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Clonal Dissemination of Pseudomonas aeruginosa Isolates in Kermanshah Hospitals, West of Iran

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Abstract : Background and Objective: Pseudomonas aeruginosa is an opportunistic pathogen associated with nosocomial infections. One of the major concerns for the treatment of P. aeruginosa infections is its resistant to a variety of antibiotics. The purpose of this study was to assess the dissemination of p. aeruginosa isolates obtained from major hospitals in Kermanshah, west of Iran. Materials and Methods: Antibiotic susceptibility testing was performed using the minimal inhibitory concentrations. Mettalo-beta-lactamase was investigated using the double disk diffusion (DDST) test and PCR. Molecular typing was performed by pulsed-field gel electrophoresis (PFGE). Results: The 60 P. aeruginosa isolates, 30 (50%) were resistant to gentamicin, 38 (63/3%) to piperacilin, 42 (70%) to ceftazidime, and 45 (75%) to cefepime. Twenty-nine (48/3%) isolates were MBLs producer based on the DDST test. Five (8/3%) isolates were positive for VIM gene and 4 of them were from burn specimens. PFGE analysis among MBLs producers revealed 12 distinct genotype patterns. A pattern covering the highest number of strains was determined as the dominant clone. Conclusions: Our study showed that P. aeruginosa strains can be spread between patients in hospitals or acquired from different environmental sources. P. aeruginosa isolates were highly resistant to antibiotics and, therefore, the susceptibility of isolates to antibiotics should be tested before treatment. Given the clinical significance of MBLs producing isolates, identification of these organisms is essential in the hospitals in order to get a better therapeutic response and control of bacterial dissemination.

Keywords : clonal dissemination, mettalo-beta-lactamase, Pseudomonas aeruginosa, PFGE
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