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Risk of Chronic Kidney Disease in Orthostatic Hypotension: A Community-based Cohort Study

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Objectives : Though patients with chronic kidney disease (CKD) also show symptoms associated with orthostatic hypotension (OH), not much is known about OH in these patients. Accordingly, in this study, we analyzed the prevalence and risk of orthostatic hypotension according to renal function decline.
Methods : We conducted a cohort study using data from the Korean Genome and Epidemiology Study (KoGES). We defined orthostatic hypotension as postural drop in blood pressure (systolic blood pressure ≥ 20 mm Hg or diastolic blood pressure ≥ 10 mm Hg). The development of OH at baseline and follow-up after 2 years was evaluated according to the eGFR group: high (≥ 90 ml/min/1.73m^2), moderate (60-90 ml/min/1.73m^2), low (< 60 ml/min/1.73m^2).
Results : After excluding participants with well-known risk factors for OH, 9597 participants were enrolled. We examined the prevalence of baseline OH, OH in year 2 follow-up, and maintenance of OH through baseline to year 2 follow-up in each group, respectively. The low eGFR group showed the highest prevalence of baseline and year 2 OH (p=0.024 and 0.002). Regarding the comparison of each blood pressure metric, the low eGFR group showed the highest decline in systolic blood pressure at baseline as well as follow-up. Adjusted logistic regression analysis demonstrated that the low eGFR group had 3.5 times higher the odds ratio for OH to occur in subgroup under the age of 50 (p=0.035). In addition, it was confirmed that the high and moderate eGFR groups undergoing a low sodium diet showed a higher prevalence of OH (High eGFR group: p=0.035, Moderate eGFR group: p=0.025), similar to the overall group analysis (p=0.001).
Conclusions : The low eGFR group exhibited a higher baseline prevalence of OH and a greater risk of developing OH in 2 years. It was also found that low-sodium diet was related to the occurrence of OH.

Table 1.jpg

	Total	eGFR ≥ 90	60 ≤ eGFR < 90	eGFR < 60	p
Baseline OH	3922 (40.9%)	2734 (40.5%)	1136 (41.2%)	52 (54.2%)	0.024
Follow-up OH	3166 (39.0%)	2262 (39.4%)	862 (37.3%)	42 (56.8%)	0.002
Persistent OH	1565 (19.3%)	1114 (19.4%)	429 (18.6%)	22 (29.7%)	0.05

Table 1.jpg

	Unadjusted			*Adjusted		
	Odds ratio	95% CI	p	Odds ratio	95% CI	p
eGFR ≥ 90	1 (reference)			1 (reference)		
60 ≤ eGFR < 90	0.7	0.6-0.8	<0.001	0.8	0.7-1.0	0.025
eGFR < 60	4.2	1.4-14.1	0.011	3.5	1.1-12.3	0.035