

P1934 **Evaluation of the Alfred turbidity monitoring system (Alifax) following sonication in the diagnosis of central venous catheter colonization**

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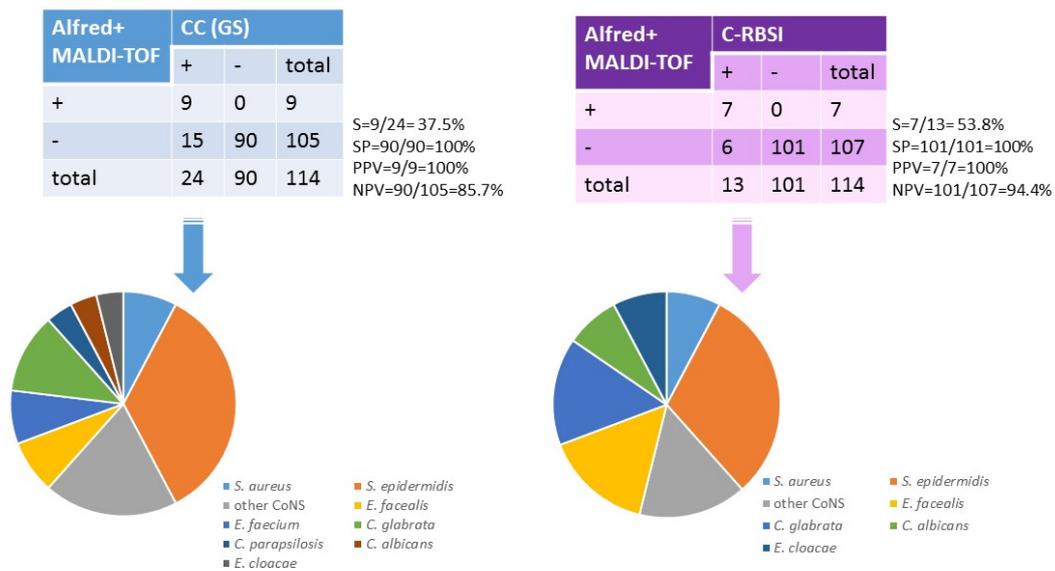
Background: Catheter-Related Bloodstream Infection (C-RBSI) is one of the most important nosocomial infections. Conventional diagnostic techniques for catheter colonization are roll-plate or sonication. However, they take at least 48h to get results. Therefore, finding new diagnostic procedures that speed time results obtained by conventional culture is needed. Our main objective was to assess the efficacy of the combination of sonication, turbidity monitoring, and MALDI-TOF to detect catheter colonization (CC) and C-RBSI.

Materials/methods: During 7 months, central venous catheter (CVC) tips that arrived at Microbiology laboratory from adult patients admitted to our institution were included in the study. Catheter tips were performed as follows: The 5 cm-distal part was cut into 1-2 mm fragments, which were inoculated into 2.5 ml of BHI and sonicated 1 min followed by vigorous vortex. Then, suspension was intended for Gram, quantitative culture in blood agar plate (gold standard), and pre-incubation on Alfred™ system during 8h or until turbidity (0.5 McFarland). After that, 4 aliquots were obtained for Gram, MALDI-TOF, and qualitative conventional culture in blood agar plate (24-48h incubation). In patients under antibiotic therapy, the procedure was also performed at serial dilutions of the samples. We analyzed the validity values of our new diagnostic approach to predict CC and C-RBSI.

Results: We collected a total of 114 catheters, 21.1% of which were colonized. We confirmed 13 episodes of C-RBSI. Distribution of microorganisms in colonized CVC were as follows: Gram +, 77.8%; Gram -, 3.7%; and yeast, 18.5% (**figure**). The validity values for CC and C-RBSI using the new procedure were, respectively: S, 37.5%/53.8%; SP, 100%/100%; PPV, 100%/100%; and NPV, 85.7%/94.4% (**figure**).

Conclusions: The combination of sonication with a pre-incubation period by turbidity monitoring Alfred™ Assay Followed by MALDI-TOF identification demonstrated to be a useful tool faster than conventional culture to rule out C-RBSI. However, it showed a low sensitivity rate for prediction of colonization mainly due to the presence of coagulase-negative staphylococci, which require greater growth times. Future studies are needed to assess the clinical and economic impact of this diagnostic approach.

figure



GS, gold standard; S, sensitivity; SP, specificity; PPV, positive predictive value; NPV, negative predictive value; CC, catheter colonization; C-RBSI, catheter-related bloodstream infection.