

Our trial demonstrates that critically ill neurologic patients who require a central venous catheter have significantly lower odds of ultrasound-diagnosed CRLVT with placement of a CICVC as compared to a PICC” Fletcher et al (2016).

Abstract:

BACKGROUND: Observational studies suggest peripherally inserted central venous catheters (PICCs) are associated with a high risk of catheter-related large vein thrombosis (CRLVT) in critically ill neurologic patients. We evaluated the difference in thrombosis risk between PICCs and centrally inserted central venous catheters (CICVCs).

METHODS: We conducted a pragmatic, randomized controlled trial of critically ill adult neurologic patients admitted to neurological and trauma critical care units at two level I trauma centers. Patients were randomized to receive either a PICC or CICVC and undergo active surveillance for CRLVT or death within 15 days of catheter placement.

RESULTS: In total, 39 subjects received a PICC and 41 received a CICVC between February 2012 and July 2015. The trial was stopped after enrollment of 80 subjects due to feasibility affected by slow enrollment and funding. In the primary intention-to-treat analysis, 17 (43.6 %) subjects that received a PICC compared to 9 (22.0 %) that received a CICVC experienced the composite of CRLVT or death, with a risk difference of 21.6 % (95 % CI 1.57-41.71 %). Adjusted common odds ratio of CRLVT/death was significantly higher among subjects randomized to receive a PICC (adjusted OR 3.08; 95 % CI 1.1-8.65). The higher adjusted odds ratio was driven by risk of CRLVT, which was higher in those randomized to PICC compared to CICVC (adjusted OR 4.66; 95 % CI 1.3-16.76) due to increased large vein thrombosis without a reduction in proximal deep venous thrombosis.

CONCLUSIONS: Our trial demonstrates that critically ill neurologic patients who require a central venous catheter have significantly lower odds of ultrasound-diagnosed CRLVT with placement of a CICVC as compared to a PICC.

Reference:

Fletcher, J.J., Wilson, T.J., Rajajee, V., Stetler, W.R. Jr., Jacobs, T.L., Sheehan, K.M. and Brown, D.L. (2016) A Randomized Trial of Central Venous Catheter Type and Thrombosis in Critically Ill Neurologic Patients. Neurocritical Care. February 2nd. .

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