

Title: ANTIMICROBIAL SUSCEPTIBILITY PROFILE OF *Staphylococcus aureus* ISOLATED FROM AN UNIVERSITY HOSPITAL IN A PERIOD OF TWO YEARS

AUTHORS: SANTOS, A.L.¹; SOARES, V.T.¹; VAZ, S.¹; MUNIZ, T.¹; ARRUDA-COSTA, N.¹; GUEDES, D.¹; RIBEIRO, R.L.²; CHAMON, R.C.^{2*}

Affiliation: ¹Laboratório de Microbiologia, Serviço de Patologia Clínica, Hospital Universitário Antônio Pedro, Universidade Federal Fluminense, Niterói. ² Departamento de Patologia, Faculdade de Medicina, Universidade Federal Fluminense.

Staphylococcus aureus remain as an important bacterial pathogen worldwide and Methicillin-resistant *Staphylococcus aureus* (MRSA) is included at the World Health Organization (WHO) list of global priority pathogens. A retrospective study has been conducted in order to determine the occurrence of methicillin-susceptible *S. aureus* (MSSA) and MRSA in different clinical specimens (tracheal aspirate, sputum, cerebrospinal fluid, nasal swabs, wounds, pus and abscess) from patients that have attended at Hospital Universitário Antônio Pedro (HUAP), Niterói, between Jan/2017 to Dec/2018. A total of 150 *S. aureus* isolates identified by automated test (Phoenix™ system, Becton Dickinson, USA) and their antimicrobial susceptibilities profile were analyzed. As the present work did not interfere in the therapeutic choices for patient's treatment nor did any kind of interventions, the Ethics Committee approval hasn't been necessary. In general, the majority of isolates were recovered from patients that attended the pediatric (34/150; 22%) and emergency (24/150; 16%) services, and 56% of them (84/150) were from skin and soft tissue specimens (SSTS). Moreover, 40% (60/150) of isolates were MRSA, frequently associated to SSTS (28/60; 46.6%). Overall, resistance to penicillin (91%), erythromycin (48%), clindamycin (31%), moxifloxacin (25%), tetracycline (21%), gentamycin (19%), sulfamethoxazole-trimethoprim (7%), minocycline (4%), rifampin (3%) and daptomycin (1%) were observed. Also, 16% (14/90) of MSSA isolates were susceptible to penicillin, while 60 MRSA isolates were resistant to this drug (p -value=0.0008). We have detected an increase of clindamycin, moxifloxacin and tetracycline resistant isolates in 2018 when compared to 2017 (p -value<0.05). Despite that, there was no significant difference in the number of MRSA isolates between 2017 and 2018 (p -value=0.6179). MSSA isolates were related to a higher resistance to gentamycin (Minimum Inhibitory Concentration>8mg/L) (p -value=0.0001), while MRSA isolates were associated to higher MICs (MIC>4mg/L) for moxifloxacin (p -value=0.0125). In conclusion, the present study helped us to better understand the antimicrobial resistance patterns of *S. aureus* isolates recovered at HUAP. Further studies are necessary to better understand the clinical impact of the increase in clindamycin, moxifloxacin and tetracycline resistance, as well as the resistance to gentamycin in MSSA isolates, as these drugs are commonly used at the community setting in our country.

Keywords: *Staphylococcus aureus*; skin and soft tissue; resistance profile

Development Agency: Ministério da Saúde; Ministério da Educação; Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq).