

8 Summary

Incidence of clinical mastitis in the periparturient period and associated mastitis pathogens in primiparous cows

The first part of the study included a retrospective analysis of clinical mastitis in primiparous and multiparous cows on 15 farms in Brandenburg, Germany. Data of 4393 primiparous and 7457 multiparous cows that had calved between June 1st, 2003 and May 31st, 2004 were analysed with respect to stage of lactation, season and potential correlations between the incidence of clinical mastitis in primi- and multiparous cows.

Within 305 days post partum 35.9 % of primiparous and 44.6 % of multiparous cows showed symptoms of clinical mastitis. Of these mastitis cases 53.6 % and 40.5 % occurred within the first month of lactation in primiparous and multiparous cows, respectively. In total 19.1 % of primiparous and 18.1 % of multiparous cows suffered from clinical mastitis within the first 31 days of lactation. In the following periods of lactation the rate of clinical mastitis was lower in primiparous than in multiparous cows.

Of the cases that occurred within the first month of lactation 47.0 % and 37.7 % appeared up to 48 hours post partum in primiparous and multiparous cows, respectively. From day three to seven, 30.6 % of the cases in primiparous and 27.3 % in multiparous cows were recorded. After day seven, 22.4 % of all clinical cases in the first month in primiparous and 35.0 % in multiparous cows occurred up to day 30.

There was no significant correlation between clinical mastitis incidence of primiparous cows and season. The monthly mastitis incidence of primiparous and multiparous cows correlated significantly on herd level ($r=0.31$; $p<0.01$).

The objective of the second part of the study was to determine the bacteria in colostrum of primiparous cows and in cases of clinical mastitis in primiparous and multiparous cows on 10 farms in Brandenburg. The total number of milk samples was 9049. Of these, 7617 samples were from primiparous cows after calving and 1432 samples from primiparous and multiparous cows with clinical mastitis. Factors influencing the occurrence of different pathogens were determined.

In 50.0 % of the colostrum samples CNS were found. Until day seven post partum the proportion decreased to 39.5 %. Fewer samples contained *Streptococcus spp.*, Coliforms, *S. aureus*, *Sc. dysgalactiae* and *Sc. uberis*.

For the analysis of mastitis samples of primiparous cows the period from partus until day 305 post partum was divided into four stages. In the first (partus to 48 hours post partum) and the second period (days three to seven post partum) CNS were predominantly found in the samples (33.2 % and 31.6 %, respectively). In the first period *Sc. dysgalactiae* were found in the second place (16.0 %). In the second period *Streptococcus spp.* including *Sc. uberis*, *Sc. dysgalactiae* and *Arcanobacterium pyogenes* were isolated from 16.6 % of the cases each. In the third period (day 8 to 30 post partum) *Streptococcus spp.* including *Sc. uberis* were predominantly found (29.8 % of the samples). In the second place CNS occurred (10.6 %). In the fourth period (days 31 to 305 post partum) Coliforms (23.1 %) and *Sc. uberis* (16.5 %) were the main mastitis pathogens. *Streptococcus spp.* together with *Sc. uberis* were found in 22.0 % of the samples.

In the mastitis samples of the multiparous cows between the first and the second day post partum CNS were the predominant pathogens (20.0%). *Streptococcus spp.* were isolated from 18.8 % of the samples. From day three to seven post partum *S. aureus* was the main mastitis pathogen (24.4 %). *Sc. uberis* was found in 17.1 % and CNS in 14.6 % of the samples. From

day eight to thirty post partum *Sc. uberis* (19.1 %) was the predominant pathogen. In descending order *Streptococcus spp.* (17.8 %), Coliforms (17.2 %) and CNS (14,7 %) were isolated. From day 31 to 305 post partum *Sc. uberis* and CNS occurred at the same rates (16.1 %). In the second place *Streptococcus spp.* (15.0 %) were found. If *Streptococcus spp.* and *Sc. uberis* were combined as environmental streptococci these pathogens caused most of the mastitis cases in multiparous cows.

Farm, type of sample, age and season influenced the occurrence of the different pathogens significantly. In case of major pathogens, samples that were collected at calving and in a case of mastitis from the same quarter often contained the same bacterial species (65.3 %). In case of CNS, this was observed less often (30.0 %).

There existed significant correlations in evidence between the different types of samples for *Sc. dysgalactiae* and *S. aureus*.

Overall, front quarters contained fewer mastitis pathogens than hind quarters. The proportions of the different pathogens, however, did not differ.