

Palindrome 형태와 step-tip 형태의 터널식 혈액투석 도관의 비교

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Comparison of the Palindrome Versus Step Tip Tunneled Hemodialysis Catheter: Preliminary Report

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Background: The Palindrome catheter is recently developed vascular access for hemodialysis, designed as unique symmetric tip. The aim of this study was to compare the function and complications of the Palindrome catheter with those of traditional step-tip hemodialysis catheter.

Methods: This randomized, prospective trial assigned 12 patients to the Palindrome catheter (Covidien, Mansfield, Massachusetts) group, and assigned 17 patients to step-tip catheter (Medcomp, Harleysville, Pennsylvania) group from December 2009 to March 2010. All catheters were placed by interventional nephrologist using ultrasound and fluoroscopic guidance. Procedure time and initial complications were recorded. The effective catheter flow rates (QbEff) and recirculation rate were examined at baseline and one month using ultrasonic dilution at various pump speeds (Qb, ml/min). The Kt/V of urea was measured using Fresius Medical Care 5008S machine at Qb 300 ml/min, and catheter dysfunction was defined as arterial pressure was lower than -250 mmHg at Qb 300 ml/min.

Results: The procedure time was 21 ± 4 min in Palindrome group, and was 24 ± 4 min in Step-tip group ($p=0.117$). No procedure related complication was present in both groups, but early catheter dysfunction (< 1 week) requiring re-position was tended to be more frequent in step-tip group (8% in Palindrome vs. 41% in step-tip, $p=0.093$). Despite of catheter re-position, four patients (one in palindrome vs. three in step-tip, $p=0.622$) underwent reversal of arterial and venous flow. Adjusted mean QbEff at Qb 200, 300, 400 was 232, 337 and 428 ml/min in Palindrome group, and was 226, 330, 427 ml/min in step-tip group ($p>0.05$). The Palindrome group showed 0, 1.1 and 1.3% recirculation, and step-tip group revealed 1.7, 4.1 and 4.1% at Qb 200, 300, 400 ($p>0.05$). When four patients with reversed flow were compared with non-reversed patients in the corresponding group, recirculation rate of reversed patient was not different in the Palindrome group but reversed patients of step-tip group had higher recirculation rate than non-reversed patients. The mean Kt/V of urea was 1.37 in the Palindrome group, and it was comparable with 1.60 of step-tip group ($p=0.470$).

Conclusion: The Palindrome hemodialysis catheter was less likely to need early catheter re-position than step-tip catheters, and both catheters were useful for the effective hemodialysis.

Key Words: Palindrome 도관, step-tip 도관, 혈액투석

Palindrome catheter, Step-tip catheter, Hemodialysis