RETHINKING MASTITIS DIAGNOSIS

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Despite being considered minor MASTITIS pathogens, coagulase-negative staphylococci (CNS) and Corynebacterium spp. are reported as the most frequently isolated pathogens from milk samples in various studies worldwide. The present study aimed at clarifying if the sampling technique influences the isolation rate of these 2 groups of microorganisms and how often there is evidence of another pathogen in samples that yield CNS or C. bovis with conventional bacteriology.

To evaluate the influence of the sampling technique, 132 quarters (half chosen randomly and another half with subclinical MASTITIS) were sampled in duplicate - following the standard technique and by use of a teat canula that surpassed the teat canal. The sampling order (standard or canula first) was chosen randomly. Bacteriology was performed according to NMC protocols and somatic cell count (SCC) was determined on the sampling day and 7 days later. To evaluate the presence of other MASTITIS pathogens, 151 quarter milk samples with SCC>500,000 cells/ml that yielded no-growth, C. bovis or a CNS by conventional bacteriology, were submitted to a multiplex-PCR for identification of MASTITIS pathogens (PathoProof®, Finnzymes).

Significant differences were observed in the isolation of Corynebacterium spp. from samples collected in the standard way and with a canula, with 29 isolates obtained with the former and 6 with the latter. The number of no-growth samples was significantly higher for samples obtained with a canula, but there was no noteworthy impact on the recovery of major MASTITIS pathogens. The sampling order did not significantly influence the results. The mean quarter SCC did not significantly differ between samples taken on the initial sampling day and 7 days later, therefore it is unlikely that sampling with a canula leads to new intramammary infections, at least in the conditions used. For the second part of the study, performing a PCR allowed the detection of a MASTITIS pathogen on 47% of the samples that had no-growth, on 35% of the samples from which C. bovis had been isolated and in 25% of the samples from which CNS had been isolated with conventional bacteriology.

Sampling with a teat canula may avoid contamination with teat canal flora and performing a PCR allows the presence of MASTITIS pathogens to be detected beyond those identified with conventional bacteriology. Considered together, these observations may contribute to a change in the paradigm of MASTITIS diagnosis.