Persistence of antibacterial resistance and virulence gene profile of methicillin resistant Staphylococcus aureus (MRSA) isolated from humans and animals

ABSTRACT

The persistence of antibacterial resistance and virulence gene profile of well characterized MRSA isolated from animals and human was determined using antibiotic susceptibility testing and PCR amplification of virulence and methicillin resistance gene. Antibiotic susceptibility testing revealed a general reduction in the rate of resistance to antibiotics previously tested. Isolates were currently susceptible to minocycline a tetracycline derivative, amikacin and gentamicin respectively. Resistance to cefoxitin and oxacillin were currently observed in 64 and 79% of all the isolates which in the case of cefoxitin it was less than the 86% while a bit higher in oxacillin as reported in the previous study. In addition, currently 57%, 43% and 36% of the isolates were resistant to amoxicillin, tetracycline and erythromycin which is less than the isolates previous resistance profile to amoxicillin and erythromycin whereas unchanged in the case of tetracycline. Four (29%) of the isolates were also currently resistant to vancomycin, doxycycline and amoxicillinclauvulanic acid; while only two isolates were resistant to vancomycin and three isolates were resistant to doxycycline in the previous study. No changes were observed in the number of isolates resistant to amoxicillin-clauvulanic acid. Resistance to more than one class of antibiotics was observed in 64% of the isolates. Currently we observe loss of methicillin resistance determinants *mec*A and susceptibility to all antibiotics tested in three isolates and reduced susceptibility in two isolates.

Keyword: Antibiotics; MRSA; MSSA; PCR; Resistance; Virulence