

Title: SUSCEPTIBILITY ASSESSMENT OF *Staphylococcus aureus* FROM NASAL VESTIBULES OF YOUNG AND OLD PEOPLE TO DIFFERENT ANTIMICROBIALS

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Abstract:

Staphylococcus aureus is a component of the regular microbiota found predominantly in the nasal vestibule of a large amount of human individuals. This microorganism can cause a variety of infections in immunocompromised individuals ranging from superficial to systemic. One of the main challenges in the treatment of these infections is the resistance of *S. aureus* strains to antimicrobials commonly used in clinical practice. Thus, the aims of this study were to: i) evaluate the frequency of *S. aureus* isolation from nasal vestibules of young adults and healthy elderly and ii) assess the susceptibility of these isolates to different antimicrobials. The collection of nasal secretion of 30 young adults (20-30 years old) and 30 elderly individuals (over 60 years) was carried out. Prior to collection, the participants performed the sterilization of the surroundings of their nostrils with wet wipes containing 70% alcohol. A cotton swab with saline solution was gently rubbed on the left nasal vestibule of each individual. The collected samples were spread in Petri dishes containing Luria Bertani agar. All dishes were incubated for 24 hours and in sequence the isolated colonies were submitted to Gram staining and biochemical catalase test. Gram-positive and catalase-positive isolates were grown on mannitol salt medium (selective and differential for *S. aureus*). The identification was confirmed by PCR using the species-specific primers to the gen *fem-A*. Isolates identified as *S. aureus* were evaluated for susceptibility to penicillin, oxacillin, gentamicin, erythromycin and tetracycline according to Disk Diffusion technique. We found that the isolation frequency of *S. aureus* is higher in elderly people (63.3%) compared to young adults (40%). A higher percentage of resistant strains from elderly compared to the isolated from young adults was found for all evaluated drugs. The most effective drug for the control of *S. aureus* was gentamicin - 100% of the isolates from young people and 94,7% of elderly isolates showed sensitivity to this drug. On the other hand, the less effective drug was penicillin with 75% and 89,4% of the young and elderly resistance, respectively. Our results suggest that elderly individuals selected more strains of *S. aureus* resistant to antimicrobials throughout life.

Keywords: isolation, nasal microbiota, susceptibility profiles

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