IN VITRO ANTIMICROBIAL SUSCEPTIBILITY OF STAPHYLOCOCCUS AUREUS ISOLATED FROM BOVINE CLINICAL MASTITIS IN CHILE

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Bovine MASTITIS continues to cause huge economic losses to the dairy industry.

Staphylococcus aureus is frequently isolated from cows with clinical MASTITIS and it is considered one of the most common etiologic agents in our country. Antimicrobial therapy is a primary tool for controlling staphylococcal MASTITIS, and antimicrobial susceptibility test can guide the veterinarian in selecting the most appropriate antimicrobial drug for a successful treatment. In Chile, there are few reports on the susceptibility of S.aureus in recent years. The objective of this study was to determine the phenotypic expression of the in vitro susceptibility of S.aureus strains isolated from bovine clinical MASTITIS in Chile against several antimicrobial drugs currently available in the market for MASTITIS therapy.

Eighty S.aureus strains isolated between 2008-2009 from clinical cases from 28 dairy herds of different geographic locations in the XIV Region, Chile, were analyzed. All isolates were identified by standard procedures and kept at -80 °C in heart brain infusion broth with 20 % glycerol until tested. Drug susceptibility testing was carried out by the agar disk diffusion method with 18 different antibiotic disks. Isolates were categorized as susceptible, intermediate and resistant based on the interpretative criteria developed by the NCCLS. Isolates with intermediate zones of resistance were considered to be resistant. In addition, all isolates were tested for β-lactamase production by the nitrocefin test with and without previous induction with oxacillin. Minimum Inhibitory Concentration (MIC) was determined against penicillin, oxacillin, cefoperazone-sulbactam and trimethoprim sulfamethoxazole by the E-test (AB BIODISK).

Resistance was detected in 23 (29%), 20 (25%), 4 (5%), 4 (5%) and 4 (5%) S.aureus strains against lincomycin, streptomycin, penicillin, ampicillin and amoxicillin, respectively. No resistance was detected for cefoperazone, cefoxitin, cefquinome, cloxacillin, spiramycin, enrofloxacin, florfenicol, gentamicin, pirlimycin, novobiocin, among others. No MRSA strain was detected. MIC (mcg/mL) that inhibited 90% of the strains tested were: 0.094, 0.5, 3.0 and 0.094 for penicillin, oxacillin, cefoperazone-sulbactam and trimethoprim sulfamethoxazole, respectively.

This study shows that S. aureus is highly susceptible to almost all antimicrobial drugs tested.

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