compares well with MGIT in terms of recovery rate and detection time, and detects mycobacterial growth much faster than the LJ medium. The Bio FM vial is about 30% cheaper than the MGIT vial and does not need any capital investment. Thus, it can be used in settings where cost and/or infrastructural limitations prohibit usage of fully automated systems. Also, its usage will facilitate reporting of TB cultures earlier than the conventional LJ method at a more reasonable cost to the patient, thereby improving overall patient management. Nevertheless, larger studies are recommended to evaluate the sensitivity, specificity and contamination rates of the medium, before putting to diagnostic use.

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References


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Vancomycin Resistant Enterococci in a Tertiary Care Hospital in Mumbai

Dear Editor,

The increasing occurrence of Enterococcus species, worldwide, since late 1980s, is of particular concern due to the emergence of Vancomycin Resistant Enterococci (VRE).[1] VRE has also been reported from some parts of India.[2,3] The appearance of VRE has limited the therapeutic options available for clinicians.

A study was undertaken in this hospital to detect vancomycin resistance in enterococcal isolates using three methods and compare the three methods. The methods included – KBDDM, Vancomycin agar screen method and MIC detection by macrobroth dilution method. A total of 200 enterococcal isolates – 65 from urine, 58 from blood, 22 from Foley’s catheter tips, 21 from wound swabs, 18 from pus and 16 from fluids (ascetic fluid 12, cerebrospinal fluid 2 and peritoneal dialysis fluid 2) were included in the study. They were identified and speciated by standard biochemical tests.[4]

Susceptibility to vancomycin was performed by Kirby-Bauer Disc Diffusion Method (KBDDM)[5] on Mueller Hinton Agar by using 30µg vancomycin disc (HiMedia). Vancomycin resistance was also determined by Vancomycin agar screen method using 6µg/ml of vancomycin incorporated in Brain Heart Infusion (BHI) agar. Minimum Inhibitory Concentration (MIC) of all the isolates were done by Macrobroth dilution method, using dilutions of vancomycin ranging from 2 µg/ml to 512 µg/ml. Susceptibility to teicoplanin was also done by KBDDM, in isolates showing MIC ≥ 4 µg/ml.[5]

Out of the 200 Enterococcus species, 55% (110) were Enterococcus fecium, 31% (62) were Enterococcus fecalis and 14% (28) were other Enterococcus species.

Two isolates (1%) were resistant to vancomycin by KBDDM. By Vancomycin agar screen method, three isolates showed growth, giving an overall VRE positivity of 1.5%. The vancomycin MIC for these three isolates were 8 µg/ml for one and 128 µg/ml for two, while the remaining isolates had MIC less than or equal to 4µg/ml.

The three enterococcal isolates having MIC greater than 4 µg/ml were from two patients – one each from Foley’s catheter tip and ascitic fluid of the same patient and the third from Foley’s catheter tip of another patient. The former patient was a 11-year-old female child diagnosed...
to have right sided empyema with acute renal failure, with splenomegaly and mild ascites. She developed facial and pedal oedema later. She was given repeated blood transfusion and peritoneal dialysis was also done. She was started on amikacin and cefotaxime at the time of admission and later on linezolid, as the isolates showed in-vitro susceptibility to linezolid. She responded to the treatment and was subsequently discharged. The other patient was a 64-year-old male having diabetes mellitus with chronic renal failure. He also responded to linezolid and was discharged. Both the patients were lost to follow-up. All the three VRE isolates were \textit{E. fæcium} and resistant to teicoplanin.

According to CLSI guidelines\textsuperscript{[5]} MIC of vancomycin for enterococci between 8-16 \(\mu g/ml\) is considered as intermediate resistant and MIC greater than or equal to 32\(\mu g/ml\) is considered resistant. Therefore in this study, 0.5\% showed intermediate resistance and one per cent were resistant to vancomycin by MIC.

In this study, MIC of vancomycin was between 8\(\mu g/\)ml-128\(\mu g/ml\) in 3 (1.5\%) enterococcal isolates – two from Foley’s catheter tips and one from ascitic fluid. Taneja et al. reported eight enterococcal isolates having MIC ranging from 8-32\(\mu g/ml\) by agar dilution method\textsuperscript{[3]} Five of them developed nosocomial urinary tract infection (UTI), 2 had community acquired UTI and 1 had asymptomatic bacteriuria. In their study also, \textit{E. fæcium} was the commonest amongst VRE, as in this study.

In this study, all the three VRE isolates were \textit{E. fæcium} and were resistant to teicoplanin, so they were of VanA phenotype. Mathur et al.\textsuperscript{[2]} have also reported 80\% of VanA phenotype. Though one study have reported 25\% mortality among VRE isolates\textsuperscript{[3]} no mortality was reported in this study.

Two urine samples were also received from the female child while on antibiotics. Both did not show any growth. So isolate from Foley’s catheter tip in this patient can be a probable colonizer. As no VRE was isolated from other patients during the same period, these cases may be community acquired. Report from developed countries suggest that VRE colonization can frequently occur in community.\textsuperscript{[6]} An Indian study has also reported community-acquired VRE.\textsuperscript{[3]} VRE exists elsewhere in the environment including animal faeces and foods of animal origin. Therefore transmission of VRE from these sources results in an increased human reservoir of VRE colonization.\textsuperscript{[6]} Control of these cases therefore requires community-based initiative.

The Vancomycin agar screen method, which is used for detection of presumptive resistance, correlated well with Macrobroth dilution method in this study. Comparing KBDDM with Macrobroth dilution method by Chi-square test, the results were not significant (‘\(P\)’ greater than 0.005).

This study signals the emergence of VRE in this hospital and also highlights the importance of screening for VRE in enterococci isolated from various samples. As MIC detection is a laborious procedure, all enterococcal isolates can be screened by Vancomycin agar screen method and only those isolates positive by this method can be tested further for vancomycin MIC, as both the above methods correlated well in this study.

All laboratories should have effective detection methods for vancomycin resistance, which will be helpful in reducing the morbidity and mortality due to VRE in hospitalized patients. VRE with community acquired sources should be detected early as this will limit the spread of VRE to the hospital environment. Surveillance of family members of recently discharged patients known to be colonized or VRE-infected should be done. Surveillance of the community to detect reservoirs of VRE should also be done from time to time.\textsuperscript{[6]}

References


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