

MOLECULAR AND PHENOTYPIC CHARACTERIZATION OF *Staphylococcus haemolyticus* ISOLATES FROM BLOOD CULTURES IN A HOSPITAL IN RIO DE JANEIRO

Authors: Rodrigues, B.G.¹, Ferreira, R.B.R.¹, Pires, A.L.², Cavalcante, F.S.¹, Nouér, S.A.² & dos Santos, K.R.N.¹

Institution ¹ Laboratório de Infecção Hospitalar, Instituto de Microbiologia Paulo de Góes, Universidade Federal do Rio de Janeiro, ² Faculdade de Medicina, o Universidade Federal do Rio de Janeiro – Rio de Janeiro - Brasil

Abstract:

Staphylococcus haemolyticus is the second most frequent species of coagulase negative *Staphylococcus* isolated from blood cultures, and commonly presents high rates of resistance to methicillin and to other drugs. The aim of this study was to characterize *S. haemolyticus* isolates from blood cultures of patients admitted at a University Hospital of Rio de Janeiro, between January/2012 and June/2013, in relation to antimicrobial resistance, Pulsed-field Gel Electrophoresis (PFGE) profiles and SCCmec types. *S. haemolyticus* isolates from blood cultures previously identified by the Vitek2 system of the hospital were selected. The isolates were confirmed as *S. haemolyticus* by Polymerase Chain Reaction (PCR) and Mass Spectrometry (MALDI-TOF). The PCR method was also used for SCCmec typing. The Minimum Inhibitory Concentration (MIC) was performed for the antimicrobials oxacillin, vancomycin and teicoplanin, by broth microdilution method and analyzed according to CLSI guidelines. The PFGE method was used to determine the genotypes. A total of 52 *S. haemolyticus* isolates were analyzed. Methicillin resistance was found among 48 (92.3%) isolates. MIC values ranged from 0.25 to >256 µg/ml for oxacillin and 0.25 to 8 µg/ml to teicoplanin and vancomycin. The MIC₅₀ and MIC₉₀ for oxacillin, vancomycin and teicoplanin were 256 and >256 µg/ml, 2 and 4 µg/ml, 2 and 8 µg/mL, respectively. Among the SCCmec detected the type V was the most commonly found (28.8%) followed by type IV (3.8%), and types VI and II with 1.9% each one. Non-typeable SCCmec was observed for 63.5% of isolates. A total of 17 genotypes were detected by the PFGE technique, but the genotypes A and B were the most frequent, including 8 and 17 isolates, respectively. The study shows the presence of predominant genotypes during the period of the study, high rates of antimicrobial resistance and the SCCmec type V and Non-typeable SCCmec as frequent in *S. haemolyticus*. It is possible that this species can keep and spread in hospitals due to their greater ability to resist antimicrobial.

Keywords: *Staphylococcus haemolyticus*; blood cultures; antimicrobial resistance; PFGE genotypes

Funding: CNPq, FAPERJ, CAPES