TITLE: GENETIC CASSETTE ASSOCIATION OF ANTIMICROBIAL RESISTANCE IN CLINICAL STRAINS OF *PSEUDOMONAS AERUGINOSA*.

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ABSTRACT

Currently classified of critical risk to public health by the WORLD HEALTH ORGANIZATION (WHO), *Pseudomonas aeruginosa* is a bacterium that stands out for its resistance to many classes of antibiotics. Several mechanisms confer resistance to *Pseudomonas*, such as β-lactamase enzymes, loss of porin proteins, efflux pumps, among others. Many of these resistances are conferred by genetic elements, among them we can highlight the gene cassettes that are structures that can carry resistance genes, and are expressed when they bind to integrons, resulting in resistance to different types of antibiotics. From 83 strains of *Pseudomonas aeruginosa*, previously isolated from ICUs of three hospitals in Manaus. For the screening of the strains for the presence of integrons and gene cassettes, we used the simplex PCR techniques the integrators were screened with the Hep 35/36 primers and the cassettes with the CS-F and 3 'CS-R primers, with platinum DNA reagent kit (Invitrogen by Thermo) were performed followed by genetic Sequencing by the Sanger method for the genotypic identification of the cassettes found. Among the isolates studied, 32 presented integron, among them 43.8% (14/32) carried cassettes containing genes that encode the enzyme aminoglycoside adenyltransferase (aad), which confers resistance to aminoglycosides (streptomycin and spectinomycin). Followed by 40.6% (13/32), which code for dihydrofolate reductase (dfr), which in turn confers resistance to trimethoprim. Due to the deficiency of the health system that prevents the identification of antibacterial resistance to antibiotics, it has been difficult to treat *Pseudomonas aeruginosa* infections, contributing to the spread of antimicrobial resistance in general, since this bacterium can pass these intra and interspecies resistance cassettes, increasing health care costs, prolonging the length of stay of our hospitals, increasing treatment costs and increasing the possibilities of morbidity and mortality, Needing new therapeutic approaches regularly.

KEYWORDS: *Pseudomonas aeruginosa*; Antimicrobial resistance; Genetic cassette.

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