The aim of this study was to evaluate the effectiveness and safety of a new three-component ‘bundle’ for insertion and management of centrally inserted central catheters (CICCs), designed to minimize catheter-related bloodstream infections (CRBSIs) in critically ill children” Biasucci et al (2017).

Abstract:

INTRODUCTION: The aim of this study was to evaluate the effectiveness and safety of a new three-component ‘bundle’ for insertion and management of centrally inserted central catheters (CICCs), designed to minimize catheter-related bloodstream infections (CRBSIs) in critically ill children.

METHODS: Our ‘bundle’ has three components: insertion, management, and education. Insertion and management recommendations include: skin antisepsis with 2% chlorhexidine; maximal barrier precautions; ultrasound-guided venipuncture; tunneling of the catheter when a long indwelling time is expected; glue on the exit site; sutureless securement; use of transparent dressing; chlorhexidine sponge dressing on the 7th day; neutral displacement needle-free connectors. All CICCs were inserted by appropriately trained physicians proficient in a standardized simulation training program.

RESULTS: We compared CRBSI rate per 1000 catheters-days of CICCs inserted before adoption of our new bundle with that of CICCs inserted after implementation of the bundle. CICCs inserted after adoption of the bundle remained in place for a mean of 2.2 days longer than those inserted before. We found a drop in CRBSI rate to 10%, from 15 per 1000 catheters-days to 1.5.

CONCLUSIONS: Our data suggest that a bundle aimed at minimizing CR-BSI in critically ill children should incorporate four practices: (1) ultrasound guidance, which minimizes contamination by reducing the number of attempts and possible break-down of aseptic technique; (2) tunneling the catheter to obtain exit site in the infra-clavicular area with reduced bacterial colonization; (3) glue, which seals and protects the exit site; (4)

simulation-based education of the staff.

Reference:

Biasucci, D.G., Pittiruti, M., Taddei, A., Picconi, E., Pizza, A., Celentano, D., Piastra, M., Scoppettuolo, G. and Conti, G. (2017) Targeting zero catheter-related bloodstream infections in pediatric intensive care unit: a retrospective matched case-control study. The Journal of Vascular Access. November 8th. .

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