Supplementary Information

Chronic kidney disease defined by 24-hour urinary albumin and silent brain infarction in community-dwelling older adults

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Supplementary Table S1. Odds ratios for silent brain infarction (SBI) according to microalbuminuria and eGFR levels

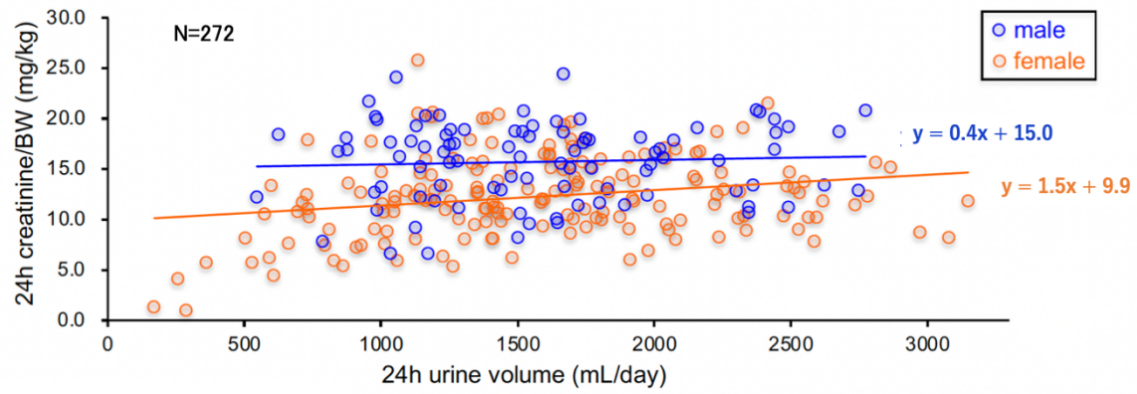
	Number of SBI+ (%)	Model 1			Model 2		
		OR	95% CI	P	OR	95% CI	P
Microalbuminuria levels (mg/day) [a]							
Non-microalbuminuria, n=266	17 (6.4)	1.00	reference		1.00	reference	
Microalbuminuria, n=27	8 (29.6)	7.11	2.59-19.55	<0.001	5.47	1.90-15.72	0.002
eGFR levels (mL/min/1.73 m^2) [b]							
≥ 60, n=235	19 (8.1)	1.00	reference		1.00	reference	
< 60, n=58	6 (10.3)	1.04	0.39-2.80	0.94	0.89	0.33-2.42	0.81

Model 1: adjusted for age and sex. Model 2: further adjusted for hypertension. Abbreviations: SBI, silent brain infarction; OR, odds ratio; CI, confidence interval; eGFR, estimated glomerular filtration rate.

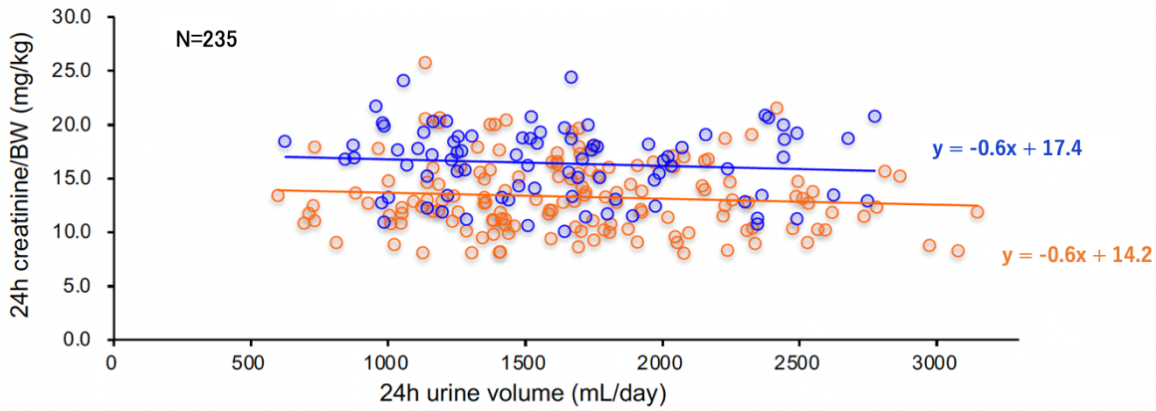
[a] Microalbuminuria was defined as persistent urinary albumin excretion between 30 and 299 mg/day. Three participants with macroalbuminuria (≥ 300 mg/day) were excluded from this analysis.

[b] For consistency, the same three participants with macroalbuminuria (≥300 mg/day) were also excluded from the eGFR analysis.

Panel A



Panel B



Supplementary Figure S1. Preliminary validation of quality control thresholds for 24-hour urine data using health checkup participants (2015–2018).

This figure presents a preliminary validation analysis using data from 272 community-dwelling adults who underwent health checkups between 2015 and 2018, a subset of the study period, prior to the final participant selection for the primary analysis. To ensure the reliability of 24-h urine measurements, both urinary creatinine excretion and urine volume were evaluated.

Panel A: distribution of all 272 participants by daily urinary creatinine excretion (adjusted for body weight) and urine volume. Participants with creatinine excretion < 9.7 mg/kg/day for males or < 7.8 mg/kg/day for females, or with urine volume < 1,000 mL/day, were considered to have incomplete urine collections.

Panel B: relationship between creatinine excretion and urine volume among the 235 participants who met quality control criteria. The near-zero regression slopes (males: y = –0.6x + 17.4; females: y = –0.6x + 14.2) indicate that, after exclusion of incomplete samples, creatinine excretion is largely independent of urine volume.

These thresholds led to the exclusion of 37 participants (13.6%) and were based on physiologically plausible ranges observed in Japanese adults. The criteria are consistent with quality control standards used in previous urine collection studies.

For the present cross-sectional analysis, we focused on the 2015–2018 dataset. Although additional data from 2019 are available, they will be used in future research aimed at investigating home-based urine collection adherence and gender-related variability, which require distinct analytical frameworks.