TITLE: BIOFILM FORMATION BY MULTIDRUG-RESISTANT *Stapylococcus capitis* AND *Staphylococcus hominis* ISOLATES FROM BLOODSTREAM INFECTIONS

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ABSTRACT

Coagulase-negative *staphylococci* have been increasingly isolated from clinically relevant samples as blood cultures or others primarily sterile samples. *Staphylococcus capitis* and *Staphylococcus hominis* are considered commensal skin microbiota members. However, recent reports indicate that these species are becoming emerging opportunistic pathogens, being a concern when associated with multiple resistance to antimicrobials and biofilm formation ability. The study aimed to characterize resistance profiles and investigate biofilm production, as well as the presence of *the icaA* gene in *S. capitis* and *S. hominis* isolates from blood cultures. Twelve strains of *S. capitis* and six strains of *S. hominis* were selected from blood cultures and their identification by MALDI-TOF. Antimicrobial resistance was determined by the minimum inhibitory concentration (MIC) (oxacillin and vancomycin). Furthermore, the quantitative assessment of biofilm production on polystyrene microtiter plates and the detection of the *ica*A gene were previously described. All six *S. hominis* and 66,67% (n=8) of *S. capitis* were analyzed as multidrug-resistant by their resistance profile. The total of the strains was oxacillin resistant and when related to vancomycin, one of the *S. capitis* strains (8,34%) was considered intermediate and the remaining susceptible (91,66%). Whereas four (66,67%) *S. hominis* strains were susceptible and two intermediates (33,33%) by this antimicrobial. All strains of *S. capitis* have the biofilm formation capacity in different intensities, when six strains were considered strongly adherent, four moderately adherent, and two weakly adherents. Otherwise, only two *S. hominis* strains showed moderate adherence and four were non-adherent. About the presence of *icaA* gene, 91,67% of *S. capitis and* 60,00% of *S. hominis* strains were positive. In conclusion, both *S. capitis* and *S. hominis* have been housing a diversity of antimicrobial resistance, acting as a reservoir, and having the capacity to spread this to other nosocomial bacteria. When associated with biofilm production, these species can be a potential threat, creating difficulties in antimicrobial action and limiting treatment options. These mechanisms assist bacteria in the development of invasive diseases, requiring further studies to better understand these associated infections.

Keywords: biofilm, resistance, *Staphylococcus capitis*, *Staphylococcus hominis*, vancomycin.

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