TITLE: *Staphylococcus aureus* COLONIZATION IN PATIENTS ADMITTED TO INTENSIVE CARE UNITS IN A HOSPITAL IN RIO DE JANEIRO DURING THE COVID-19 PANDEMIC

AUTHORS: OLIVEIRA, T. L. R.[1], SANT'ANA, A. C.[1], CAVALCANTE, F. S.[2], DA COSTA, C. R.[3], FERREIRA, A. L. P.[3], NÓUER, S. A.[3], DOS SANTOS, K. R. N.[1] *

INSTITUTION: INSTITUTO DE MICROBIOLOGIA PAULO DE GÓES, RIO DE JANEIRO, RJ (AV. CARLOS CHAGAS FILHO, 373, CCS, BLOCO I, SALA I2-010, CEP: 21941-902, CIDADE UNIVERSITÁRIA, RIO DE JANEIRO, RJ, BRASIL).

ABSTRACT:

Staphylococcus aureus is often associated with resistance to different antimicrobials and has great clinical relevance, especially in healthcare-associated infections. Isolates with high minimal bactericidal concentration rates to chlorhexidine, through expression of efflux pump genes have also been reported. Previous colonization by methicillin-resistant (MRSA) is considered a risk factor for developing infection, with a direct impact on patient prognosis, mortality rate and hospital costs. Co-infections by SARS-COV-2 and *S. aureus* may require greater antimicrobials use and invasive medical devices, result in increasing the selective pressure on microorganisms in the hospital environment. The aim of this study was to characterize the antimicrobial susceptibility profile of *S. aureus* isolates from nasal swab epidemiological surveillance of patients with and without a diagnosis of COVID-19 admitted to ICUs of a hospital in Rio de Janeiro, during the SARS -COV-2 pandemic. The isolates were acquired between September and December 2020 and the isolates from ICUs COVID-19 corresponded to 11% (6) of a total of 54 isolates. Susceptibility profiles to 12 antimicrobials were determined by disk diffusion test (CLSI, 2020) and detection of efflux pump genes *qacA/B* was performed by PCR. Among the 16 (29.6%) MRSA isolates detected, only one (6.25%) came from a patient diagnosed with COVID-19. Antimicrobial resistance rates were 92.6% for penicillin, 75.9% for erythromycin, 51.8% for clindamycin, 38.9% for gentamicin, 16.6% for ciprofloxacin, 3.7% for sulfamethoxazole-trimethoprim and 1.8% for rifampicin and tetracycline. All isolates were sensitive to linezolid and mupirocin. It is important to highlight that among the isolates from the ICU COVID-19, all were resistant to erythromycin and 5 (83.3%) were resistant to clindamycin and gentamicin. The *qacA/B* gene was present in two MSSA isolates isolated from patients without COVID-19. The results presented in this study indicate a high rate of patients colonized with MRSA isolates in ICUs of patients without a diagnosis of COVID-19 at a hospital in Rio de Janeiro. In addition, high rates of resistance to erythromycin and clindamycin were found, highlighting the importance of surveillance and infection control measures in the healthcare facility.

Keywords: *S. aureus,* MRSA, *swab* nasal, mupirocin, COVID-19

Development Agency: CAPES, CNPq, FAPERJ.