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Antimicrobial resistance of mastitis environmental pathogens.

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Abstract

Cow mastitis induces milk losses, lower milk quality, higher treatment costs and increased probability of premature culling and death. Mastitis pathogens can be classified as contagious pathogens (i.e. *S. agalactiae*, *S. aureus* and *M. spp*) and environmental pathogens (*S. uberis*, *S. dysgalactiae*, *E. coli* and *Klebsiella spp*), the latter being an indicator of poor management of the herd. The aim of this study was to evaluate the presence of environmental mastitis pathogens and their profile of sensitivity and resistance to antimicrobials in milk samples collected from 392 quarters of 98 lactating Holstein Fresian cows. Animals evaluation and milk sampling were done during the milking session. California Mastitis Test (CMT) score was performed for each quarter before the milking routine. Sterile milk samples were collected from each quarter for bacteriological examination from 176 (out of 392) CMT positive quarters. Fifty-three milk samples out of 176 CMT positive were positive at bacteriological examination. Environmental pathogens were found in 34 samples, 14 were positive to *S. uberis* and 20 to *E. coli*. Isolates were tested for antimicrobial sensitivity and classified as resistant, susceptible or intermediate according to CLSI standard. Isolates which showed intermediate susceptibility were classified as resistant. Four/20 (20%) *E. coli* isolates were susceptible to all antimicrobial tested, while resistance to 5 and 6 antimicrobials was observed in 20% (4/20) and 60% (12/20) of the isolates, respectively. None of *S. uberis* isolates was susceptible to all the tested antimicrobial while resistance to 6, 7, 8 and 12 antimicrobials was observed in 43.0% (6/14), 14.3% (2/14), 14.3% (2/14) and 28.6 % (4/14) of isolates, respectively. The presence of environmental pathogens and the patterns of resistance observed in this study suggest the importance of bacterial identification and sensitivity tests as criterion to choose the correct antimicrobial therapy.