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Association Between Blood Pressure and the Progression of Chronic Kidney Disease in Patients with Glomerular Diseases: on behalf of the Korean Glomerular Disease Study Group

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Objectives: The KDIGO guideline recommends target BP < 130/80 mmHg in proteinuric patients with CKD. The guideline is largely based on many clinical studies in diabetic and hypertensive patients. However, there is lack of evidence that this BP goal can also be applied to patients with glomerular diseases. Here, we studied the relationship between BP and CKD progression in patients with glomerular diseases.

Methods: We performed a multicenter retrospective cohort study from 4 university hospitals in Korea. A total of 1179 patients diagnosed with 3 primary glomerular diseases such as IgAN (n=298, 67.6%), MGN (n=210, 17.8%), and FSGS (n=171, 14.5%) between 2005 and 2017 were enrolled. Patients were categorized as <120 (n=405, 34.4%), 120-129 (reference; n=304, 25.8%), 130-139 (n=221, 18.7%), and ≥140 (n=249, 21.1%) mmHg by SBP. Primary outcome was a composite of a ≥ 30% decline in eGFR or the onset of ESRD.

Results: The mean age was 43.6±12.3 years and 597 patients (50.6%) were male. Baseline GFR was 79.2±32.1 ml/min/1.73 m² and 699 (59.3%) patients had hypertension. During a mean follow-up of 43.6 months, primary outcome occurred in 107 (26.4%), 72 (23.7%), 66 (29.9%), and 79 (31.7%) patients in the categories of <120, 120-129, 130-139, and ≥140 mmHg, respectively. In baseline BP-based model, after adjustment of confounding factors, HRs for CKD progression were 1.37 (95% CI 0.98-1.93; p=0.067), 1.17 (95% CI 0.98-1.93; p=0.415), and 1.60 (95% CI 1.12-2.29; p=0.010), respectively. Time-varying BP-based model confirmed the significant association between SBP and CKD progression; HRs were 1.39 (95% CI 0.97-1.99; p=0.070), 1.50 (95% CI 1.02-2.22; p=0.039), and 1.62 (95% CI 1.10-2.38; p=0.014) in each SBP category.

Conclusions: Among patients with glomerular diseases, SBP of 120-129 mmHg was significantly associated with decreased risk of CKD progression. Further well-designed randomized controlled studies are warranted to determine optimal BP goal in these patients.