TITLE: *Staphylococcus aureus* NASAL COLONIZATION IN HEMODIALYSIS PATIENTS AND IMPLICATIONS OF THE ANTIMICROBIAL SUSCEPTIBILITY PATTERN

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ABSTRACT

Systemic infections caused by *Staphylococcus aureus* in patients with chronic kidney disease are commonly associated with increased morbidity and mortality. It is known that nasal colonization by *S. aureus* is an important risk factor in these patients. The *S. aureus* colonization incidence is more than two-fold higher in dialytic population (80%) than general population (10 – 30%). The microorganisms that colonize skin and nasal mucosa of hemodialysis patients (HD-patients) reach bloodstream by the vascular accesses, catheters and fistulas. Thus, the aim of this study was to determine the status of nasal *Staphylococcus aureus* colonization in HD-patients in Cariacica–ES, and determine the antimicrobial susceptibility pattern of the isolates. After approval by the Ethic Committee, we collected seven consecutive swab samples (weekly) from 47 HD-patients, totaling 329 samples. The samples were phenotypically identified and tested for susceptibility to antimicrobials by disk diffusion test and broth microdilution assays. Fifty eight *S. aureus* samples from all the 47 patients were identified. The nasal carriers (N=25) of *S. aureus* were classified in intermittent (84%) and persistent carrier (16%). All of the isolates were sensitive to vancomycin and daptomycin. Furthermore, 98,3% of samples were sensitive to gentamicin, which justifies the combination of vancomycin and gentamicin as an empiric therapy for bacteremia in these patients. However, 17,2% of samples were oxacillin resistant (MRSA) and about 80% of vancomycin-sensitive samples showed values of minimal inhibitory concentration which compromise the effectiveness of treatment (>1µg/mL). Daptomycin showed the best activity against *S. aureus* samples, therefore it represents a good alternative for bacteremia therapy in HD-patients.

Keywords: *Staphylococcus aureus*, nasal colonization, hemodialysis, antimicrobial susceptibility

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