THE CORRELATION BETWEEN BIOFILM PHENOTYPIC PRODUCTION AND THE OCCURRENCE OF QUORUM SENSING GENES IN CLINICAL ISOLATES OF *Pseudomonas aeruginosa* FROM TERTIARY HOSPITALS OF RECIFE-PE

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Resumo

P. aeruginosa is considered the most virulent species among Gram-negative non-fermenting bacillus (BGNNF) as a result of the production of a wide variety of cellular and extracellular virulence factors favoring its pathogenesis. This pathogen can cause significant damage to the host tissue, through the production of virulence factors which are controlled by quorum-sensing systems (QS). The QS is a complex cell-cell communication system that is involved in the development process of *P. aeruginosa* biofilm: systems Las and rhl. These systems are responsible for the formation and maintenance of the biofilm. The aim of this study is to correlate the phenotypic biofilm production and the occurrence of QS genes in 40 clinical isolates of *P. aeruginosa*. To analyze the production of biofilm phenotype was performed by the technique described Stepanović et al. (2000), with some modifications, which evaluated the adhesion ability of *P. aeruginosa* isolated plate containing polystyrene 96 well flat bottom microtiter wells in triplicate. The plates were incubated at 37 for 24 hours. After this period, the plate was performed processing and reading the absorbance in an ELISA reader, and the isolates classified in non-adherent, loosely adherent, moderately strongly adherent and adherent. To evaluate the occurrence of genes (rhlI, rhlR, LasI and LasR) QS polymerase chain reactions (PCRs) were performed using primers described by Zhu et al, (2004) and Tingpej et al, (2007). Through the technique described by Stepanović obtained result of the second biofilm production by isolates analyzed: non-adherent 22.5% (9/40), loosely adherent 42.5% (17/40), moderately adhering 27.5% (11 / 40) and strongly adherent 7.5% (3/40). For the occurrence of genes have been found 100% (40/40) positivity for rhlI, rhlR and LasR genes and 97.5% (39/40) for Lasi gene. Given the above, it is clear that obtaining phenotypic and genetic data of biofilm production by isolates of *P. aeruginosa*, foster a dynamic approach to infection by this pathogen and the resistance factors associated with it, emphasizing measures to control and reduction of nosocomial infections.

Keywords: *Pseudomonas aeruginosa*, biofilm, quorum sensing.

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