Molecular Identification of Genes Coding Extended- Spectrum Beta-Lactamases Bla-SHV, Bla-TEM, Bla-VEB, in Acinetobacter baumannii Strains Isolated From Nosocomial Infection of Tehran Hospitals

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Background & Objectives: Bla-SHV, bla-TEM, and bla-VEB are a group of Beta lactamases enzymes which are able to hydrolyze penicillins and some Cephalosporins preferably penicillins. Majority of Extended-Spectrum Beta-Lactamases (ESBL) derived from SHV and TEM enzymes but there are some ESBL like bla-PER and bla-VEB that are not derivative of SHV and TEM. Regarding to growing importance of ESBL in antibiotic resistance, this study carried out to evaluation of the frequency of genes SHV, TEM and VEB and the survey of their relation with patient gender, ward of stay and origin of sample in 100 Acinetobacter spp isolated from hospital of Tehran.

Methods: Antibiotic Susceptibility pattern of isolates to 7 antibiotics (Ceftazidim, Meropenem, Gatifloxacin, Levofloxacin, Pipracilin-Tazobactam, Ticarcilin-Clavelonic acid and Trimethoprim –Sulphometoxazol) evaluated using Disk Diffusion Agar (Kirby-Bauer) and Minimum Inhibitory Concentration of Ciprofloxacin was measured using E.test . ESBL producing Strains identified with Combined Disk Methods. Finally all isolates evaluated with PCR Methods for identification and conformation the presence of gens bla-SHV, bla-TEM and bla-VEB.

Results: From 100 isolates in this study bla-Tem gene was detected in 42 isolate s (42%) and two other genes (bla-SHV and bla-VEB) were not detected in any isolate. Meropenem with susceptibility rate 29% and Gatifloxacin 11% were the most effective antibiotics. Nine isolates were sensitive to ciprofloxacin in MIC test and only 7(7%) isolates were ESBL producer.

Conclusion: High level of resistance to most antibiotic test and high prevalence of bla-TEM gene in this study , indicating the course of increasing antibiotic resistance in our country and the complexity of treating infection caused by this organism.

Keywords: *Acinetobacter baumannii;* Bla-SHV; Bla-TEM; Bla-VEB; Drug Resistance; PCR