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Baseline renal function and the decline of health-related quality of life in chronic kidney disease: form the KNOW-CKD study

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Objectives: Health-related quality of life (HR-QOL) is an important predictor of renal function decline and high mortality in chronic kidney disease (CKD). Although several risk factors for low HR-QOL are known, the determinant of future HR-QOL decline are uncertain. We hypothesized that low renal function might be a risk factor for HR-QOL decline. The aim of this study is to verify the relationship between baseline renal function and the decline of HR-QOL in a predialysis CKD cohort.

Methods: We analyzed 953 patients from KNOW-CKD cohort who assessed HR-QOL by physical component summary (PCS) and mental component summary (MCS) of the SF-36 questionnaire at baseline and 5 years later. Overall HR-QOL was defined as the sum of PCS and MCS. A decline in HR-QOL was defined as a decrease of 10% or more in overall HR-QOL at 5 years. Participants were divided into estimated glomerular filtration rate (eGFR) categories (<30, 30-44, 45-60, ≥60 mL/min/1.73 m²).

Results: After 5 years, 271 (28.4) patients developed the decline of HR-QOL. The incidence rates were higher in the lower eGFR groups (P<0.001). In multivariate logistic regression analysis, lower eGFR were associated with HR-QOL decline. The adjusted odds ratio for HR-QOL decline was 3.04 (1.83-5.06), 1.97 (1.26-3.07) and 1.23 (0.75-2.02) in eGFR (ml/min/1.73m²) categories of <30, 30-44 and 45-59 compared to ≥60.

Conclusions: Low baseline renal function was independent and significant risk factor for HR-QOL decline in predialysis CKD. These results suggest the importance of interventions to break the vicious cycle of HR-QOL decline and renal function decline.

Table. Multivariate-adjusted ORs (95% CI) for HR-QOL decline according to eGFR categories

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eGFR	Model 1		Model 2		Model 3	
	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)	P
≥ 60	reference		reference		reference	
45-59	1.39 (0.88-2.21)	0.162	1.21 (0.74-1.99)	0.444	1.23 (0.75-2.02)	0.414
30-44	2.49 (1.67-3.71)	<0.001	1.93 (1.24-3.00)	0.004	1.97 (1.26-3.07)	0.003
< 30	4.63 (3.15-6.80)	<0.001	2.95 (1.79-4.89)	<0.001	3.04 (1.83-5.06)	<0.001
P for trend	<0.001		<0.001		<0.001	
Model 1: unadjusted Model 2: adjusted for age, sex, body mass index, economic status, education level, systolic blood pressure, diabetes, dyslipidemia, cardiovascular disease, urine protein to creatinine ratio, C-reactive protein, hemoglobin and albumin Model 3: adjusted for model 2 + smoking status, alcohol intake and physical activity						