TITLE: BACTERIAL BIOFILM PRODUCTION BY ISOLATED STRAINS OF *STAPHYLOCOCCUS* SPP. AND ITS RELATION TO ANTIBIOTIC RESISTANCE

AUTHORS: SILVA, M. Q. M.; MARTINS, L. R.; PIMENTEL, M.I.S; NETO, C.A.M; GOMES, Y.A; ROCHA, I.V; CARVALHO, J.B. R.; OLIVEIRA, S.R.

INSTITUTION: CENTRO UNIVERSITÁRIO TABOSA DE ALMEIDA, CARUARU-PE (PORTUGAL AVENUE, 584, ZIP CODE:55016-400, CARUARU-PE, BRAZIL)

ABSTRACT: As blood is sterile and irrigates tissues and organs it should be frequently monitored in the hospital environment for the presence of microorganisms. Detection of pathogens is of great clinical interest, as their presence in the bloodstream may raise levels of morbidity and mortality if unidentified and untreated. Multidrug resistance, associated with the majority of microorganisms in the hospital environment, limits the therapeutic treatment by the inactivation of antibiotics, which is aggravated by the production of bacterial biofilm, making the action of the drug even more difficult. This work aimed to characterize the biofilm-forming capacity of isolated resistant strains of *Staphylococcus* spp., as well as to evaluate their relation to cases of nosocomial infection. The observational, descriptive and quantitative cross-sectional study was carried out from January to October 2018. Census sampling was adopted, and the study took place in a hospital in the Agreste region of Pernambuco. Samples collected from the hospital's microbiology department were sent to the Asces-Unita school laboratory. Gram stain was initially performed followed by the phenotypic identification of the isolated strains through the catalase test and smears in Blood Agar, DNase, and Mannitol culture media, in addition to the use of rabbit plasma for the coagulase test. The disc diffusion method was adopted for the antibiotic sensitivity test. Biofilm verification and quantification were performed by initially placing the samples in a microdilution plate (96 wells) with TSB culture medium and then quantifying them through a microplate reader. A higher prevalence of coagulase-negative *Staphylococci* was observed in this study (54.29%) in relation to *Staphylococcus aureus* (45.71%), which is consistent with the literature. The main environment that demonstrated strong biofilm production by Methicillin-Resistant *Staphylococcus aureus* (MRSA) was the Intensive Care Unit (ICU) (62.5%) since the ICU is the place in which bacteria with higher pathogenic potential are found. MRSA moderately biofilm-producing bacteria were the major cause of multidrug-resistant infections. The high resistance observed in the hospital increases the risk of morbimortality and indicates the need to encourage asepsis practices, positively contributing to the therapy of the patients.

Keywords: Biofilm; Resistance; *Staphylococcus*.