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Glomerular disease

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The Early Decline in Kidney Function is a Good Predictor of Renal Survival in Patients with IgA Nephropathy

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Background: IgA nephropathy (IgAN) is the most frequently diagnosed primary glomerular disease in adult and the leading cause of end-stage renal disease (ESRD) in young adult. The clinical course of IgAN is so variable that it is important to identify high-risk patients. This study was performed to investigate clinical and histologic predictors for renal survival in patients with primary IgAN with a focus on estimated glomerular filtration rate (eGFR) slope at early period.

Methods: We screened all patients who diagnosed with biopsy-proven primary IgAN at Samsung Medical Center between 1995 and 2012. After exclusion of patients who received corticosteroid or immunosuppressive therapy and those with baseline eGFR < 30 mL/min 1.73 m^2, 214 patients were included in the study. Renal progression was defined as creatinine doubling or progression to ESRD. Using serial measurements of serum creatinine during the first one year after starting the renin angiotensin system (RAS) blockade treatment, we calculated the eGFR slopes of individual patients with linear regression methods. Then, we defined the patients with the steepest quartile of eGFR slope as rapid decliner (-35.55 ~ -8.48 mL/min/1.73 m^2 per year), those with the second quartile of eGFR slope as slow decliner (-8.43 ~ -2.28 mL/min/1.73 m^2 per year) and the others as non-decliner (> -2.21 mL/min/1.73 m^2 per year).

Results: Rapid decliner and slow decliner had higher levels of proteinuria and higher score of Tubular atrophy/interstitial fibrosis (T) compared with non-decliner. After adjustment for sex, systolic blood pressure, baseline kidney function, proteinuria amounts, and histologic findings, slow decliner was associated with a 5.53-fold higher risk of renal progression [95% confidence interval (CI) = 1.07, 28.45; P = 0.041] and rapid decliner was associated with a 6.01-fold increased risk of renal progression (95% CI = 1.11, 32.62; P = 0.038] compared with non-decliner. In subgroup analysis on subjects with proteinuria > 0.75 g/g Cr, rapid decliner was associated with poor renal outcome.

Conclusion: Early GFR decline during the first 1 year after starting the RAS blockade treatment was a predictor of poor renal outcome, independently of proteinuria amounts and histologic findings. Establishment of other therapeutic strategy to retard renal progression is needed in those high-risk patients.

Keywords: Glomerulonephritis, IgA nephropathy