



3mm Diameter Criteria of Distal Cephalic Vein has Limited Value of Prediction of Working of Radiocephalic Av Fistula

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Introduction

Arteriovenous fistula (AVF) is preferred vascular access for hemodialysis 1,2 but has primary failure in 20–60%. 3 Studying predictors of AVF failure would help plan appropriate management. There is good evidence that pre-operative evaluation with duplex ultrasound (DUS) improves outcomes of fistula surgery. 4,5,6 We studied value of distal cephalic vein diameter for prediction of functional dialysis use (FDU) of radiocephalic arteriovenous fistula.

Material and Method

The retrospective, single-center study, based on patient record analysis of 108 radiocephalic arteriovenous fistula, which were created between January 2019 and December 2021. 103 patients met the inclusion criteria. The operating surgeon in all patients performed preoperative Doppler ultrasound. All patients were scheduled for a visit 2 months after surgery for assessment for patency, maturation, and complications. SPSS version 22 (Chicago, USA) was used for data entry. FDU was defined as 6 consecutive dialysis sessions with 2 needles on the AV fistula. Contribution of cephalic vein diameter to predict FDU was assessed with logistic regression. Diagnostic accuracy was assessed with sensitivity, specificity, positive and negative predictive values.

Results

103 radiocephalic fistulas AVF operations were analysed. Gender had no significant difference in FDU in RCAVF (0.72, 95% CI 0.72 – 0.84 vs. 0.84, 95% CI 0.81–0.89; $p < .0001$). Artery and vein diameter did not improve the model for RCAVF. Vein diameter as categorical variable did not improved the model for RCAVF in predicting FDU. Diameter cut off of distal cephalic vein ≥ 3 mm has 90% sensitivity, 82% PPV, 9% specificity, and 27% NPV.

Conclusion

Diameter is a poor predictor of FDU of AVF. Distal cephalic vein diameter measurements add no diagnostic value for RCAVF. Poor specificity suggests a diameter of distal cephalic vein under 3 mm at the wrist should

not preclude AVF formation.

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