The Frequency of bla\textunderscore\text{PER}, \text{bla}\textunderscore\text{VEB} \text{bla}_{\text{CTX-M}} \text{tetA} \text{and tetB} \text{genes among Acinetobacter baumannii strains isolated from hospitalizes patients in Tehran}

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Abstract

Background & Aim: Infections and outbreaks caused by multidrug-resistant \textit{Acinetobacter baumannii} are prevalent and have been reported worldwide over the past twenty or more years. Beta-lactamase genes including \textit{bla}_{\text{PER}}, \textit{bla}_{\text{VEB}} \text{and} \textit{bla}_{\text{CTX-M}} \text{confer resistance to beta-lactam antibiotics} \text{and} \textit{tetA} \text{and tetB} \text{are responsible for resistance to tetracycline in such bacteria.}

Methods: A total of 65 isolates of \textit{A. Baumannii} from clinical samples were collected. Antimicrobial susceptibility testing was performed by the disk diffusion method according to the CLSI guideline \text{and the presence of} \textit{bla}_{\text{OXA-51}} \text{tetA}, \textit{tetB}, \textit{bla}_{\text{VEB}}, \textit{bla}_{\text{CTX}} \text{and} \textit{bla}_{\text{PER}} \text{were screened via the polymerase chain reaction (PCR).}

Results: The isolates were 100\% resistant to gentamicin, ciprofloxacin, piperacillin, cefotaxime, ceftazidime \text{and} tetracycline. Resistance to minocycline \text{and} imipenem stood at 89\% \text{and} 85\%, \text{respectively}. All isolates were identified as multi-drug resistant (MDR). \text{The genes tetA, tetB, \textit{bla}_{\text{VEB}}, \textit{bla}_{\text{CTX}} \text{and} \textit{bla}_{\text{PER}} \text{were detected in} 75.3\%, 43\%, 35.3\%, \text{and} 61.5\% \text{of isolates, respectively.}

Conclusion: This study revealed the high prevalence of antimicrobial resistance genes amongst \textit{Acinetobacter baumannii} \text{and thus confirms the need for isolating and identifying them in clinical laboratory and hospital settings.}

Keywords: \textit{Acinetobacter}, Antibiotic resistance, Beta-lactamase