

자가혈관을 이용한 요골동맥-상부정맥간 동정맥루 형성술에서 수술 중 혈류속도를 결정하는 요인

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최명진, 김좌경, 김성균, 김형직, 윤종우, 서장원, 구자룡, 조아진
이영기, 노정우, 김수진, 오지은, 신동호, 이정환, 류지원, 송영림

Determinants of Intraoperative Blood Flow of Autologous Radiocephalic Arteriovenous Fistula at the Time of Fistula Construction

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Background: The native radiocephalic arteriovenous fistula (RCAVF) at wrist is recommended first choice of hemodialysis access, but 20-60 % of RCAVF fail to mature adequately to perform dialysis therapy. Established risk factor for access maturation failure include arterial diameter, venous diameter, presence of diabetes, and race. Recently, several studies reported that intraoperative blood flow is associated with early failure of RCAVF. This study was designed to determine the predictor for intraoperative blood flow measurements.

Methods: From March 2006 to November 2013, 103 consecutive patients who performed autologous RCAVF (radiocephalic arteriovenous fistula) creation were enrolled. Before surgery, all patients underwent arm venography for vascular mapping and ankle-brachial index (ABI) measurement. Intraoperative blood flow was measured within 5 to 10 minutes of completion of the vascular anastomoses.

Results: Of the 103 patients, the mean age was 61.7±12.6 years and 61.2% of patients were male. Seventy-one (68.9%) patients had diabetes and 93 (90.3%) patients had hypertension. Mean arterial and venous diameter were 2.85±0.78 and 2.92±0.78 mm, respectively. Mean intraoperative flow was 307.9±150.9 ml/min. Intraoperative blood flow showed a significantly negative association with baPWV and a positive association with artery size and vein size in the univariate analysis. In the multivariate analysis, intraoperative blood flow was independently associated with BaPWV ($\beta=0.070$, $p=0.026$) as well as artery size ($\beta=67.614$, $p<0.001$) and venous diameter ($\beta=46.139$, $p=0.013$).

Conclusion: BaPWV is an important determinant of intraoperative blood flow in autologous RCAVF. Preoperative screening by means of BaPWV, in addition to vascular mapping, may help to detect a high risk patients for early AVF maturation failure.

Key Words: 동정맥루, 수술 중 혈류속도, 맥파속도

AVF, Intraoperative blood flow, Pulse wave velocity