

Title: Phenotypic and genotypic characterization of strains of *Staphylococcus* spp. isolated from nosocomial infections

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Introduction: *Staphylococcus* spp. are opportunistic microorganism of skin and/or mucous membrane. Negligence of the aseptic chain and limited immunological conditions may contribute for bacterial outbreak in hospital. Methicillin-resistant *Staphylococcus* (MRS) infection or colonization has become a serious emerging condition in hospital infections. **Objectives:** This study aimed to analyze the phenotypic and genotypic typing of *Staphylococcus* spp. isolated from nosocomial infections for preliminary epidemiological purposes. **Methodology:** A total of 65 strains were collected from patients admitted in 3 public hospitals of Maceió-AL, longitudinally for 4 months. The isolates were identified by biochemical methods. The antibiotic susceptibility patterns were determined by Kirby-Bauer test and microdilution technique, second CLSI. The bacteriocin production was detected by the antagonism method against 21 indicator strains. In addition, the genotyping was performed with the RAPD technique using the arbitrary primer OPA-02. The Simpson's index of diversity was used to test the discriminatory index of each technique. **Results:** Among 51 *S. aureus* strains, about 20% (10/51) were MRSA, 49% (25/51) were VISA and 17.6% (9/51) were both (MRSA and VISA); among (14) coagulase-negative *Staphylococcus*, 43%(6/14) were MRS. Only 6 strains (9,2%) produced bacteriocins against one or more used indicator strains. There were 31 different RAPD types and 7 showed genetic similarities. These similar strains were differentiated by the association of phenotypic tests (antibiotic typing and/or bacteriocin typing). The discriminatory capacity of the AP-PCR, was 99,4% and bacteriocin typing was 21,8%. **Conclusion:** In this preliminary epidemiological study, based on genetic and phenotypic methods, there were not cross-transmission cases. The high diversity of *Staphylococcus* spp. can demonstrate high diversity in microbial sources in the hospitals. The RAPD is inexpensive tool important in the preliminary characterization of the strains involved in the outbreaks and the association with phenotypic tests may generate more precise results.

Keywords: Epidemiology, RAPD, *Staphylococcus*, Cross- infection, Bacteriocin

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