

TITLE: OCCURRENCE AND RESISTANCE PROFILE OF *S. AUREUS* ISOLATED IN A UNIVERSITY HOSPITAL IN RECIFE-PE

AUTHORS: SANTANA, P.S.F.¹; FONSECA, A.S.¹; NUNES, D.M.¹; MONTE, P.R.A.¹; SILVA, W.G.²; MORAIS, M.M.C.¹; VILELA M.A.¹; BARBOSA, B.G.V.¹

INSTITUTIONS: ¹LABORATÓRIO DE RESISTÊNCIA MICROBIANA, INSTITUTO DE CIÊNCIAS BIOLÓGICAS – ICB/UPE (RUA ARNÓBIO MARQUES, 310, CEP 50100-130, RECIFE – PE, BRAZIL). ²CENTRO UNIVERSITÁRIO SÃO MIGUEL (RUA DOM BOSCO, 1308, CEP 50070-070, RECIFE – PE, BRAZIL).

ABSTRACT:

Staphylococcus aureus is frequently related to severe healthcare-associated infections worldwide, being bloodstream infections among the most common. The multiresistance phenotypes MRSA and VRSA pose as a great threat to patient safety, since they severely restrict therapeutic options. The aim of this study was to evaluate the occurrence and antimicrobial resistance profile of *S. aureus* isolates from a tertiary university hospital in Recife-PE. Samples isolated from January 2018 to April 2019 were included, considering a single sample per patient for each clinical material with resistance data to the main antimicrobials used in clinical practice. Among the 94 samples recovered, 20 (21.3%) originated from ICUs, 12 (12.8%) from patients attended at the outpatient clinic and the remaining (n=62) from clinical and surgical wards. Blood cultures were the materials with the highest isolation of *S. aureus* (42.6%). In 2002, in the same hospital, 34,8% of the blood cultures were positive for this microorganism. From total samples, approximately 27% were resistant to ciprofloxacin, 40% to clindamycin, 54% to erythromycin and only 15% to sulfamethoxazole-trimethoprim. A total of 35 (37.2%) samples had oxacillin resistance phenotype (MRSA), of which 57.1% were isolated from blood cultures. None of the isolates were resistant to linezolid or vancomycin, the main therapeutic options for treatment of severe MRSA infections. However, an increase in MICs for vancomycin was observed (MIC creep), with 17.5% (10/56) of the tested samples showing MICs of 1 mg/L, while two isolates (3.5%) had MIC= 2 mg/L, current breakpoint for sensitivity to this antimicrobial, MIC value associated with therapeutic failures. The MIC creep phenomenon observed in this study, associated with other reports of its occurrence in Brazil, are an alert for possible failures during the use of vancomycin and for the need of healthcare institutions to provide other antimicrobials for the treatment of these infections. In order to understand their impacts in Pernambuco, more studies regarding the occurrence of the MRSA and the vancomycin MIC values are necessary.

KEYWORDS: blood cultures, MIC creep, MRSA, *S. aureus*, vancomycin.