

CLINICAL EVIDENCE

A prospective, randomized study in critically ill patients using the Oligon Vantex catheter

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Abstract

Microbial colonization and the incidence of catheter-related bloodstream infections (CR-BSI) associated with Oligon Vantex silver central venous catheters (CVC) in critically ill patients were determined. A prospective, randomized, controlled 17-month trial was carried out in an intensive care unit (ICU). All patients requiring a triple-lumen CVC for four days or longer were enrolled. Patients were randomized to receive a standard polyurethane CVC or an Oligon Vantex silver CVC. Before removal of the catheter either due to discharge from the ICU or suspected infection, blood for cultures was taken via the CVC and a peripheral site. Skin and hub swabs and catheter-tips were also cultured. Two hundred and six catheters, 103 in both groups, were evaluated. In the control group (CG) 45/103 (44%) and in the silver group (SG) 30/103 (29%) were colonized or had a CR-BSI ($P=0.04$). The SG was less likely to be colonized than the CG when the catheter remained in situ for eight days or less ($P=0.03$) or over 15 days ($P=0.01$); a second or subsequent catheter was present in the same patient ($P=0.002$), or if the CVC was placed in the internal jugular vein ($P=0.05$). Multivariate logistic-regression showed predisposing factors for catheter colonization were jugular and femoral sites, second or subsequent catheter, and being a member of the CG. CR-BSI occurred in five cases (four in CG). Rates of CR-BSI per 1000 catheter-days in the CG were 2.8 and in the SG, 0.8 ($P<0.001$). The Oligon Vantex silver catheter reduced the incidence of catheter-colonization and may decrease the risk of CR-BSI.