Investigation of MexZ mutations in drug resistance strains of pseudomonas aeruginosa

Dina Tashakori*,Dr. Najmeh Ranji,

Introduction: Pseudomonas aeruginosa is a gram-negative opportunistic pathogen and is a common cause of nosocomial infections. mexZ gene is a negative regulator of mexXY that overexpressed in drug resistance isolates of Pseudomonas aeruginosa. In this study, we investigate for mexZ mutations in drug resistant isolated Pseudomonas aeruginosa in Guilan hospitals burned and other infected patients. Materials and Methods: In this study, 45 strains of Pseudomonas aeruginosa, isolated different clinical samples identified by biochemical tests. The antibiotic resistance and susceptibility of strains was determined by Kirby Bauer method and PCR-sequencing was performed to assess MexZ gene mutations in multi-drug resistant strains. Results: 45 isolates, 14 isolates were ciprofloxacin resistance. The lowest resistance for ciprofloxacin (CP) was seen in 32µg/ml. PCR-sequencing showed that six isolates had mutation in MexZ gene. Conclusions: upregulation of efflux pumps have seen in multi-drug resistant strains of Pseudomonas aeruginosa. In this study, mutation in mexZ as negative regulator of mexXY can be a reason for multi-drug resistant in some strains and develop of ciprofloxacin resistance in Guilan province hospitals.

Keywords : Keywords: MexZ, Pseudomonas aeruginosa, ciprofloxacin, PCR-sequencing, MexXY