Accuracy of peak systolic velocity of radial as predictor of maturation of radiocephalic arteriovenous fistula in Cipto Mangunkusumo

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Abstrak

Introduction: Hemodialysis is an essential treatment in patients with stage 5 chronic kidney disease (CKD) or End-Stage Renal Disease (ESRD). The maturity of arteriovenous fistulas determines the success of hemodialysis. FAV maturity depends on preoperative preparation. The study aims to examine the preoperative and intraoperative peak systolic velocity (PSV) of the radial artery as a predictor of the successful maturation of the radiocephalic FAV. Method: This study used an analytic cross-sectional design to obtain the relationship of FAV maturation with preoperative and intraoperative PSV. Subjects were those who will undergo radiocephalic FAV surgery with preoperative ultrasound mapping. Shortly after anastomosis, PSV was measured. After 6 weeks, FAV was assessed for its maturity. Results: As many as 71 patients were undergone radiocephalic FAV surgery and followed for six weeks. The mean preoperative PSV of mature fistula was significantly higher than immature (54.6 ± 11.7 cm/s and 26.7 ± 7.7 cm/s; p <0.001). The mean intraoperative PSV of mature fistula was significantly higher than immature (57.9 + 12.6 cm/s and 27.1 + 8.1 cm/s; p <0.001). The mean PSV difference in mature fistulas was significantly higher than immature (3 cm/s and 0 cm/s; p <0.001). Preoperative PSV with a cut-off of 40 cm/s, intraoperative with a cut-off of 2 cm/s, and a difference of PSV with a cut-off of 42 cm/s all had 92.9% accuracy as a predictor of FAV maturation compared to “rule of 6” as a reference standard.