PCR Detection of VIM1, VIM2 and IMP1 Metalo-beta-lactamases in Clinically Multi Drug Resistant P. aeruginosa Isolated in Tehran, Iran

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All *qnr* and *aac(6')-Ib-cr* positive isolates were typed by RAPD.

Results: Antibiotic resistant *Enterobacteriaceae* were cultured from 25/27 (93%) adults, 68/77 (88%) children and 42/100 (42%) neonates. A total of 60, 252 and 97 strains were isolated in each group respectively. ESBL-positive strains were present amongst 67/334 (20%) *E. coli*, 18/43 (42%) *K. pneumoniae* and 9/32 (28%) other *Enterobacteriaceae*. Out of 409 strains of *Enterobacteriaceae*, 309 (76%) strains were resistant to nalidixic acid, 263 (64%) to gentamicin, 19 (5%) to amikacin, 43 (11%) to piperacillin-tazobactam. *qnrA*, *qnrB*, *qnrS* and *aac(6′)-Ib-cr* genes were present in 3 (0.7%), 3 (0.7%), 47 (11.5%), and 12 (2.9%) isolates, respectively, which were shown to be unique by RAPD. The MIC50 to ciprofloxacin of *qnr* and *aac(6′)-Ib-cr* positive isolates was >0.75 mg/l, the MIC90 >32 mg/l.

Conclusion: The carriage rate of drug-resistant *Enterobacteriaceae* in healthy people in Hochiminh City is extremely high. Moreover, genes encoding transferable quinolones, in particular *qnrS*, are highly prevalent in these strains.

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17.028

PCR Detection of VIM-1, VIM-2 and IMP-1 Metalo-beta-lactamases in Clinically Multi Drug Resistant *P. aeruginosa* Isolated in Tehran, Iran

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Background: Carbapenem resistance caused by metallo-beta-lactamases (MBLs) has been increasingly recognized from clinically isolates such as *Pseudomonas aeruginosa* which responsible for several nosocomial outbreaks worldwide. Two major groups of MBLs among *P. aeruginosa*isolates are VIM and IMP types.

According to importance of carbapenem resistant *P. aeruginosa* and recognition of these isolates in Tehran, we investigated the outcome of these isolates from hospitals of Tehran and rapid detection of metallo-beta-lactamase genes using PCR assay.

Methods: Antibiotic susceptibility testing of 630 *P. aeruginosa*isolates was performed using discs containing ceftazidime (CAZ), Ceftriaxone (CRO), cefotaxime (CTX), ceftizoxime (ZOX), piperacilin (PC), piperacilin/tazobactam (PT), gentamicin (GM), amikacin (AN), imipenem (IMP), ciprofloxacin (CIP). MIC for imepenem was determined by microbroth dilution method (CLSI).

Plasmids of isolates showing MIC$\geq$4 μg/ml for imipenem were extracted and subjected to PCR to target VIM-1, VIM-2 and IMP-1 MBL genes. Susceptibility of these isolates to colistin(COL) and polimixinB(PB) were also determined by disc diffusion method.

Results: In our study the most rate of sensitivity was to CIP and the highest was to ZOX in *P. aeruginosa*strains. Resistance to imipenem observed in 62(10%) isolates. Microbroth dilution demonstrated that out of 76 resistant and intermediate isolates 68 strains showed MIC$\geq$4 μg/ml for imipenem among them 3 and 2 isolates were resistant to COL and PB, respectively. Plasmids were also detected in 80.5% of these 76 isolates.

PCR detection of metallo-beta-lactamase genes indicated that 20 isolates of strains showing MIC$\geq$4 μg/ml for imipenem carried VIM-1 MBL gene. No VIM-2 and IMP-1 types were detected.

Conclusions: Fortunately, in spite of increasing resistance to imipenem in *P. aeruginosa*, most of these isolates were susceptible to colistin and polimixinB in this study. The rate of VIM-1 metallo-beta-lactamase gene is notable in the strains tested. MBL-producing strains are of additional important from an infection-control perspective, because they may be responsible for horizontal transmission of the resistant genes in other *P. aeruginosa* strains or even in unrelated gram negative organisms.

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Profiles of Imipenem Resistance Organism in an Adult ICU in a Teaching Hospital in Malaysia

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Introduction: The risk of acquiring infection by multiple resistant organism and pan resistant organism in ICU is high because most often they were debilitated, multiple invasive procedures and on multiple broad spectrum antibiotics. The broadest spectrum antibiotics were always recommended for empirical treatment in case of new infections and deescalated later. Imipenem was one of the recommended empirical treatments for infections in ICU. Here we analyzed the profiles of imipenem resistant organism in an adult ICU to determine the burden of these organisms.

Methodology: All significant Gram-negative isolates and their antimicrobial profiles from 2005 to 2007 in ICU were determined. The organisms were identified by conventional method and API E and API NE. The antimicrobial sensitivity was determined by modified Kirby Bauer method the sensitivity breakpoint were according to Clinical Laboratory Standard Institute (CLSI)

Results: 1869 organisms were isolated during that period. 46% were Gram-negative 42.3% of the gram negative organisms were resistant to imipenem. They were *Acinetobacter* spp. (48%), *Stenotrophomonas maltophilia* (15%), *Pseudomonas aeruginosa* (14%), *Acinetobacter baumannii* (13%), *Chryseobacterium indologen* (3%), *Burkholderia cepacia* (3%), *Klebsiella pneumoniae* (1%) and *Chryseobacterium meningosepticum* (1%). Most of the isolates were from tracheal aspirates (45%) and blood (31%). The percentage of these organisms sensitive to other antibiotics were to amikacin (43.9%), cefoperazone/sulbactam (42.5%), ceftazidime (24.9%), ciprofloxacin (34.7%), gentamicin (23.8%), netilmicin (65.1%), iperacillin/tazobactam (18.2%), cefepime (17.7%), meropenem, cefotaxime (2.4%), (4.3%)and ceftriaxone (1.4%).

Conclusion: The imipenem resistant gram negative organisms were high and isolated mostly from tracheal aspirates.