

Feeding mastitis milk to dairy calves: effect on health and performance during suckling and on udder health at first calving

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Key words

Dairy cattle, heifer mastitis, suckling milk, *S. aureus*, calf health

Aim of the study

Heifer mastitis is linked to high economic losses in dairy production. Already at first calving, heifers start their lactation with mastitis. The origin of these infections is to be searched during the rearing and breeding periods. One hypothesis is that *S. aureus* present in suckling milk fed to calves causes *S. aureus* mastitis at first calving. The aim of this study was to evaluate this potential risk factor. Additionally, the differences in calf health between calves suckled with raw milk and heat treated milk were compared.

Material and methods

34 calves (16 untreated milk group, 18 heat treated milk group) from 5 farms were suckled with milk from subclinically infected cows shedding *S. aureus* permanently. Heat treatment was thermisation at 61°C for one minute. Apart from the suckling period at the experimental farm, calves followed the rearing conditions similar to ordinary calves on their farms of origin. Calf health was evaluated regularly by clinical examinations. Udder health of the heifers at calving was evaluated by bacteriological examination of quarter milk samples. Furthermore, the results of the first three routine milk recordings were analysed.

Results and significance

Concerning udder health, no statistically significant differences were found between the two groups. In one heifer of each group, *S. aureus* was found in three of four quarter samples. But the genotype was different from that fed during the suckling period. From the quarter milk samples of 23 out of 27 heifers followed until first calving, other udder pathogens than *S. aureus* were isolated.

Calf health in both groups was significantly different concerning diarrhoea: calves fed with untreated mastitis milk had a significantly higher diarrhoea incidence rate (1.09 diarrhoea cases per 100 calf days at risk) than calves fed heat treated milk (0.26 cases per 100 calf days at risk, $p < 0.05$).

In the untreated mastitis milk, a median of 2468 CFU of *S. aureus*/ml were fed to the calves. Heat treatment eliminated *S. aureus* in 78.3 % of the suckling milk samples. In the remaining samples, there was a mean reduction of 90 % of *S. aureus* CFU/ml. In all samples, a shift of the bacterial spectrum could be observed. In the untreated milk, Staphylococci contributed the main part to the bacterial load. In the heat treated milk, *Corynebacterium sp.* was found in highest quantities.

Heat treatment of suckling milk from cows with *S. aureus* mastitis for calves is recommended. Calf health may significantly be ameliorated by this method. However, the results have to be interpreted with care: Feeding milk from mastitis cows can include other genotypes of *S. aureus* or other pathogens than *S. aureus*, which might affect calf health and udder health at first calving differently.

Publications, posters and presentations

Publication in Journal BMC Veterinary Research planned

Presentation at the 10th Buiatriktagung, Oberschleissheim/Germany

Presentation at Buiatrissima/ECBHM conference 2013, Bern/Switzerland

Articles for farmers and agricultural press

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