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Correspondence

Defining multidrug resistance in Gram-negative bacilli

Sir,

We read with interest the article by Shenoy and colleagues[1] on bla_{ndm-1} gene in multidrug resistant (MDR) Gram-negative bacilli. In a country with 60-80 per cent prevalence of extended spectrum beta-lactamase (ESBL) among hospital Gram-negative isolates with co-resistance to other classes of antimicrobials as high as 44 per cent to co-trimoxazole, 76 per cent to gentamicin, 88 per cent to tetracycline and 90 per cent to fluoroquinolones, the authors' report of only 1.48 per cent MDR Gram-negative bacilli in a tertiary care centre is surprising[2,3]. There are certain points which need to be clarified:

1. The definition of MDR is very vague and without any reference in the article[1]. MDR, in literal terms means 'resistant to more than one antimicrobial agent', but a standardized definition for MDR has not yet been agreed upon by the medical community. There are many definitions that are currently being used to characterize patterns. The most practical definition used for Gram-positive and Gram-negative bacteria is 'resistant to three or more antimicrobial classes'[4]. Selecting Gram-negative isolates resistant to 1st and 2nd line antibiotics by standard disk diffusion test was very difficult as isolates were from different sites which had different antibiotics in their 1st and 2nd line of treatment. It is important for the authors to clearly define their criteria for MDR Gram-negative isolates as they have reported a low percentage of MDR Gram-negative isolates, and also that 93.24 per cent of these were phenotypically MBL producers, which is very alarming.

2. The authors did not define how the carbapenamase producers were initially screened. Only imipenem (IPM) was tested by disk diffusion method. So how did the authors determine "variable carbapenem resistance"?. It will be interesting to see what type of variable carbapenem resistance was seen. They also need to mention all the carbapenems tested in their study and their MIC (minimum inhibitory concentration) at least as generated by Vitek 2 Compact 60.

3. What the authors have described in the Material & Methods section is combined-disk test, not the double disk synergy test (DDST). In the DDST, an IPM (10 µg) disk is placed 20 mm (center to center) from a blank disk containing 10 µl of 0.1 M (292 µg) EDTA. Enhancement of the zone of inhibition in the area between the two disks is considered positive for an MBL[5].

4. Table II: Denominators used for calculating percentages are misleading, *e.g*: while the table may be interpreted as 5.7 per cent of isolates of *Acinetobacter baumannii* were bla_{ndm-1} positive; the actual percentage is 20 per cent. The authors mentioned that 14.7 per cent of *Escherichia coli* isolates were NDM-1 positive in their study but the Table showed that 50 per cent (5/10) of the MDR *E.coli* were NDM-1 positive. We are unable to understand what the authors wish to convey through the current percentages in Table II? What does 115.38 per cent of tracheal aspirate mean; as well as 105 per cent of total isolates?

5. Tigecycline resistant isolates need to be identified as *Pseudomonas*, *Providencia* and *Burkholderia* isolates are known to have higher MICs for tigecycline[6].

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