Evaluation of a Colorex™ chromogenic media and Bile-esculin azide agar with 6 ug vancomycin for the detection of Vancomycin Resistant Enterococcus faecalis and Enterococcus faecium (VRE)

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Abstract

Background: VRE are important nosocomial pathogens. A rapid and accurate method for detection of VRE from surveillance specimens is essential to prevent VRE outbreaks and decrease transmission. Selective and differential media such as bile-esculin azide agar supplemented with 6ug of vancomycin/mi (BEAV) is commonly used however, chromogenic media provide more rapid results. The objective of this study is to compare the performance of the Colorex (CLX) to BEAV.

Methods: Consecutive rectal swabs for surveillance for VRE from community hospitals in the Niagara region, Ontario were evaluated. Rectal swabs were inoculated in parallel on to CLX and BEAV. CLX was incubated aerobically at 35-37°C. QC was performed as per manufacturer's instructions. CLX was interpreted at 24, 36 and 48 hrs while BEAV was read at 24, 48 and 72 hrs. Pink colonies on colorex were confirmed as VRE by gram, catalase, PYR and vitek2 GP ID card. Vancomycin resistance was confirmed using BHIVE and Vancomycin E-test. Non-pink colonies on CLX were also evaluated.

Results: VRE were detected in 68/526 (12.9%) rectal swabs. CLX and BEAV detected 67 and 85 VRE. For CLX, 65/68 (95.6%) and 67/68 (98.5%) were detected at 24 and 36 hrs. No additional VRE were detected at 48hrs. For the BEAV, 49/68 (72.1%), 63/68 (92.5%) and 65/68 (95.6%) were detected at 24, 36, and 48 hrs respectively. 93% of VRE were detected at 24 hrs. Of the 133 specimens with pink colonies on CLX, 65/68 (72.3%), 66/68 (97.1%) and 65/68 (95.6%) respectively were and were and were detected at 24, 36, and 48 hrs respectively. 83.3 % of the non-VRE pink colonies were vancomycin sensitive E.faecalis. Growth of non-pink colonies occurred in 73/526 (13.9%) and the majority were coagulase negative Staphylococcus (72.6%).

Methods

526 rectal swabs were inoculated in parallel on to CLX and BEAV and incubated aerobically at 35-37°C.

Conclusion: Detection of VRE was more rapid using CLX compared to BEAV with improved sensitivity at 24 hrs (95.6% vs. 72.1%). Incubation for 36 hrs can be used for CLX given the sensitivity was equivalent to 48 hrs with better specificity. Confirmation of vancomycin resistance prior to reporting is recommended as 49.6% of pink colonies on CLX were vancomycin sensitive E.faecalis and E.faecium.

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