

Title: DIVERSITY OF CARBAPENEMASES GENES FOUND IN CARBAPENEM NON-SUSCEPTIBLE *Pseudomonas aeruginosa* FROM A TEACHING HOSPITAL IN LONDRINA-PARANÁ-BRAZIL.

Autors: PAULA, S.B.¹, BOCCHI, M.¹, OLIVEIRA, F.E.¹, DA-SILVA, W.A.M.¹, ROSS, L.H., VESPERO, E.C.¹, VENANCIO, E.J. ¹, CARRARA-MARRONI, F.E ¹, OGATTA, S.F.Y. ¹

Institution ¹UEL - Universidade Estadual de Londrina (Rodovia Celso Garcia Cid – PR 445 - Km 380, Londriná, Paraná, Brazil)

Abstract:

The emergence of carbapenem resistance among *Pseudomonas aeruginosa* is an increasing problem in many parts of the world. Carbapenemases, in particular, metallo-beta-lactamases (MBL) are responsible for high-level resistance to β -lactamics. The aim of this study was to assess the frequency and diversity of acquired carbapenemase and encoding genes these enzymes amongst Two hundred ten carbapenem/ceftazidime non-susceptible *P. aeruginosa* clinical isolates (CCNSPA) recovered in the Clinical Microbiology Laboratory of Hospital Universitário de Londrina (HU), Paraná, Brazil, during the period of June 2012 to May 2014. Identification and antibiotic susceptibility testing was performed by Vitek-2[®] (BioMerriex) and interpreted as recommended by the CLSI. Screening of carbapenemase producer isolates was performed by using imipenem-EDTA triple-disk synergy test and modified Hodge test. Polymerase chain reaction (PCR) and sequencing were used to identify the various carbapenemases genes. The clonal relatedness among the isolates carbapenemase genes producers (CRPA) was analyzed by Enterobacterial repetitive intergenic consensus (ERIC) - PCR method. The clinical isolates showed high rates of resistance to carbapenems (80.0 % and 82.8 % to meropenem and imipenem, respectively). Among 210 CCNSPA, 65 isolates (30.9 %) were carbapenemase producers in the Hodge Test and 64 (30.5 %) were MBL producers in triple-disk synergy test. The carbapenemase genes identified were: *bla*_{SPM} in 63 isolates (30.0 %), followed by 3 (1.4 %) with *bla*_{KPC}, 2 with *bla*_{IMP} (0.9 %) and 2 (0.9 %) with *bla*_{VIM}. The endemic clonal dissemination and multi-drug resistance of CRPA isolates in our institution is worrying. Strict measure will be required to control the further spread of these pathogens in hospital setting.

Keywords: *Pseudomonas aeruginosa*, carbapenems, carbapenemases

Funding Agency: CAPES