

عنوان مقاله:

Association Between Metallo- β -lactamases and Integrons with Multi-Drug Resistance in Pseudomonas aeruginosa Isolates

محل انتشار:

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خلاصه مقاله:

Pseudomonas aeruginosa is among the most important pathogens in the nosocomial infections. A genetic mobile element, the integron, is one of the major agents involved in dissemination of multi-drug resistance among gram negative bacteria. During a descriptive study from October 2009 to August 2010, some 130 P. aeruginosa clinical isolates were collected from different wards of three hospitals in Tehran. The Minimal inhibitory concentration (MIC) of 4 antibiotics conventionally used in clinical settings against the isolates was determined by E-test method. Also, the existence of integron classes and metallo- β -lactamases (blaVIM-1, blaIMP-1, and blaVIM-2) were investigated by PCR assay. Out of 130 isolates, 74 (56.9%) carried class 1 integron. None of the isolates harbored integrons class 2 and 3. Also, the blaVIM-1 gene was detected in 10 (13.3%) high level ceftazidime and imipenem-resistant isolates that carried class 1 integrons. The blaIMP-1 and blaVIM-2 genes were not detected in any isolates. In the present study, the antibiotic resistance rates in class 1 integron-positive isolates of P. aeruginosa were significantly higher than those lacking this integron, e.g., 82.6% resistance versus 17.3% sensitivity to ceftazidime. Also, 13.3% of ceftazidime and imipenem resistant isolates was metallo- β -lactamase producer. This indicates that all metallo- β -lactamase genes are correlated with class 1 integrons. These results imply that the blaVIM-1 gene has been presumably dispersed into P. aeruginosa isolates with the help of class 1 integron element.

کلمات کلیدی:

β -lactam, Integron, Antibiotic resistance, Metallo- β -lactamase, Pseudomonas aeruginosa

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