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The 2021 KDIGO Blood Pressure Target and the Progression of Chronic Kidney Disease: Findings from KNOW-CKD Study

Cheol Ho Park, Hyung Woo Kim, Jung Tak Park, Tae Ik Chang, Tae-Hyun Yoo, Shin-Wook Kang, Seung Hyeok Han

Department of Internal Medicine, College of Medicine, Institute of Kidney Disease Research, Yonsei University, Seoul, Korea, Republic of

Objectives: The 2021 KDIGO clinical practice guideline for management of blood pressure (BP) in chronic kidney disease (CKD) recommends a target systolic BP of <120 mmHg because this lower target can provide cardiovascular benefits. However, whether implementing the new BP target could improve kidney outcome remains unknown. Herein, we examined the association of the 2021 KDIGO BP target with CKD progression compared with the 2012 KDIGO BP target.

Methods: We analyzed 1724 participants from the Korean Cohort Study for Outcomes in Patients With CKD. The main exposure was BP status categorized according to the 2012 or 2021 KDIGO guideline: 1) controlled within 2021 target; 2) controlled within 2012 target only; and 3) above both targets. The primary outcome was a composite kidney outcome of $\geq 50\%$ decline in estimated glomerular filtration rate from baseline or the initiation of kidney replacement therapy during the follow-up.

Results: During 8,078 person-years of follow-up (median, 4.9 years), the composite kidney outcome occurred in 650 (37.7%) participants. The incidence rates of this outcome were 55, 66.5, and 116.4 per 1,000 person-years in BP controlled within the 2021 and 2012 KDIGO targets, and BP above both targets, respectively. In the multivariable cause-specific hazard model, hazard ratios for the composite outcome were 0.76 (95% confidence interval, 0.60-0.95) for BP controlled within the 2021 target and 1.36 (95% confidence interval, 1.13-1.64) for BP above both targets, compared with BP controlled within 2012 target only.

Conclusions: In this longitudinal CKD cohort study, the newly lowered BP target by the 2021 KDIGO guideline was associated with improved kidney outcome.

Graphical abstract

Cohort



KNOW-CKD study



Nine tertiary-care hospitals



N=1,724



Median eGFR
45.7ml/min/1.73m²



Median follow-up
4.9 years

Exposure



BP status categorized by the 2012 or 2021 KDIGO guideline

- 1) Controlled within 2021 target
- 2) Controlled within 2012 target only
- 3) Above both targets

Endpoint



Composite kidney outcome*

Result

BP status	Adjusted hazard ratio (95% confidence interval)	Slope of eGFR decline (mL/min/1.73m ² /year)
Controlled within 2021 KDIGO target	0.76 (0.60-0.95)	-1.79 (-2.07 to -1.52)
Controlled within 2012 KDIGO target only	1.00	-2.17 (-2.42 to -1.91)
Above both target	1.36 (1.13-1.64)	-2.91 (-3.16 to -2.66)

