Kidney function, albuminuria, and all-cause mortality in the REGARDS (Reasons for Geographic and Racial Differences in Stroke) study.

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Abstract
BACKGROUND: Chronic kidney disease and albuminuria are associated with increased risk of all-cause mortality.

STUDY DESIGN: Prospective observational cohort study.

SETTING & PARTICIPANTS: 17,393 participants (mean age, 64.3 ± 9.6 years) in the REGARDS (Reasons for Geographic and Racial Differences in Stroke) Study.

PREDICTOR: Estimated glomerular filtration rate (eGFR), urinary albumin-creatinine ratio (ACR).

OUTCOME: All-cause mortality (710 deaths); median duration of follow-up, 3.6 years.

MEASUREMENTS & ANALYSIS: Categories of eGFR (90 to <120, 60 to <90, 45 to <60, 30 to <45, and 15 to <30 mL/min/1.73 m(2)) and urinary ACR (<10 mg/g or normal, 10 to <30 mg/g or high normal, 30 to 300 mg/g or high, and >300 mg/g or very high). Cox proportional hazards models were adjusted for demographic factors, cardiovascular covariates, and hemoglobin level.

RESULTS: The background all-cause mortality rate for participants with normal ACR, eGFR of 90 to <120 mL/min/1.73 m(2), and no coronary
heart disease was 4.3 deaths/1,000 person-years. Higher ACR was associated with an increased multivariable-adjusted HR for all-cause mortality within each eGFR category. Decreased eGFR was associated with a higher adjusted HR for all-cause mortality for participants with high-normal (P = 0.01) and high (P < 0.001) ACRs, but not those with normal or very high ACRs.

**LIMITATIONS:** Only 1 laboratory assessment for serum creatinine and ACR was available.

**CONCLUSIONS:** Increased albuminuria was an independent risk factor for all-cause mortality. Decreased eGFR was associated with increased mortality risk in those with high-normal and high ACRs. The mortality rate was low in the normal-ACR group and increased in the very-high-ACR group, but did not vary with eGFR in these groups.