ORIGINAL ARTICLE

Detection of Extended-Spectrum ß-Lactamases among *Acinetobacter Baumannii* Isolated from Hospitals of Qazvin, Iran

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ABSTRACT

BACKGROUND: *Acinetobacter baumannii is a major contributor to nosocomial infections. Extended-spectrum ß-lactamase (ESBL)-producing A. baumannii is spreading worldwide. We aimed to determine the frequency of ESBL-encoding genes in clinical isolates of A. baumannii and to access their clonal relationship by repetitive extragenic palindromic-PCR (rep-PCR).*

METHODS: *In this descriptive cross-sectional study, 203 isolates of A. baumannii were collected from Qazvin hospitals. The Identification of isolates was performed by standard laboratory methods. To verify ESBL production, all isolates were screened by disk agar diffusion and confirmed by the combined disk method. Subsequently, ESBL-encoding genes were detected by PCR and sequencing. Possible clonal association of ESBL-producing isolates was evaluated using rep-PCR.*

RESULTS: *Two hundred (98.5%) isolates showed reduced susceptibility to one of the antibiotics used in the ESBL screening test, of which 127 isolates (62.6%) produced ESBL. PCR results showed bla_{OXA-1} (20.5%) was the most prevalent gene followed by bla_{TEM-1} (20%), bla_{GES-1} (15.7%), $bla_{CTX-M-15}$ (7.9%), and bla_{PER-1} (1.6%). Rep-PCR results revealed that ESBL-producing isolates belonged to clones A (85%), B (13.4%), and C (1.6%).*

CONCLUSION: *Our study showed the significant presence of bla_{OXA-1}, bla_{TEM-1}, bla_{GES-1}, $bla_{CTX-M-15}$, and bla_{PER-1} genes in ESBL-producing A. baumannii isolates in the studied hospitals. This is the first report on the emergence of bla_{OXA-1} gene in these isolates in Iran. The use of comprehensive antimicrobial treatment guidelines based on laboratory data and appropriate infection control interventions are essential.*

KEYWORDS: *Acinetobacter baumannii, ESBL, repetitive extragenic palindromic-PCR*