

TITLE: PRELIMINARY RESULTS OF THE FREQUENCY OF *Staphylococcus aureus* ISOLATE AT THE BUCAL AND NASAL CAVITY FROM UNIVERSITY STUDENTS

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ABSTRACT:

Staphylococcus aureus is an opportunistic pathogen present on skin and mucous of 20-30% of the population, as part of the microbiota - this microorganism is the agent of 17-26% of all hospital-acquired infections, causing from plain skin infections to severe pneumonias and bacteremias. It is a pathogen of clinical importance due to its resistance to beta-lactams given by the gene *mecA* (MRSA), harbored in the genetic element *SCCmec*. Although MRSA are commonly associated with hospital infections (HA-MRSA), in the last decade, an increase in MRSA originated in the community (CA-MRSA) was noted. CA-MRSA unlike HA-MRSA have a smaller antibiotic resistance spectrum and routinely produce Panton-Valentine leucocidin, that causes tissue necrosis and infections that are more aggressive. Having this panorama in mind, this study objective is to evaluate the frequency of CA-MRSA in our community, characterizing the isolates both phenotypically and molecularly genetic elements of resistance. Samples from 75 university students were taken from nasal and oral mucous, using swabs transported in Amies medium; the swabs were incubated in tryptic soy broth added of 7,5% of sodium chloride for 24-48h at 35°C; an aliquot was plated in mannitol salt agar and incubated; characteristics colonies were selected for identification by Gram stain, catalase and coagulase tests. Screening for MRSA was conducted using the agar diffusion method with cefoxitin discs. The minimal inhibitory concentration (MIC) for oxacillin, for the isolates resistant to cefoxitin, was determined using E-test® strips. Detection of de gene *mecA* in the MRSA isolates was carried out by polymerase chain reaction. Among the 75 university students included in this study, *S. aureus* were isolated in 37.3% (28/75), and only 22.7% (17/75) individuals had this microorganism only in the nasal cavity, 6.7% (5/75) in the oral cavity alone and in 8.0% (6/75) individuals were isolated *S. aureus* at both sites. Two (2.6%) nasal isolates were identified as MRSA by disc diffusion, booth were resistant to beta-lactams, showing MIC >256 µg/mL for oxacillin, >32 µg/mL for Penicillin and carried the *mecA* gene. These two isolates were sensible to vancomycin, tigecycline and linezolid. These results confirm that this community is a reservoir of isolates resistant to beta-lactams as part of its microbiota of the healthy individuals, but also that in special opportunities can lead to serious infections by CA-MRSA.

Keywords: *Staphylococcus aureus*, CA-MRSA, oral cavity, nasal mucosa, multidrug resistance