DETECTION OF METALLO-B-LACTAMASES-ENCODING GENES AMONG CLINICAL ISOLATES OF ESCHERICHIA COLI IN A TERTIARY CARE HOSPITAL, MALAYSIA

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ABSTRACT

The multidrug resistant *Escherichia coli* strains causes multiple clinical infections and has become a rising problem globally. The metallo-β-lactamases encoding genes are very severe in gram-negative bacteria especially *E. coli*. This study was aimed to evaluate the prevalence of MBLs among the clinical isolates of *E. coli*. A total of 65 *E. coli* isolates were collected from various clinical samples of Malaysian patients with bacterial infections. The conventional microbiological test was performed for isolation and identification of *E. coli* producing MBLs strains in this vicinity. Multidrug Resistance (MDR) of *E. coli* isolates were assessed using disk diffusion test. Phenotypic methods, as well as genotypic- PCR methods, were performed to detect the presence of metallo-β-lactamase resistance genes (blaIMP, blaVIM) in imipenem resistant strains. Out of 65 *E. coli* isolates, 42 isolates (57.3%) were MDR. The isolates from urine (19) produced significantly more MDR (10) isolates than other sources. Additionally, 19 (29.2%) imipenem-resistant *E. coli* isolates contained 10 MBLs gene, 7(36.8%) isolates contained blaIMP and 3(15.7%) isolates contained blaVIM genes. This study revealed the significant occurrence of MBL producing *E. coli* isolates in clinical specimens and its association with health risk factors indicating an alarming situation in Malaysia. It demands an appropriate concern to avoid failure of treatments and infection control management.

Key words: Metallo-beta-lactamases (MBLs), blaIMP, blaVIM, Malaysia