



COMMENT ON WARREN ET AL.

Diabetes and Trajectories of Estimated Glomerular Filtration Rate: A Prospective Cohort Analysis of the Atherosclerosis Risk in Communities Study. *Diabetes Care* 2018;41:1646–1653

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In the study by Warren et al. (1), the authors reported on long-term kidney disease trajectories in persons with and without diabetes from four U.S. communities. They concluded that kidney function in those with diabetes declined almost twice as rapidly as it did in those without diabetes. This was a large-scale, well-conducted, prospective clinical cohort analysis including 15,517 participants at four visits, lasting over 26 years. The study provided precious clinical data on changes in renal function in patients with diabetes over many years. However, we would like to discuss an issue related to the deterioration rate of kidney function in subjects with different estimated glomerular filtration rate (eGFR) values.

In the study by Warren et al. (1), the mean annual decline in eGFR was more rapid among those with diagnosed diabetes (-2.9 mL/min/1.73 m²/year) compared with those without diabetes at baseline (-1.6 mL/min/1.73 m²/year). The decline was also faster among those with undiagnosed diabetes (-2.1 mL/min/1.73 m²/year) compared with those without diabetes. Similar findings were reported by Hemmelgarn et al. (2), who demonstrated that subjects with diabetes had a greater decline in eGFR compared with patients without diabetes.

Several studies have reported that the rate of GFR decline can vary according to kidney function status at baseline. Hemmelgarn et al. (2) analyzed a community-based cohort study with a median follow-up period of 2.0 years. They found that subjects with a study mean eGFR <30 mL/min/1.73 m² experienced the greatest decline in eGFR in subjects with diabetes. Imai et al. (3) demonstrated that the rate of GFR decline was significantly higher in participants with an initial GFR <50 mL/min/1.73 m² for those younger than 70 years of age and in participants with an initial GFR <40 mL/min/1.73 m² for those aged 70–79 years (3). They concluded that lower GFR and proteinuria were significant risk factors in faster decline of GFR. Hou et al. (4) deliberated on the changes in renal function in patients without diabetes who had advanced renal insufficiency. The results showed that the number of patients that attained doubling of the serum creatinine level, end-stage renal disease, or death was higher among patients with serum creatinine levels 3.1–5.0 mg/dL than among patients with serum creatinine levels 1.5–3.0 mg/dL. The research indicated that renal function deteriorated more rapidly in those with worse renal function at baseline. However, the studies mentioned above either have a shorter follow-up duration (2) or lack

data specific to diabetes (3,4). There was no detailed documentation on long-time observation of eGFR decline rate in subjects with diabetes with various stages of renal function at baseline.

We suggest further classifying patients by renal function such as chronic kidney disease stage or eGFR level at baseline to analyze the decline in eGFR in those with different renal function levels, with or without diabetes. If data on albuminuria can be obtained, the combined effect on eGFR could be investigated. The results could enable enrichment of clinical information on the tendency for renal function to decline in patients with diabetes, leading to greater attention on renal function in diabetes from clinicians and community physicians.

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