

## 투석을 시작하는 노인 환자에서 혈액 투석 접근로와 임상경과

연세대학교 의과대학 내과학교실<sup>1</sup>, 경북대학교 의과대학 내과학교실<sup>2</sup>, 서울대학교 의과대학 내과학교실<sup>3</sup>  
가톨릭대학교 의과대학 내과학교실<sup>4</sup>, 전남대학교 의과대학 내과학교실<sup>5</sup>

박경숙<sup>1</sup>, 기연경<sup>1</sup>, 윤창연<sup>1</sup>, 한인미<sup>1</sup>, 한승규<sup>1</sup>, 권영은<sup>1</sup>, 이미정<sup>1</sup>, 박정택<sup>1</sup>  
한승혁<sup>1</sup>, 유태현<sup>1</sup>, 김용림<sup>2</sup>, 김연수<sup>3</sup>, 양철우<sup>4</sup>, 김남호<sup>5</sup>, 강신욱<sup>1</sup>

### Association between Clinical Outcomes and Vascular Access in Elderly End-stage Renal Disease Patients Initiating Hemodialysis

Kyoung Sook Park<sup>1</sup>, Youn Kyung Kee<sup>1</sup>, Chang-Yun Yoon<sup>1</sup>, In Mee Han<sup>1</sup>, Seung Gyu Han<sup>1</sup>  
Young Eun Kwon<sup>1</sup>, Mi Jung Lee<sup>1</sup>, Jung Tak Park<sup>1</sup>, Seung Hyeok Han<sup>1</sup>, Tae-Hyun Yoo<sup>1</sup>  
Yong-Lim Kim<sup>2</sup>, Yon Su Kim<sup>3</sup>, Chul Woo Yang<sup>4</sup>, Nam-Ho Kim<sup>5</sup>, Shin-Wook Kang<sup>1</sup>

Department of Internal Medicine<sup>1</sup>, Yonsei University College of Medicine  
Department of Internal Medicine<sup>2</sup>, Kyungpook National University School of Medicine  
Department of Internal Medicine<sup>3</sup>, Seoul National University College of Medicine  
Department of Internal Medicine<sup>4</sup>, Catholic University of Korea College of Medicine  
Department of Internal Medicine<sup>5</sup>, Chonnam National University Medical School

**Backgrounds:** Although planned creation of arteriovenous fistula (AVF) is best strategy in end-stage renal disease (ESRD) patients at dialysis initiation, elderly patients are compelled to use other vascular access due to underlying vascular problems and maturation failure. Recent study showed that patients with arteriovenous graft (AVG) had comparable outcomes those with AVF, despite of still high proportion of use of hemodialysis catheter (HC) in elderly incident dialysis population. Therefore, we investigated the association of vascular access type and clinical outcome in elderly HD patients.

**Methods:** A prospective cohort of incident hemodialysis (HD) patients from 36 dialysis centers of the Clinical Research Center for ESRD in Korea between August 1, 2009 and December 31, 2013 was used. Patients 65 or older were included for analysis. Study subjects were classified into three groups according to type of vascular access at the time of dialysis initiation. Since the hazard ratio (HR) according to type of vascular access was not proportional, time-dependent Cox regression analysis was performed to determine all-cause mortality.

**Results:** Of the 511 enrolled patients, 303 (59.3%) were male and the mean age was 72.3±5.4 years. Dialysis was initiated with AVF, AVG, or HC in 86 (16.8%), 36 (7.0%), and 389 (76.1%) patients, respectively. During a median 12 month follow up, all-cause death events were observed 12 (14.0%) in AVF, 13 (36.1%) in AVG, and 107 (27.5%) in HC. In univariate time-dependent Cox regression analysis, AVG (HR=1.775, 95% confidence interval [CI]=1.326-2.375, p<0.001) and HC (HR=1.387, 95% CI=1.107-1.737, p=0.004) were significantly associated with increased risk of all-cause mortality compared to AVF. Furthermore, multivariate analysis showed that AVG (AVF as reference, HR=1.719, 95% CI=1.274-2.319, p<0.001) and HC (HR=1.304, 95% CI=1.036-1.640, p=0.023) were still significant risk factors for all-cause mortality even after adjustment of age, sex, diabetes mellitus, previous cardiovascular disease, timing of referral to nephrologist, hemoglobin, serum albumin, and C-reactive protein levels.

**Conclusion:** Patients with successful AVF are associated with better survival rates compared to those with AVG and HC. And AVG is not superior to HC in clinical outcomes in elderly HD population. Although the elderly ESRD patients have more vascular problems for delayed maturation, AVF is the best strategy for improvement of patient mortality in incident HD.

**Key Words:** 혈액투석, 동정맥루, 노인  
Hemodialysis, Arteriovenous fistula, Elderly