

Factors influencing bacteriological cure after antibiotic therapy of clinical mastitis

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Abstract

Antibiotic therapy of clinical mastitis (CM) is difficult and often results in unsatisfactory outcomes. At detection of every CM case a reliable prognosis for the probability of bacteriological cure (BC) is beneficial to avoid useless application of antibiotic treatments. Therefore, factors which are associated with BC of CM have to be determined. A randomised, matched field study was conducted on 24 free-stall dairy farms located in Northern - and Central Germany. Data of CM cases receiving antibiotic treatment were recorded. A foremilk sample of the affected quarter was taken before treatment and again approximately 14 days and 21 days after the end of therapy for bacteriological examination. The BC of every CM case was determined. Animal-, pathogen-, treatment-, herd- and environment-related factors were added to every CM case and analysed statistically for associations with BC of the CM cases. The study resulted in the following findings: The overall BC rate was 74.6%. Cows with bacteriologically cured CM cases showed a lower somatic cell count, based on the seven Dairy Herd Improvement (DHI) test days before treatment (individual sum-200-7), and milk yield in the final DHI test before CM occurrence than cows with bacteriologically non-cured CM cases. The probability of BC decreased significantly if a cow had previously suffered from more than one CM case in current lactation. The likelihood of BC decreased significantly in CM cases where staphylococci were cultured in pre-treatment samples, especially due to the low BC rate of *Staphylococcus aureus* (46.7%), compared to CM cases caused by *Enterobacteriaceae*, streptococci or other pathogens. The probability of BC decreased with an increasing amount of the pathogen excreted pre-treatment.

Key words: Clinical mastitis, antibiotics, bacteriological cure, prognosis, dairy cattle