The conventional diagnostic techniques for catheter colonization (CC) take at least 48 h to yield results. Therefore, new diagnostic procedures that speed up the time necessary for results are needed” Alonso et al (2019).

Abstract:

The conventional diagnostic techniques for catheter colonization (CC) take at least 48 h to yield results. Therefore, new diagnostic procedures that speed up the time necessary for results are needed. Our main objective was to assess the efficacy of the combination of sonication, turbidity monitoring, and MALDI-TOF to detect CC and catheter-related bloodstream infection (C-RBSI). For 1 year, we assessed central venous catheter (CVC) tips that arrived at the microbiology laboratory from adult patients admitted to our institution. CVC tips were cut, inoculated into 2.5 ml of BHI, and sonicated for 1 min. The suspension was then processed using Gram stain, quantitative culture (gold standard), and preincubation on the Alfred™ system. We analyzed the validity values of our new diagnostic approach for prediction of CC and C-RBSI and compared them with those of the gold standard. We collected a total of 167 catheters, 33 (19.8%) of which were colonized. We confirmed 21 episodes of C-RBSI. The distribution of microorganisms in colonized CVCs was as follows: Gram-positive, 68.4%; Gram-negative, 5.3%; and yeasts, 26.3%. The validity values for CC and C-RBSI using the new procedure were as follows: S, 39.4%/61.9%; Sp, 100%/100%; PPV, 100%/100%; and NPV, 87.0%/94.8%. The combination of sonication with a pre-incubation period based on turbidity monitoring using the Alfred™ system followed by MALDI-TOF proved to be a useful tool that was faster than conventional culture for ruling out C-RBSI. Future studies are needed to assess the clinical and economic impact of this diagnostic approach.

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