
Abstract:

OBJECTIVE: To investigate whether maximal sterile barrier precautions (MSBPs) during central venous catheter (CVC) insertion are truly effective in preventing catheter-related bloodstream infections (CRBSIs) in patients in general surgical units.

SUMMARY BACKGROUND DATA: The reported effectiveness of MSBPs was based on the results of a single-center randomized controlled trial by Raad et al and the majority of the patients (99%) in the study were chemotherapy outpatients.

METHODS: Between March 14, 2004 and December 28, 2006, the patients scheduled for CVC insertion in surgical units at 9 medical centers in Japan were randomly assigned to either an MSBP group (n = 211) or a standard sterile barrier precaution (SSBP) group (n = 213). This study was registered in the UMIN Clinical Trials Registry (registration ID number: UMIN000001400).

RESULTS: The median (range) duration of catheterization was 14 days (0-92 days) in the MSBP group and 14 days (0-112 days) in the SSBP group. There were 5 cases (2.4%) of CRBSI in the MSBP group and 6 cases (2.8%) in the SSBP group (relative risk, 0.84; 95% confidence interval, 0.26-2.7; P = 0.77). The rate of CRBSIs per 1000 catheter days was 1.5 in the MSBP group and 1.6 in the SSBP group. There were 8 cases (3.8%) of catheter-related infections in the MSBP group and 7 cases (3.3%) in the SSBP group (relative risk, 1.2; 95% confidence interval, 0.43-3.1; P = 0.78). The rate of catheter-related infection per 1000 catheter days was 2.4 in the MSBP group and 1.9 in the SSBP group.

CONCLUSIONS: This study is larger in sample size than the one performed by Raad et al and could not demonstrate better prevention of CRBSIs by MSBP compared with SSBP. A large randomized controlled trial or at least a meta-analysis of any other studies in the literature is necessary to reach a conclusion on this issue.