Determination the Frequency of MBL (Metalo Beta-Lactamase) Producing Pseudomonas Aeruginosa Isolated from Urmia Hospitals

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Background & Objectives: Detection of metallo-β-lactamase producing *P. aeruginosa* is crucial for the optimal treatment of patients, however there are limited studies on metallo-β-lactamase producing *P. aeruginosa* isolates from West Azarbayejan, Iran. This study has been designed to detect the metallo-β-lactamase in *P. aeruginosa* isolates.

Methods: 100 isolates were collected from clinical specimens submitted to hospital diagnostic laboratories in Urmia/Iran from July to September 2010. The susceptibilities of isolates to different classes of antibiotics were tested using agar disk diffusion Methods. All isolates of *P.aeruginosa* were subjected to determine MICs against Imipenem. Imipenem non-susceptible isolates were investigated for metallo-β-lactamase production by the combined disk Methods.

Results: The rates of resistances were determined to antibiotics as follows: kanamycin(91 %),Tobramycin(34%), Ciprofloxacin(16%), Colistin(68%), Ticarcillin (46%), Amikacin(16%), Norfloxacin(23%), Gentamicin(33%), Ceftazidime (62%), Ceftizoxime (69%), and Cefepime (39%). 79 isolates (79%) were sensitive(MIC≤4mg/L) and 21 isolate(21%) were resistant to Imipenem(MIC≥8mg/L). the rate of resistance to different antibiotics were much higher in imipenem resistant isolates. Detection of metallo-β-lactamase producing isolates among imipenem non-susceptible isolates of *P. aeruginosa* revealed that 7 isolates (33.3%) were metallo-β-lactamase positive.

Conclusion: Metallo-β-lactamase positive isolates showed very high resistances to all tested antibiotics. This result suggests that metallo-β-lactamase producing isolates in hospitals may cause serious infections lead to the patient fails antibiotic therapy.

Keywords: *Pseudomonas aeruginosa*; Metallo-β-Lactamase; Hospital