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Editorial

Catheter care bundle and feedback to prevent central line-associated bloodstream infections in pediatric patients

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Key message

- Intravascular catheter-related infection is an important cause of morbidity and mortality in children, and care bundles are effective and cost-saving in pediatric and neonatal patients.
- Providing regular feedbacks to critical care practitioners is helpful to maintain compliance to care bundle.
- Establishing a bundle policy (insertion and maintenance), monitoring compliance, and providing regular feedbacks are necessary for prevention of central line-associated bloodstream infections in pediatric patients.

Central line-associated bloodstream infections (CLABSIs) are the most common health care-associated infections in pediatric patients, leading to significant morbidity and mortality with additional costs.[1] CLABSIs are largely preventable when evidence-based guidelines are followed for catheter insertion and maintenance. Preventing CLABSIs is crucial for the safe care of critically ill patients.

Since vascular access is often limited in pediatric and neonatal patients, critical care patients are more dependent on central venous catheters for appropriate hydration, nutritional supply, and medication maintenance than adult patients. New devices or measures for CLABSI prevention and treatment in adults have not been adequately evaluated in children. As a result, recommendations for CLABSI management and prevention in children are largely based on data from adults.

An important strategy for CLABSI prevention is the use of care bundles for the insertion and maintenance of central venous catheters. Care bundles are structured packages of evidence-based practices aimed at improving the care process and patient outcomes when adhered to collectively and reliably.[1] These were proven effective at reducing CLABSIs in adult intensive care unit patients. Recent evidence has shown that care bundles are also effective and cost-saving at reducing CLABSIs in pediatric and neonatal intensive care units.[1,2] Despite the variation of bundle elements found in pediatric studies, central line insertion and maintenance bundles generally include a combination of interventions, such as maximal barrier precautions during central line insertion, skin cleansing with chlorhexidine or alcohol, appropriate hand hygiene, and prompt removal when the central line is no longer essential.[2,3] Along with a bundle policy, additional efforts to maintain compliance are recommended, such as the use of checklists, monitoring compliance, and feedback.[3]

In the current issue of *Clinical and Experimental Pediatrics*, Chaiyakulsil et al.[4] reported that implementation of a revised catheter care bundle with regular feedback decreased catheter-related bloodstream infections (CRBSIs) in pediatric patients. The catheter care bundle used in this study included the elements regarding catheter maintenance. The major components of their intervention were reinforcement of the care bundle and introduction of the feedback policy, which were performed with weekly rounding by a multidisciplinary vascular access team and direct feedback to general nurses on a daily basis.[4] This suggests that providing feedback to critical care practitioners successfully increased bundle compliance, reducing the CRBSI rate.

A survey study from US intensive care units showed that the CLABSI rate can be reduced by use of a bundle policy, monitoring compliance, and ≥95% compliance in daily clinical practice.[5] Methods of monitoring compliance and providing feedback vary widely among studies: frequency (weekly, monthly, quarterly, or 6 months), feedback information (CLABSI rate, utilization rate, or number of days without CLABSI), and how to provide feedback (staff break room, notice boards, distributing a newsletter, or hospital intranet).[6] Although it is unknown whether a central line insertion bundle was applied together with the maintenance bundle by Chaiyakulsil et al.,[4] recent studies have shown that addition of a maintenance bundle to an insertion bundle might more effectively prevent CLABSIs in children and infants than an insertion bundle alone.[7,8]

Establishing a bundle policy (insertion and maintenance), monitoring compliance, and providing feedback should be considered to prevent CLABSIs in pediatric patients.

Conflicts of interest

No potential conflict of interest relevant to this article was

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