**Abstract**

**Intra-Operative Cephalic Vein Distensibility Can Predict Maturation of Radiocephalic Arteriovenous Fistula**

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**Introduction:**
Recently, there have been many studies about risk factors of maturation failure. However, there is no valuable predictor and no study regarding the relationship between intra-operative venous distensibility and fistula maturation. The aim of this study is to investigate the predictive value of the intra-operative cephalic vein distensibility on maturation of radiocephalic arteriovenous fistula (RCAVF).

**Methods:**
A total of 77 subjects, who underwent RCAVF in our hospital from November 2009 through June 2011, were reviewed and analyzed, retrospectively. Diameters of the radial artery, cephalic vein, and maximally distended cephalic vein were checked intra-operatively. Cephalic vein distensibility was measured by the ratio of intra-operative maximal distensible diameter to the natural diameter of cephalic vein. Failure to mature is defined as the inability to use the AVF for hemodialysis within 6 months after the surgery or require radiologic intervention or surgical correction for the maturation.

**Results:**
The maturation rate was 77.98%. In univariate analysis, there were significant differences in the intra-operative maximal cephalic vein diameter (4.69 ± 0.70 mm vs 4.08 ± 0.59 mm, \( P = 0.002 \)), the intra-operative cephalic vein distensibility (2.09 ± 0.31 vs 1.80 ± 0.18, \( P = 0.000 \)), post-operative cephalic vein flow (1091.88 ± 535.36 ml/min vs 644.81 ± 448.67 ml/min, \( P = 0.003 \)) between matured and non-matured RCAVFs. The intra-operative cephalic vein distensibility (Odds ratio: 0.065, 95% CI: 0.005-0.842, \( P = 0.036 \)) was the only significant risk factor for the maturation failure in a multivariate analysis.

**Discussion & Conclusions:**
These results suggest that the intra-operative cephalic vein distensibility is a predictor of RCAVF maturation. Intra-operative measurement of venous distensibility may be helpful in choosing the most suitable native AVF type for each individual patient, which possibly improves the native AVF maturation.