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Current status and outcomes of vascular access in elderly hemodialysis patients in Korea: Analysis based on a Health Insurance Database

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Objectives: Controversies exist whether arteriovenous fistula (AVF) should be placed first in elderly patients; however, current guidelines still did not present specific recommendations. Thus, this study was conducted to analyze the all-cause mortality and primary patency associated with vascular access (VA) types according to age groups.

Methods: This retrospective, observational study investigated the Korean insurance claims data of chronic kidney disease patients who commenced hemodialysis between January 2008 and December 2016. We investigated all-cause mortality associated with the initial VA in incident hemodialysis patients and primary patency between AVF and arteriovenous graft (AVG) in the > 65 years age group.

Results: A total of 87,536 patients were analyzed. The proportion of patients with tunneled dialysis catheter (TDC) placed first as VA increased from 18.3% in 2008 to 52.2% in 2016. Incident hemodialysis patients with AVG or TDC placed as first VA had a significantly higher risk for mortality than those with AVF, except in patients aged over 85 years, which presented no significant difference in mortality between the AVF and AVG group (Table 1). In the analysis for patency of the initial arteriovenous access, AVG had significantly poorer primary patency than AVF, while the hazard ratios were gradually attenuated in the older age groups (Table 2).

Conclusions: AVF had better patency than AVG in all age groups, while the benefit of AVF decreased in older age groups. The mortality rate between AVF and AVG was not significant in patients over 85 years. Therefore, the "patient-first" approach should be emphasized rather than the "fistula-first" approach in access creation in incident hemodialysis patients over 85 years.

Table 1. Cox proportional hazard analysis for patient survival according to age groups after stratification for sex

Age group	Hazard ratio	<i>p</i> value	95% CI
Young age			
AVG	1.54	<0.0001	1.46–1.63
Young old			
AVG	1.40	<0.0001	1.33–1.49
Middle old			
AVG	1.32	<0.0001	1.24–1.41
Oldest old			
AVG	1.12	0.196	0.94–1.34

Table 2. Cox proportional hazard analysis for primary patency of access according to age groups after stratification for sex

Age group	Hazard ratio	<i>p</i> value	95% CI
Young age			
AVG	2.00	<0.0001	1.94–2.06
Young old			
AVG	1.60	<0.0001	1.55–1.67
Middle old			
AVG	1.44	<0.0001	1.38–1.50
Oldest old			
AVG	1.38	<0.0001	1.23–1.56