
Abstract:
BACKGROUND: Usefulness and economic aspects of microbiological analysis of central venous catheter (CVC) tips in diagnosis of the catheter-related bloodstream infection (CRBSI).
MATERIAL/METHODS: Retrospective study of an adult intensive care unit in a university hospital. Catheter removal was performed when the clinical state of the patient indicated that the catheter could be the source of infection or inflammation was observed at the puncture site. RESULTS: We microbiologically studied 238 CVC tips according to the Maki method and 723 blood samples from 120 septic patients treated during a 21-month period (32.9% of all patients treated in this time period). In 115 cases (48.4%), the tips were positive. Bacteremia was ascertained in 181 blood samples (24.1%), and 168 samples were collected at the time of CVC removal. In blood samples taken from 20 patients (3% of total blood samples), 25 cases of the same pathogens were isolated from CVC tips. In 12 cases, pathogens found in blood and CVC tips were also cultured in other places. In 13 cases (5.5% of tips), CVCs were the source of CRBSI. Positive predictive value (PPV) and negative predictive value reached 11% and 91%, respectively. The total cost of CVC tip monitoring was about 4000 euro.
CONCLUSIONS: Our data support the hypothesis that colonization of CVC is rarely responsible for CRBSI. Relatively low PPV renders tips culture useless as a method of diagnosing CRBSI. Based on these results, the routine microbiological monitoring of CVC tips was discontinued to reduce the cost of treatment.