Metallo beta lactamase enzyme in pseudomonas aergunosa collected from urine samples

Thesis
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Abstract

Background: Metallo-β-lactamases (MBLs) have been increasingly recognized from *Pseudomonas aeruginosa* isolates worldwide, but the laboratory detection of these strains is not well defined.

Methods: We used an EDTA disk screen test and a molecular diagnostic assay for the detection of MBL-producing *Pseudomonas aeruginosa* from Kasr Al ainy hospital isolated from April 2012 to March2013. Using CLSI disk methodology, inhibition zone diameters were determined in tests with imipenem (IPM) and meropenam (MEM) disks alone and in combination with 750 μg of EDTA. This test was compared with the MBL Etest. Detection for MBL production genes (bla_{IMP} & bla_{VIM}) was done using PCR .

Results: Of the fifty clinical strains of IPM-nonsusceptible *P. aeruginosa*, 32/50 (64.0%) were MBL positive using disc diffusion methods , 26/50 (52.0%) were positive for MBL by E-test while were positive for MBL genes: 17/50 (34.0%) for bla_{VIM} 50(34.0%)/17 and 0/50(0%) for bla_{IMP}. The EDTA disk screen test using IPM showed 100% sensitivity and 54.5% specificity for detecting MBLs in clinical strains. While E-test showed 100% sensitivity and 69.7% specifity.

Conclusion: The EDTA disk screen test was simple to perform and to interpret and can easily be introduced into the workflow of a clinical laboratory. We recommend that all IPM-nonsusceptible *P. aeruginosa* isolates be routinely screened for MBL production using the EDTA disk screen test and that PCR confirmation be performed.

Key words: imepenem, E-test,metallo beta lactamase, pseudomonas aeruginosa.