Evaluation of the T2Bacteria Panel (T2BP) Compared to Standard Blood Culture at Ochsner Medical Center

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Background: The T2Ds fully-automated instrument performs whole blood DNA amplification and uses novel magnetic resonance technology with the T2BP for direct detection of species-specific amplification of Acinetobacter baumannii, Enterococcus faecium, Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa and Staphylococcus aureus at a limit of detection as low as 2 CFU/mL in 3-5 h. The goal of our study was to evaluate the T2BP compared to blood cultures collected from 178 consented patients from the same site and needle (immediately after an ordered blood culture) at Ochsner Medical Center. Methods: Blood samples were collected from 178 consenting patients at Ochsner Medical Center between March 21, 2017, and July 31, 2017. Blood samples were cultured on blood culture bottles, and the T2BP was performed on the remaining blood samples, which were cultured on the same media and inoculated immediately after an ordered blood culture. All positive T2BP results were confirmed by MALDI-TOF. T2BP positive and negative external controls were tested daily, and an internal control was included for each sample to ensure homogeneity. Results: T2BP detected 72 organisms (12 E. coli, 9 P. aeruginosa, 6 S. aureus, 5 K. pneumoniae) from 31 of 178 patients. T2BP detected 99 organisms across all patients. No A. baumannii or E. faecium were identified. The T2BP was found to be 100% sensitive and specific when compared to blood culture. Conclusion: Based on limited testing, the T2BP seems very promising. 100% sensitivity and 99% average specificity compared to BC. Our study suggests that the T2BP can provide highly sensitive and specific results in hours vs days for a standard BC. T2BP demonstrated an average 99% specificity and 100% sensitivity when compared to BC. T2BP demonstrated a very high positive predictive value compared to BC. This study suggests that the T2BP can provide highly sensitive and specific results in hours vs days for a standard BC. T2BP demonstrated an average 99% specificity and 100% sensitivity when compared to BC.