

Detection of Integron Genes Responsible for Antibiotic Resistance In *Pseudomonas Aeruginosa* Isolated from Urinary Tract Infections of Patients Admitted to High Risk Wards of Hospitals of Tabriz

Baharak Taghizadeh*¹; Akbar Hasani²; Alka Hasani³; Mojtaba Varshochi⁴; Leila Dehghani⁵; Maryam Hajiazadeh⁶

1- M.Sc Student, Department of Microbiology, Islamic Azad University ,Zanjan, Iran

2- Research Center of Infectious Diseases and Tropical Medicine and Department of Clinical Biochemistry and Laboratory Sciences, Faculty of Medicine, Tabriz University of Medicine Sciences, Tabriz, Iran

3- Research Center of Infectious Diseases and Tropical Medicine and Department of Microbiology, Faculty of Medicine Sciences, Tabriz University of Medicine Sciences, Tabriz, Iran

4- Research Center of Infectious Diseases and Tropical Medicine and Department of Infectious Diseases, Faculty of Medicine, Tabriz University of Medicine Sciences, Tabriz, Iran

5- Sina Hospital, Tabriz University of Medicine Sciences, Tabriz, Iran

6- Imam Reza Hospital, Tabriz University of Medicine Sciences, Tabriz, Iran

maryam.hajiazadeh@yahoo.com

Background & Objectives: *Pseudomonas aeruginosa* is one of the most important causative agents among hospital acquired infections, especially in ICU and burn units. The organism is known to be inherently resistance to a wide variety of antimicrobials. Integrons have been recognized as important contributor to the acquisition and dissemination of antibiotic resistance gene in Gram-negative bacteria. Investigate the resistance profiles of *Pseudomonas aeruginosa* isolated from urine of patient with Urinary Tract Infections (UTI) to 13 antibiotics, and its relation to presence of various class of integrons.

Methods: In total , 65 clinical *P. aeruginosa* were isolated from urine of patients with UTI over a period of 10 months. All clinical samples were initially identified with standard phenotypic methods and then studied for their resistance pattern toward 13 antibiotics by disc diffusion methods according to CLSI recommendations. Presence of Class 1, 2 and 3 integrons was assessed by performing PCR.

Results: The resistance rate were between 23,6% for meropenem and 100% for rifampicin. PCR results showed that 36 (55.38 %) of *P. aeruginosa* isolates carried class 1 integron. None of the isolates detected class 2 and 3 integron genes. The amplicon size of integron 1 was 457 bp. Resistance towards antibiotics associated with the presence of Class 1 integron by PCR. Class 1 integron was found in 29 strains revealing resistance to ceftriaxone , rifampicin and 20 strain revealing cefepime , ceftazidime , carbenicillin and 19 resistance to ampicillin/sulbactam respectively.

Conclusion: Our study indicate that Class 1 integrons are widespread in *P. aeruginosa* isolated from clinical samples of University teaching hospitals of Tabriz. The antibiotic resistance rates in class 1 integron-positive strains of *P. aeruginosa* were noticeably higher than those in class 1 integron-negative strains.

Keywords: *Pseudomonas aeruginosa*; Antibiotics; Multidrug Resistance; Integron