

DETECTION OF blaNDM, blaPER, blaVEB, blaIMP AND blaVIM GENES AMONG ACINETOBACTER BAUMANNII ISOLATED FROM HOSPITALISED PATIENTS

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Introduction

Background: Acinetobacter is one of the main causes of nosocomial infections. Indiscriminate use of broad-spectrum antibiotics increases antibiotic resistance and persistence and spread of resistant strains in hospitals, especially in ICU. Among the most important mechanism of resistance in isolates of Acinetobacter, production of Extended-spectrum Beta-lactamase (ESBL) and the Mtao- beta lactamase (MBL) is very important. Thereby the aim of current study was to investigate the antibiotic susceptibility pattern of isolated Acinetobacter strains and the frequency of ESBL and MBL by phenotypic methods (DDST) and genotypic (PCR) methods.

Results

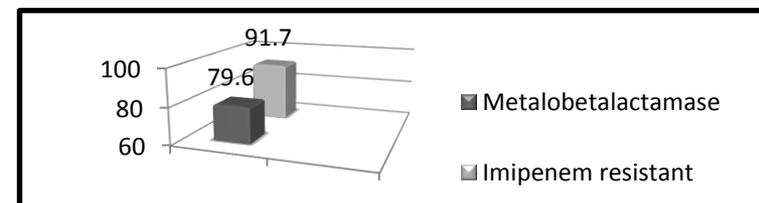
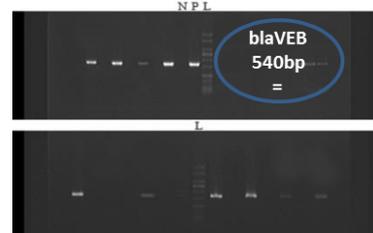
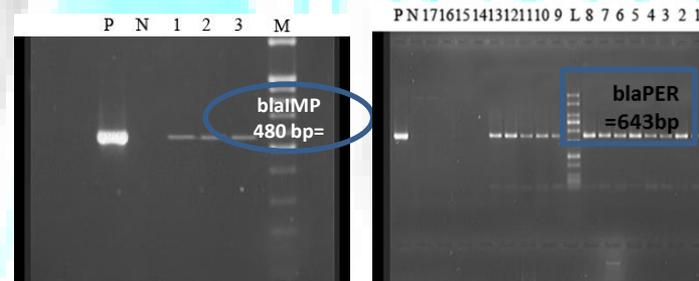
In this study, of 108 isolates of Acinetobacter, 100 % were resistant to cefotaxime , 98.1 % resistant to sulbactam ampicillin and trimethoprim - sulfamethoxazole , 97.2% were resistant to piperacillin and cefepime , 95.4% were resistant to piperacillin tazobactam , ceftazidime , 92.6 % were resistant to ciprofloxacin , 91.7 % were resistant to imipenem and meropenem , 80.6% were resistant to amikacin and tetracycline, 40.7% were resistant to gentamicin and only 1.8 % were resistant to Colistin. Of all isolates 83.2 % of isolates were multidrug-resistant (MDR) and 43.5 % were XDR. Among ESBL -producing isolates, 36 (39.5 %) were positive for bla^{VEB} and 71 (78.3 %) positive for bla^{PER} gene. Also in MBL positive isolates, 3 (3.48 %) carried bla^{IMP} gene while no bla^{SPM} were detected.

Method & Material

Samples were identified as Acinetobacter Baumannii by culture and biochemical methods. Antibiotic susceptibility testing was performed by disk diffusion method and the MIC (minimum inhibitory concentration) was measured using micro dilution broth methods for Imipenem, Meropenem, Ceftazidime, Cefotaxime, Cefepime and Colistin. The MBL and ESBL -producing strains were identified by phenotypic methods and bla^{IMP}, bla^{SPM}, bla^{VEB}, bla^{PER} genes were detected using PCR method.

Conclusion

The prevalence of ESBLs and MBLs-producing A. Baumannii strains is a major concern and highlights the need of infection control measures including prompt identification of beta-lactamase-producing isolates and antibacterial management.



Antibiotics	Limited	MIC 50%	MIC 90%
Meropenem	1-256	32	128
Imipenem	2-256	128	256
Ceftazidime	2>512	256	512
Cefepime	1-256	64	128
Cefotaxime	2>512	256	512
Colistin	0.25-128	≤1	2