

혈관 접근로 감시 방법으로 초음파 희석법에 의한 혈류량 측정의 임상적 효과

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Clinical Efficacy of Intra-Access Flow Measured by Ultrasound Dilution for Vascular Access Surveillance

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Background: Prospective surveillance of AV grafts and fistulae for hemodynamically significant stenosis, when combined with correction, improves patency and decreases the incidence of thrombosis. The aim of this study was to investigate the clinical efficacy of intra-access flow measured by ultrasound dilution for vascular access surveillance.

Patients and Methods: Prospective monthly measurement of intra-access flow was done in 98 chronic hemodialysis patients in Seoul St. Mary's hospital from January to December, 2010. The indication for the intervention was defined as serial decrease in intra-access flow by more than 25% as well as clinical findings suggesting access stenosis (surveillance group). The results of intervention were compared to those performed from January to December, 2009, when the indication for the intervention was defined only as abnormal clinical findings (control group).

Results: In the 83 patients in control group and 98 patients in surveillance group, the incidence of intervention per 100 person-months was 5.1 for control group and 5.2 for surveillance group ($p=0.905$). The incidence of thrombosis was significantly decreased in surveillance group (1.3 per 100 person-months) compared to control group (2.7 per 100 person-months, $p=0.016$). The intervention failure rate was also significantly decreased in surveillance group (6.7%) compared to control group (23.2%, $p=0.017$). The sensitivity of intra-access flow measured by ultrasound dilution for vascular access surveillance was 92.4% and the positive predictive value was 96%. The mean intra-access flow was 565 ± 322 ml/min before intervention and 833 ± 447 ml/min after intervention on the same day ($p=0.000$).

Conclusion: Intra-access flow measured by ultrasound dilution is a sensitive surveillance method to detect subclinical vascular access stenosis, which leads to decreasing thrombosis rate and intervention failure rate.

Key Words: 혈관접근로감시, 초음파희석법, 혈관접근로혈류량

Intra-Access Flow, Ultrasound dilution, Surveillance