The reduction of infection rates by standardizing the Central Venous Catheter implantation procedure

Abstract:

BACKGROUND: A high catheter-related bloodstream infection (CRBSI) rate, in comparison with that in the National Healthcare Safety Network report, is an important concern in our hospital. Therefore, evidence-based interventions have been introduced to reduce the rate of CRBSI.

METHODS: A surveillance study conducted from March 2008 to May 2010 to observe the reduction of infection rate after interventions in two intensive care units (ICUs). The major intervention, introduced in November 2009, was the standardization of the process of central venous catheter (CVC) implantation, including hand hygiene and maximal sterile barrier precautions.

RESULTS: The utilization ratios of CVC changed little during the study. The median CRBSI infection rates decreased from 1.95 (mean 1.58) infections per 1000 catheter-days at baseline to 0 (mean 1.06) after interventions (p = 0.310 by the Wilcoxon signed ranks test). The rate of CRBSI in one ICU showed 0 infections per 1000 catheter-days, which was sustained for 6 months after interventions.
CONCLUSION: The reduction of infection rates could be possible by standardizing the CVC implantation procedure. However, more interventions, such as cleaning the skin with chlorhexidine, avoiding the femoral site when possible, and removing unnecessary catheters, should also be considered to reduce the rate of CRBSI.