

“Central line-associated bloodstream infection (CLABSI) is a serious complication in hematology-oncology patients. This study aimed to analyze the prevalence of CLABSI and the effectiveness of antimicrobial lock therapy (ALT) in pediatric patients.” Tsai et al (2014).

Reference:

Tsai, H.C., Huang, L.M., Chang, L.Y., Lee, P.I., Chen, J.M., Shao, P.L., Hsueh, P.R., Sheng, W.H., Chang, Y.C. and Lu, C.Y. (2014) Central venous catheter-associated bloodstream infections in pediatric hematology-oncology patients and effectiveness of antimicrobial lock therapy. *Journal of Microbiology, Immunology, and Infection*. October 10th. .

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Abstract:

BACKGROUND: Central line-associated bloodstream infection (CLABSI) is a serious complication in hematology-oncology patients. This study aimed to analyze the prevalence of CLABSI and the effectiveness of antimicrobial lock therapy (ALT) in pediatric patients.

METHODS: BSIs of all pediatric hematology-oncology patients admitted to a children’s hospital between January 2009 and December 2013 were reviewed. The United States National Healthcare Safety Network and Infectious Diseases Society of America guidelines were used to define CLABSI and catheter-related BSI (CRBSI). The incidence, laboratory and microbiology characteristics, poor outcome, and effectiveness of ALT were analyzed.

RESULTS: There were 246 cases of CLABSI in 146 patients (mean age, 10.0 years), including 66 (26.8%) cases of CRBSI. The incidence of CLABSI was 4.49/1000 catheter-days, and the infection was responsible for 32.9% of the complications these patients developed and 9.3% of contributable mortality. Patients with acute myeloid leukemia had the highest infection density (5.36/1000 patient-days). Enterobacteriaceae (40.2%) and coagulase-negative staphylococci (CoNS; 20.7%) were the predominant pathogens. In multivariate analysis, older age, male sex, elevated C-reactive protein, acute lymphoblastic leukemia, and candidemia were associated with poor outcome. The success rate of ALT was 58.6% (17/29) for the treatment of CoNS and 78.3% (29/37) for Enterobacteriaceae infections. Patients with candidemia (n = 18) had the highest mortality (33.4%) and catheter removal rate (66.7%). Chlorhexidine as the disinfectant decreased the 1-year CLABSI rate from

13.7/1000 to 8.4/1000 catheter-days ($p = 0.02$).

CONCLUSION: CoNS and Enterobacteriaceae are the predominant pathogens in CLABSI among pediatric hematology-oncology patients. ALT is effective and showed no significant side effect. New disinfection practice and infection control measures can decrease CLABSI.

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