Title: ANTIMICROBIAL EFFECT ON THE RELATIVE EXPRESSION OF PANTON-VALENTINE LEUKOCIDIN (PVL) IN *Staphylococcus aureus* ISOLATES WITH DIFFERENT GENETIC BACKGROUNDS

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Abstract

Staphylococcus aureus can be related to asymptomatic nasal carriage, as well as with rapidly lethal and severe disease, and the Panton-Valentine leukocidin (PVL) virulence factor may be related to the latter. The PVL is, in general, found among community-adquired methicillin-resistance *S. aureus* (CA-MRSA) isolates. Recent reports have shown differences on PVL expression level among isolates belonging to specific genetic backgrounds, and the influence of some antimicrobials modulating such expression. The main purpose of this study was to compare the relative expression of PVL produced by different clonal lineages by quantitative real time PCR (qPCR), and the effect of sub-inhibitory concentrations of oxacillin and vancomycin on this expression. PVL-positive MRSA isolates from different clonal lineages, such as USA1100/ST30, USA400/ST1, USA300/ST8 and USA800/ST5, had their RNA extracted and reverse transcribed to cDNA. The relative quantification of *pvl* and *gyrB* genes, in the absence and presence of ½ of the minimal inhibitory concentrations (MIC) for oxacillin and vancomycin were determined, using the ΔΔCt method. In general, the isolate belonging to the USA1100/ST30 lineage showed a higher relative expression of *pvl* when compared to other isolates. Besides, the USA400/ST1 isolate had the lowest rate of *pvl* expression, in relation to the endogenous control. However, this isolate showed an increase in *pvl* expression in the presence of ½ MIC of vancomycin, but not in the presence of ½ MIC of oxacillin. On contrary, the presence of sub-inhibitory concentration of both antimicrobial drugs did not affect the *pvl* expression by the USA300/ST8 isolate.The identification of antimicrobials that may modulate PVL production, and the determination of PVL expression among specific clonal lineages could contribute to the clinical management of PVL-positive *S. aureus* infections among hospitalized patients.

Key-words: *Staphylococcus aureus,* PVL expression, qPCR, antimicrobials

Founding: CNPq, CAPES, FAPERJ and PROXEX