



Intravenous literature: Cherry-Bukowiec, J.R., Denchev, K., Dickinson, S., Chenoweth, C.E., Zalewski, C., Meldrum, C., Sihler, K.C., Brunsvold, M.E., Papadimos, T.J., Park, P.K. and Napolitano, L.M. (2011) Prevention of catheter-related blood stream infection: back to basics? *Surgical Infections*. 12(1), p.27-32.

Abstract:

Background: Central venous catheter (CVC)-related infections are a substantial problem in the intensive care unit (ICU). Our infection control team initiated the routine use of antiseptic-coated (chlorhexidine-silver sulfadiazine; Chx-SS) CVCs in our adult ICUs to reduce catheter-associated (CA) and catheter-related (CR) blood stream infection (BSI) as we implemented other educational and best practice standardization strategies. Prior randomized studies documented that the use of Chx-SS catheters reduces microbial colonization of the catheter compared with an uncoated standard (Std) CVC but does not reduce CR-BSI. We therefore implemented the routine use of uncoated Std CVCs in our surgical ICU (SICU) and examined the impact of this change.

Hypothesis: The use of uncoated Std CVCs does not increase CR-BSI rate in an SICU.

Methods: Prospective evaluation of universal use of uncoated Std CVCs, implemented November 2007 in the SICU. The incidences of CA-BSI and CR-BSI were compared during November 2006-October 2007 (universal use of Chx-SS CVCs) and November 2007-October 2008 (universal use of Std CVCs) by t-test. The definitions of the U.S. Centers for Disease

Control and Prevention were used for CA-BSI and CR-BSI. Patient data were collected via a dedicated Acute Physiology and Chronic Health Evaluation (APACHE) III coordinator for the SICU.

Results: Annual use of CVCs increased significantly in the last six years, from 3,543 (2001) to 5,799 (2006) total days. The APACHE III scores on day 1 increased from a mean of 54.4 in 2004 to 55.6 in 2008 ($p=0.0010$; 95% confidence interval [CI] 1.29-5.13). The mean age of the patients was unchanged over this period, ranging from 58.2 to 59.6 years. The Chx-SS catheters were implemented in the SICU in 2002. Data regarding the specific incidence of CR-BSI were collected beginning at the end of 2005, with mandatory catheter tip cultures when CVCs were removed. Little difference was identified in the incidence of BSI between the interval with universal Chx-SS use and that with Std CVC use. (Total BSI 0.7 vs. 0.8 per 1,000 catheter days; CA-BSI 0.5 vs. 0.8 per 1,000 catheter days; CR-BSI 0.2 vs. 0 per 1,000 catheter days.) No difference was seen in the causative pathogens of CA-BSI or CR-BSI.

Conclusion: Eliminating the universal use of Chx-SS-coated CVCs in an SICU with a low background incidence of CR-BSIs did not result in an increase in the rate of CR-BSIs. This study documents the greater importance of adherence to standardization of the processes of care related to CVC placement than of coated CVC use in the reduction of CR-BSI.

Thank you to our partners for supporting IVTEAM

