
Abstract:

Background – Catheter hub contamination has been recognized as a source of catheter-related bloodstream infections. We have investigated the efficacy of a protection cap for a needleless injection device in preventing intraluminal catheter contamination, compared with a conventional 3-way stopcock.

Methods – Adult patients requiring an intravascular catheter placement for at least 48 hours in an intensive care unit were randomly assigned to receive either the needleless injection device with protection cap (test group, n = 31, number of devices = 151) or with a conventional 3-way stopcock (comparator group, n = 33, number of devices = 179). To evaluate intraluminal contamination, we examined the bacteria isolated in the inline bacterial filters, which were attached downstream of the injection ports.

Results – The incidence of bacterial contamination was significantly different between the groups (test group 2/151 (1.3%) vs comparator group 11/179 (6.2%), P = .04). There was no correlation between the microbial contamination rate and the in situ time of catheter or numbers of injections.

Conclusion – The protection cap for needleless injection devices decreased microbial transfer from the injection port to the intraluminal fluid pathway and lowered the risk of catheter-related bloodstream infections.