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Detection of metallo-beta-lactamase (MBL) using combined disk and MBL E strip methods

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The emergence and spread of antibiotic resistant bacteria is one of the greatest challenges, especially for developing countries. The rate of resistance among Gram negative bacteria especially non-fermenters are increasing to all available antibiotics groups. One major concern is their resistance to beta lactam antimicrobials. Various phenotypic methods are used by researchers for metallo-beta-lactamase (MBL) detection. As health budget is generally limited in developing countries, it is difficult to employ expensive detection methods. Thus, it becomes increasingly important to be aware of relative effectiveness of various detection methods. The aim of this study was to evaluate the effectiveness of combined disc test for MBL production in comparison with MBL E test. In this study, samples of non-fermenter Gram negative bacteria were collected from various clinical specimen including blood, pus, urine, fluid aspirates and respiratory tract. All non-fermenter Gram negative isolates were identified up to species level by standard laboratory procedures using API 20 NE. Antimicrobial susceptibility testing of non-fermenter Gram negative isolates were performed by modified Kirby Bauer disk diffusion method as recommended in CLSI. All isolates which were resistant to imipenem were included in this study. The comparison of two phenotypic methods show that the combined disk test detected MBL production in 80.3% isolates, whereas MBL E-strip detected MBL production in 90.2% isolates. Thus, both methods have good sensitivity and specificity and were comparable for detection of MBL enzyme. These results can help to detect MBL production more effectively and efficiently.

Biography

Javeria Gul has completed her Bachelor of Medicine and Surgery (MBBS) from Fatima Jinnah Medical University in Lahore, Pakistan and MPhil in Microbiology from University of Health Sciences, Lahore, Pakistan. She has teaching and working experience of 12 years in the field of Microbiology. Currently, she is working as Senior Demonstrator at Fatima Jinnah Medical University in Lahore, Pakistan.

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