**TITLE:** ANALYSIS OF THE INCIDENCE AND RISK FACTORS ASSOCIATED TO THE INFECTION BY METALLO-B-LACTAMASE-PRODUCING *Pseudomonas aeruginosa* AT THE HOSPITAL GERAL PÚBLICO DE PALMAS, TOCANTINS

**AUTHORS:** LOPES, J.H.M. [1]; BERTOLO, D.P. [1]; ALMEIDA, G.R. [1]; D'AMBROS, I.M. [1]; RODRIGUES, D.O. [1]; FONSECA, A.I.S [1].

**INSTITUTION:** 1. CENTRO UNIVERSITÁRIO LUTERANO DE PALMAS, PALMAS, TO (AVENIDA JOAQUIM TEOTÔNIO SEGURADO, 1501, PLANO DIRETOR SUL, CEP 77000-900, PALMAS-TO, BRAZIL)

**ABSTRACT:**

*Pseudomonas aeruginosa*, a producer of metallo-β-lactamases (MBL), is a hospital pathogen that presents high levels of antimicrobial resistance and is responsible for healthcare-associated infections (HAIs) with high mortality rates. Therefore, the main objective of this study was to analyze the incidence of MBL-producing phenotypes among multiresistant *Pseudomonas aeruginosa* strains isolated from patients hospitalized in the Hospital Geral de Palmas-TO (HGPP) and to associate it with the risk factors of patients with infection by *P. aureuginosa* producing of MBL. The research was conducted after its approval by the Research Ethics Committee of the Centro Universitário Luterano de Palmas (CEULP) and started from the weekly search of multiresistant *P.aeruginosa* samples identified by the Laboratory of Microbiology of HGPP from april to august of 2016. After getting the samples, it were transported to the Laboratory of Microbiology of CEULP for the realization of the microbiological procedures, starting with the culture in Cetrimide agar, realization of the antibiogram and the synergy test with double-disk. From the thirty two *P.aeruginosa* samples obtained, a high rate of resistance to macrolides (92.3%) and β-lactams (69.2%) was observed, and in the phenotypic double-disc synergy test, fifteen samples (47%) were positive for MBL production. Regarding the risk factors, 75% of the patients infected by *P.aeruginosa producing* MBL presented invasive procedures, prolonged hospitalization and hospitalization in Intensive Care Units (ICUs). Exposure to these risk factors facilitates infection by multiresistant bacterial phenotypes, once UTIs are epicenters of resistant bacteria due to the pressor force of the indiscriminate use of antibiotics in these units. About the antimicrobial resistance profile and the frequency of MBL-producing *P. aeruginosa* found, considering the therapeutic restriction in the treatment of infections caused by this phenotype, it seems necessary to intensify the measures of prevention and control of HAIs in the hospital, as the rationalization of the use of antibiotics, the isolation of infected patients, and the early identification of resistant bacteria, in order to guide the therapeutic behavior, contributing to a better clinical evolution of infected patients.

**Keywords:** phenotypes; multiresistance; hospital internment