



Dynamic ultrasound-based visualization of microbubbles in the right atrium is a highly accurate method to detect percutaneous implantation of large-lumen, tunneled, central venous catheters without the need for fluoroscopic guidance technology” Passos et al (2018).

Abstract:

BACKGROUND: In patients with end-stage renal disease, the use of cuffed, tunneled dialysis catheters for hemodialysis has become integral to treatment plans. Fluoroscopy is a widely accepted method for the insertion and positioning of cuffed dialysis catheters, because it is easy to use, accurate and reliable, and has a relatively low incidence of complications. The purpose of our study was to evaluate the feasibility of tunneled hemodialysis catheter placement without the use of fluoroscopy but with a dynamic ultrasound-imaging-based guided technique.

METHODS: From January 2015 to December 2017, we performed an observational prospective cohort study of 56 patients with end-stage renal disease who required tunneled dialysis catheter placement.

RESULTS: The overall success rate for ultrasound-guided central access was 100%, with a mean number of 1.16 (± 0.4) attempts per patient. There were no incidences of guide wire

coiling/kinking, carotid puncture, pneumothorax, or catheter malfunction. Catheter flow during dialysis was 286 (\pm 38) mL/min. The total number of catheter days was 7451, with a mean of 133 days and a range of 46-322 days. Life table analysis revealed primary patency rates of 100%, 96%, and 53% at 30, 60, and 120 days, respectively.

CONCLUSION: Dynamic ultrasound-based visualization of microbubbles in the right atrium is a highly accurate method to detect percutaneous implantation of large-lumen, tunneled, central venous catheters without the need for fluoroscopic guidance technology. Future research should further develop and confirm these initial findings.

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Reference:

Passos, R.D.H., Ribeiro, M., da Conceição, L.F.M.R., Ramos, J.G.R., Ribeiro, J.C., Batista, P.B.P., Dutra, M.M.D. and Rouby, J.J. (2018) Agitated saline bubble-enhanced ultrasound for the positioning of cuffed, tunneled dialysis catheters in patients with end-stage renal disease. *The Journal of Vascular Access*. October 25th. .

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