Teat traumatization by milking in side by side milking parlour and tandem parlour

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Summary

The aim of this study was to find out and compare the stress of fore teats and hind teats during milking in side by side milking parlour (attaching the milking unit from behind) and tandem milking parlour (attaching the milking unit abeam). The stress was evaluated by means of the changes of teat temperature. The measurements were provided by thermographic method in field conditions. Milking in side by side milking parlour showed statistically ($P < 0.05$) higher stress hind teats and especially fore teats compared with milking in tandem milking parlour. Milking in tandem milking parlour can consider to be „friendly“ to udder.

Key words: *Teats, machine milking, attaching, milking parlour, thermography*

Introduction

First of all milking in side by side milking parlour was used in sheep and goats, now this system is expanded in dairy cattle (Kubina, 1999). But mammary gland anatomy of dairy cow is very different compared with ewe or goat (Reece, 1997). Further, weighting of milking machine significantly influences milking process (Dolezal, 2000; Gleeson et al., 2003). Suspension of machine milking induces the moment, which influences teat tissue stress. First of all this moment is influenced by torsion of tubes. The aim of this study was to find out and compare the stress of fore teats and hind teats during milking in side by side milking parlour (attaching the milking unit from behind) and tandem milking parlour (attaching the milking unit abeam).

Material and methods

The traumatization was evaluated by means of the changes of teat temperature before and after machine milking (morning + evening milking). The measurements were provided by thermographic method in field conditions (thermographic camera AGA 570). Three side by side milking parlours and three tandem parlours were investigated (milking vacuum 42.6 kPa). Twenty high-yielding dairy cows (udders) in every parlour were measured. The thermograms of teats were evaluated by special computer program Irwin 5.3.1., the obtained values by Statistica.cz (non parametric test).

Results and discussion

Results are showed in Figure 1.

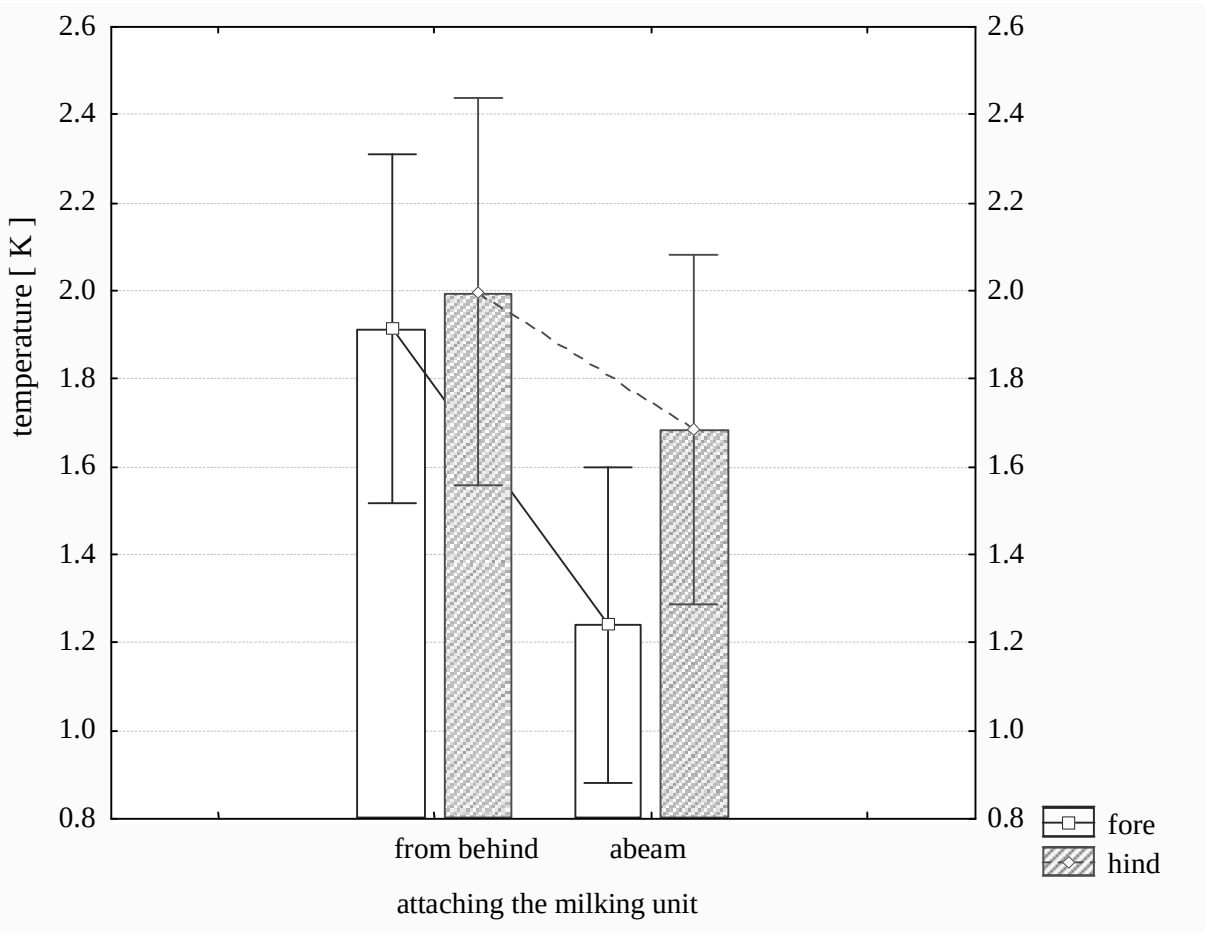

Figure 1. The changes in teat temperature by attaching the milking unit from behind and abeam.

Milking in side by side milking parlour showed statistically higher stress of hind teats and especially fore teats compared with milking in tandem milking parlour. The temperature of fore teats in side by side parlour increased by an average of 1.92 K, in tandem parlour by the average of 1.24 K immediately after milking, the difference 0.68 K was statistically significant ($P < 0.05$). The temperature of hind teats in side by side parlour increased by the average of 1.99 K, in tandem parlour by the average of 1.68 K after milking, the difference 0.31 K was statistically significant ($P < 0.05$). This fact is caused by anatomic conformation of dairy cow udder and distribution of force of gravity of milking unit in side by side milking parlour. These findings agree with Dolezal (2000). It is concluded that milking in tandem milking parlour can consider to be „friendly „to dairy cow udder.

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