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Abstract:

Placement of a central venous catheter (CVC) in the brachiocephalic vein (BCV) via the ultrasound (US)-guided supraclavicular approach was recently described in children. We aimed to determine the CVC maintenance-related complications at this site compared to the others (i.e., the femoral, the subclavian, and the jugular). We performed a retrospective data collection of prospectively registered data on CVC in young children hospitalized in a pediatric intensive care unit (PICU) during a 4-year period (May 2011 to May 2015).

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The primary outcome was a composite of central line-associated bloodstream infection (CLABSI) and deep-vein thrombosis (CLAT) according to the CVC site. Two hundred and twenty-five children, with respective age and weight of 7.1 (1.3-40.1) months and 7.7 (3.6-16) kg, required 257 CVCs, including 147 (57.2%) inserted in the BCV. The risk of the primary outcome was lower in the BCV than in the other sites (5.4 vs 16.4%; OR: 0.29; 95% CI: 0.12-0.70; $p = 0.006$). CLABSI incidence density rate (2.8 vs 8.96 per 1000 catheter days, $p < 0.001$) and CLAT incidence rate (2.7 vs 10%, $p = 0.016$) were also lower at this site.

CONCLUSION: BCV catheterization via the US-guided supraclavicular approach may decrease CVC maintenance-related complications in children hospitalized in a PICU. What is Known: • Placement of a central venous catheter (CVC) in children is associated with mechanical risks during insertion, and with infectious and thrombotic complications during its maintenance. • Ultrasound (US)-guided supraclavicular catheterization of the

brachiocephalic vein (BCV) is feasible in infants and children. What is New: • This observational study suggested that BCV catheterization via the US-guided supraclavicular approach was associated with a lower risk of CVC insertion and maintenance-related complications, compared with the other catheterization sites.

Abstract:

Habas, F., Baleine, J., Milési, C., Combes, C., Didelot, M.N., Romano-Bertrand, S., Grau, D., Parer, S., Baud, C. and Cambonie, G. (2018) Supraclavicular catheterization of the brachiocephalic vein: a way to prevent or reduce catheter maintenance-related complications in children. *European Journal of Pediatrics*. January 10th. .

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