

P0902 Evaluation of metallo-beta-lactamase-producing *Pseudomonas aeruginosa* isolated from blood culture in haematological patients

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Background: The aim of this study was to determine metallo- β -lactamase (MBL) genes among *P. aeruginosa* for 15 years.

Materials/methods: Prospective multicenter study included *P. aeruginosa* isolated from blood cultures in hematological patients from 2003 to 2017. Susceptibility was determined by the broth microdilution method (CLSI, 2018). MBL activity was detected by ETEST[®] MBL (MBL IP/IPI, BioMerieux), followed by real-time PCR for the presence of MBL genes (*bla*_{NDM-like}, *bla*_{VIM-like} and *bla*_{IMP-like}).

Results: A total of 347 *P. aeruginosa* isolates were evaluated of those 151 (44%) isolates were non-susceptible to meropenem and/or imipenem. Genes of MBL were detected in 38% (58/151) carbapenem non-susceptible (carba-NS) *P. aeruginosa*. Distribution of MBL genes in MBL-producing isolates (n=58) was as follows: *bla*_{VIM-like} (98%, n=57), *bla*_{IMP-like} (2%, n=1). MBL-positive isolates were non-susceptible to both carbapenems. The remaining 93/151 (62%) carba-NS *P. aeruginosa* harbored none of the tested MBL genes. The rate of resistance to antibiotics was higher in MBL-producing isolates compared to MBL-negative isolates: 93% vs. 46% to amikacin, 83% vs. 62% to ceftazidime, 74% vs. 50% to cefepime, 60% vs. 47% to piperacillin-tazobactam. In 2016 one colistin resistant MBL-negative carba-NS *P. aeruginosa* isolate was detected. All MBL-producing isolates were susceptible to colistin.

The trend of carbapenems resistance and producing of MBLs among *P. aeruginosa* is presented in Figure. Carbapenem resistance increased from 35% in 2003-2005 to 44-50% in 2009-2011 and decreased to 28-32% in 2015-2017 ($p>0.05$). First MBL-producing *P. aeruginosa* isolates (n=2) were detected in 2005. The rate of MBL detection increased significantly from 4% in 2003-2005 to 18% in 2006-2008 ($p=0.03$) then it stayed the stable (22-23%) for 2009-2014 and decreased to 13% in 2015-2017.

Conclusions: The rate of carba-NS *P. aeruginosa* was 44% for the study period. MBL-producers were detected in 38% of carba-NS *P. aeruginosa*. The prevalent type of MBLs was VIM. MBL-producing *P. aeruginosa* isolates demonstrated higher level of resistance compare to carba-NS MBL-negative isolates.

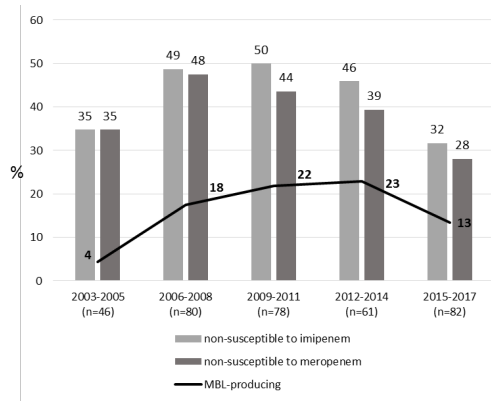


Figure. The trend of carbapenems non-susceptibility among *P. aeruginosa* for the study period

