

## عنوان مقاله:

Epidemiology and high incidence of Metallo- $\beta$ -lactamase and AmpC- $\beta$ -lactamases in nosocomial *Pseudomonas aeruginosa*

## محل انتشار:

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## خلاصه مقاله:

Objective(s): Isolates producing Metallo- $\beta$ -lactamase (MBL) have a significant impact on therapeutic and diagnostic layouts, plus their increased frequency has been reported globally. Determination of incidence of clinical isolates of *Pseudomonas aeruginosa* that are capable of producing MBL and AmpC- $\beta$ -lactamases making them resistant to imipenem and cefoxitin. Materials and Methods: Out of 1159 collected samples of urine, wound swabs, blood, tissue, and pus, the isolation rate of *P. aeruginosa* in the period of March 2020 to February 2021 was 22.0% (255/1159). Bacterial strains that were resistant towards imipenem were further processed for detecting the  $\beta$ -lactamase group of genes followed by statistical analysis of risk factors done based on clinical sample, gender, plus department of sample collection. Results: The percentage of resistance against imipenem was found to be 53%. Out of 135 strains, phenotypic tests revealed MBLs incidence to be 61.5% by combination disc test and 81.5% by Modified Hodge test (MHT). Frequencies of blaIMP-1, blaVIM, blaSHV, blaTEM, and blaOXA genes were calculated to be 13%, 15%, 32%, 43%, and 21%, respectively. Co-expressions of blaMBLs (blaVIM and blaIMP-1) plus blaESBL (blaSHV, blaOXA, blaTEM) were detected using simplex and multiplex PCR. blaTEM, blaSHV, and blaOXA co-existed in 7.5% of clinical

isolates. ۵.۵% of the isolates exhibited simultaneous expression of MBL/ESBL genes. ۱۵% of the isolates resistant to cefoxitin were positive for the blaAmpC gene (۱۷/۱۱۴). Conclusion: This is a pioneer report from Pakistan that concomitantly presents expression of blaVIM and blaIMP-۱ with blaTEM, blaOXA, blaSHV, and blaAmpC in isolates of *P. aeruginosa*.

### کلمات کلیدی:

Antibiotic resistance, Beta-lactamases, Infections, MDR genes, *Pseudomonas aeruginosa*

### لینک ثابت مقاله در پایگاه سیویلیکا:

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