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The proportion of unaffected glomeruli is a robust prognostic factor of kidney outcome in patients with ANCA-associated glomerulonephritis

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Objectives: Anti-neutrophil cytoplasmic antibody (ANCA) associated glomerulonephritis (GN), the most common form of secondary GN in elderly (>60), requires immunosuppressive treatment that may increase risk of opportunistic infections.

This study evaluated the prognostic value of clinical factors and histopathologic findings affecting kidney outcome in ANCA-associated GN patients.

Methods: From 2000 to 2018, we identified 106 adults (≥ 18 years old) who were pathologically confirmed as ANCA associated GN. The number of normal, crescent and sclerotic glomeruli was recorded for each biopsy by review of reports and slides. The primary outcome was incident end stage kidney disease (ESKD).

Results: The age was 67 years (57-73), the estimated glomerular filtration rate (eGFR) was 19 (11-36) mL/min /1.73 m², and % of normal glomeruli in kidney specimen was 25 (11-47) %. Overall, kidney survival was 85% and 76% at 1 and 5 years, respectively. Among clinical variables, lower eGFR (adjusted hazard ratio [aHR], 0.357; 95% confidence interval [CI], 0.188-0.680) and higher urine protein-to-creatinine ratio (aHR, 1.778; 95% CI, 1.026-3.081) were independently associated with increased risk of incident ESKD. Multivariate Cox proportional hazard model including both clinical and histological variables demonstrated that % of normal glomeruli was a sole risk factor of incident ESKD (aHR, 0.953; 95% CI, 0.927-0.979), independently of eGFR, proteinuria, and other pathological findings. When the % of normal glomeruli was divided by quartiles (Figure 1), the risk of incident ESKD in the lowest quartile was significantly increased compared to the highest quartile (HR, 6.848; 95% CI, 2.220-21.127).

Conclusions: The proportion of unaffected glomeruli was independent predictor of kidney outcome.

Figure 1. Kaplan-Meier curve for incident ESKD according to % of normal glomeruli quartiles. ; quartile [Q] range, 1st Q (0~10%), 2nd Q (11~23%), 3rd Q (25~46%), 4th Q (47~88%)

Incident ESKD

