Evaluation of VersaTREK® Automated Microbial Detection System

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Abstract

Automated continuous-monitoring blood culture systems are rapid, comfortable and able to analyze many samples. Unfortunately, false negative result could be found as 1.4–6.0% in automated microbial detection systems. The objective of this study was to evaluate the blood culture results from VersaTREK® Automated Microbial Detection System. A total of 1,514 samples including 1,477 blood samples and 37 body fluid samples were incubated in VersaTREK® using aerobic medium. The positive samples were then subcultured on 5% sheep blood agar, MacConkey agar and chocolate agar, while negative samples after 5–day incubation were terminal blind subcultured on chocolate agar. The growing microorganism was subsequently identified by Gram’s stain and suitable biochemical medium. It was found that there were 186 (12.3%) positive samples from VersaTREK®, of which were 164 true positive and 22 false positive samples (10.8%, and 1.5%, respectively). The other 1,328 (87.7%) samples were true negative. The microorganisms in 164 positive samples were fungi and bacteria cultured from 12 (7.3%) and 152 (92.7%) samples, respectively. It is demonstrated that there is no false negative result from VersaTREK® automated system with 100% of sensitivity, 98.4% of specificity, 100% of negative predictive value and 88.2% of positive predictive value. Moreover, instrumental false negative from VersaTREK® automated system was not found.

Keywords: Automated microbial detection system, False negative, Blood culture

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