

## Prevalence of Metallo- $\beta$ -Lactamase Producing *Pseudomonas aeruginosa* in Intensive Care Unit: A Report from Tertiary Care Hospital from Western India

Sir,

*Pseudomonas aeruginosa* is an important nosocomial pathogen in the health-care settings. Increasing resistance to carbapenems mediated by metallo- $\beta$ -lactamase (MBL) and other mechanisms is a cause for concern because they adversely affect clinical outcomes and add to treatment costs.<sup>[1]</sup> This study was undertaken to determine the prevalence of MBL production in carbapenem-resistant isolates and to study the factors influencing the clinical outcomes of infections.

A total of 140 consecutive *P. aeruginosa* isolates obtained from hospitalized patients were subjected to susceptibility testing to antipseudomonal drugs by disc diffusion and minimum inhibitory concentration (MIC) of imipenem was determined.

MBL detection was done by zone enhancement with ethylene diamine tetraacetic acid (EDTA) impregnated imipenem and ceftazidime discs<sup>[2]</sup> and minimum of four-fold reduction in MIC of the isolates with imipenem-(EDTA) combination.<sup>[3]</sup>

A total of 35% (49 out of 140) of the *P. aeruginosa* isolates tested were found resistant to imipenem by disc diffusion method. Twenty resistant isolates showed a significant enhancement in zone size with the EDTA impregnated discs as well as a four-fold reduction in MIC with imipenem EDTA. Thus, 40.8% isolates of imipenem resistant *P. aeruginosa* were found to be MBL producers. Overall prevalence of MBL production was 14.2% among all the *P. aeruginosa* isolates.

Multiple risk factors such as a hospital stay >8 days, catheterization, intravenous line and previous

antibiotic use were present in all MBL-positive isolates. All these were also the major risk factors for imipenem resistance.

All the MBL positive isolates were resistant to all the antibiotics tested except aztreonam. Emergence of MBL producing *P. aeruginosa* in intensive care units is alarming and reflects excessive use of carbapenems. There is an urgent requirement of strict statutory guidelines implanting intervention for limiting inappropriate uses of antibiotics. Ignorance of rational antibiotics prescribing principles, lack of awareness of the problem of the alarming rise in the multi-resistance and pharmaceutical promotion are possible combining factors leading to unnecessary antimicrobial usage. Inadequate infection control is further compounding the problem.

The early detection of MBL producing *P. aeruginosa* will help in appropriate antimicrobial therapy and avoid the development and dissemination of these multidrug resistance strains. All isolates of *P. aeruginosa* resistant to imipenem should be screened for MBL production. Disk potentiation test should be introduced in every clinical microbiology laboratory in order to aid infection control.

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