least one hyperkeratotic teat-end were at 4.92 times more risk of having CMSCC>200,000 (Odds Ratio= 4.92, 95% CI: 1.37, 17.46).

Significance

The study identified TEHK as a risk factor for increased CMSCC in this dairy herd. Our recommendation is to increase ACR threshold value from the more common default setting of 200 to 400g/min, with appropriate delay time according to manufacturer's guidelines. Reduced machine-on time may prevent or decrease the incidence or severity of TEHK and potentially reduce the occurrence of intramammary infections.