

Congress Abstract

Integrated Clinical Predictors of Accelerated Renal Decline in Diabetic Chronic Kidney Disease

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ABSTRACT

Background: Diabetic chronic kidney disease (DKD) is a leading cause of kidney failure and cardiovascular morbidity worldwide. Although albuminuria and estimated glomerular filtration rate (eGFR) remain central markers of risk stratification, early progression is frequently driven by a broader cluster of metabolic, hemodynamic, inflammatory, and cardiometabolic factors. Identification of simple clinical predictors may support earlier intensification of nephroprotective therapy. This study aimed to evaluate clinical, biochemical, and renal predictors associated with early DKD progression.

Methods: This prospective observational study included 112 patients with type 2 diabetes mellitus and established chronic kidney disease. Baseline assessment included age, sex, diabetes duration, body mass index, systolic and diastolic blood pressure, glycated hemoglobin (HbA1c), fasting plasma glucose, lipid profile, serum creatinine, eGFR, urinary albumin-to-creatinine ratio (UACR), hemoglobin, uric acid, C-reactive protein, smoking status, hypertension, obesity, dyslipidemia, and cardiovascular disease history. Early CKD progression was defined as clinically significant eGFR decline during follow-up. Patients were divided into early progression and stable/slow progression groups. Between-group comparisons and multivariable logistic regression were performed.

Results: Early DKD progression was observed in 34 of 112 patients (30.4%), while 78 patients (69.6%) had stable or slowly progressive disease. Patients with early progression had longer diabetes duration (12.8 ± 4.1 vs 8.9 ± 3.6 years; $p < 0.05$), higher systolic blood pressure (148 ± 16 vs 134 ± 14 mmHg; $p < 0.05$), higher HbA1c (8.7 ± 1.1 vs $7.6 \pm 0.9\%$; $p < 0.01$), greater UACR ($286 [164-420]$ vs $118 [62-210]$ mg/g; $p < 0.01$), and lower baseline eGFR (52.4 ± 13.8 vs 64.7 ± 15.2 mL/min/1.73 m²; $p < 0.05$). Progressors also had higher body mass index (31.2 ± 4.6 vs 28.7 ± 4.2 kg/m²; $p = 0.006$), triglycerides (2.3 ± 0.7 vs 1.8 ± 0.6 mmol/L; $p < 0.01$), uric acid (421 ± 76 vs 368 ± 69 μ mol/L; $p = 0.05$), and C-reactive protein ($5.8 [3.4-8.6]$ vs $3.1 [1.8-5.2]$ mg/L; $p = 0.002$), with lower hemoglobin (118 ± 14 vs 126 ± 13 g/L; $p = 0.004$). In multivariable analysis, independent predictors of early progression were UACR above 300 mg/g (odds ratio [OR] 3.42, 95% confidence interval [CI] 1.48-7.91; $p = 0.004$), HbA1c at least 8.0% (OR 2.76, 95% CI 1.27-6.01; $p = 0.011$), uncontrolled hypertension (OR 2.58, 95% CI 1.17-5.68; $p = 0.018$), and hyperuricemia (OR 2.21, 95% CI 1.02-4.79; $p = 0.044$).

Conclusion: Early DKD progression affected nearly one-third of patients. Albuminuria, poor glycemic control, uncontrolled hypertension, hyperuricemia, reduced baseline eGFR, obesity, dyslipidemia, inflammation, and anemia were associated with accelerated renal decline. These clinically accessible variables may

improve early risk stratification and guide individualized nephroprotective management.

Keywords: Diabetic Chronic Kidney Disease; Diabetic Nephropathy; Renal Progression; Estimated Glomerular Filtration Rate; Albuminuria; Glycemic Control; Hypertension; Hyperuricemia; Cardiovascular Risk; Risk Stratification