Original Paper

Prevalency of imipenem-resistant bacterial strains isolated from hospital and accuracy of Iranian imipenem disc product

Ahmadi A (Ph.D)[1], Soltanpour MM (ML.D)[2], Imani Fooladi AA (Ph.D)*[3]

[1]Assistant Professor, Applied Microbiology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran. [2]Head of Clinical and Molecular Laboratory, Baqiyatallah University of Medical Sciences, Tehran, Iran. [3]Associate Professor, Applied Microbiology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran.

Abstract

Background and Objective: Bacterial resistance to Imipenem is increased in bacterial infections in Iran. In regard to the importance of Imipenem in the treatment of nosocomial infections and the key role of disc diffusion method as a major antibiotic susceptibility testing assay, this study was done to determine the prevalency of imipenem-resistant bacterial strains isolated from hospital and accuracy of Iranian imipenem disc product.

Methods: In this descriptive-analytic study, 241 bacteria were isolated from patients in different wards of the Baqyatallah hospital in Tehran, Iran during 2013-14. After streaking of the organisms, identification was performed by all conventional biochemical tests. The bacterial resistance to imipenem was determined by disk diffusion method using Iranian and Mast imipenem discs. True imipenem-resistant isolates were examined for susceptibility to six different antibiotic including Ciprofloxacin, Gentamicin, Cephalexin, Azitromysin, Tetracycline and Ceftazidim, using disk diffusion method.

Results: The most prevalent isolates organisms were gram-negative bacilli (*Klebsiella*, *Escherichia coli*, and *Pseudomonas aeruginosa*, respectively). The common clinical source was urine and wound samples, respectively. Resistant to Imipenem was 68 (25.7 %) and 19 (7.8 %) based on the results of Iranian and Mast Imipenem discs, respectively. False results for Iranian Imipenem discs was higher than Mast Imipenem discs ($P<0.05$). Among the 19 true Imipenem resistant isolates, 17 micro organisms were *Pseudomonas aeruginosa*. 57% of isolated resistant to Imipenem were isolated from ICU ward. The most resistance was seen to Gentamicin (84%) and the lowest was seen to Ciprofloxacin (63%). 84% of isolated samples were multi drug resistance.

Conclusion: Although a small percentage of the isolates obtained as important nosocomial pathogens were resistant to Imipenem, but the rate of multiple resistance and high rate of isolates obtained from ICU was noticeable.

Keywords: Imipenem resistance, Nosocomial pathogens, Imipenem discs, Multi drug resistance

*** Corresponding Author: Imani Fooladi AA (Ph.D), E-mail: imanifouladi.a@gmail.com**

Received 23 Feb 2014 **Revised** 21 Jun 2014 **Accepted** 24 Jun 2014

Cite this article as: Ahmadi A, Soltanpour MM, Imani Fooladi AA. [Prevalency of imipenem-resistant bacterial strains isolated from hospital and accuracy of Iranian imipenem disc product]. J Gorgan Uni Med Sci. 2015; 17(1): 61-66. [Article in Persian]