Prevalence of blaPER-1 and blaVEB-1 genes among ESBL-producing Acinetobacter baumannii isolated from two hospitals of Tehran, Iran

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Background: Metallo-beta-lactamases (MBLs) and Extended-Spectrum-beta-Lactamases (ESBLs)-producing Acinetobacter baumannii strains are important nosocomial pathogens.

Objectives: The aim of this study was to determine the frequency of blaNDM, blaPER and blaVEB type genes among A. baumannii isolates from 2 general hospitals in Tehran, Iran from 2012 to 2013.

Patients & Methods: This study was conducted on 108 A. baumannii isolates collected from 2 hospitals in Tehran, Iran. Antibiotic susceptibility tests were performed by Kirby-Bauer disc diffusion and Broth microdilution methods according to CLSI guidelines. The frequency of MBL (Metallo-Beta-Lactamase) and ESBL (Extended-Spectrum-Beta-Lactamase) producers were evaluated by CDDT (Combined Disk Diffusion Test). The blaNDM, blaPER and blaVEB genes were detected by PCR and sequencing methods.

Results: The resistance of A. baumannii isolates against tested antibiotics were as follow: 103 (95.4%) toceftazidime, 108 (100%) to cefotaxime, 105 (95.7%) to cefepime, 99 (91.7%) to imipenem, 99 (91.7%) to meropenem, 87 (80.6%) to amikacin, 105 (97.2%) to piperacillin, 100 (92.6%) to ciprofloxacin, 103 (95.4%) to piperacillin/tazobactam, 44 (40.7%) to gentamicin, 106 (98.1%) to ampicillin/subactam, 106 (98.1%) to co-trimoxazole, 87 (80.6%) to tetracycline and 1 (1.8%) to colistin. Using combined disk diffusion test, it was found that out of 108 cefotaxime-non-susceptible A. baumannii strains, 91 (84.2%) were ESBL producers and out of 99 imipenem non-susceptible A. baumannii strains, 86 (86.86%) were MBL producers. The prevalence of blaPER-1 and blaVEB-1 genes among 91 of ESBL producing A. baumannii isolates were 71 (78.03%) and 36 (39.5%), respectively. Fortunately, blaNDM gene was not detected in isolates.

Conclusion: The prevalence of ESBLs and MBLs-producing A. baumannii strains detected in this study is a major concern and highlights the need of infection control measures including prompt identification of beta-lactamase-producing isolates and antibacterial management.

Biography
Roxana M.Ghanaie has completed her subspeciality in pediatric infectious disease from Shahid Beheshti University of medical sciences. She is associated professor in Shahid Beheshti University. She has published several papers in reputed journals and has been serving as an editorial board member of repute.

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