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Association between Blood Pressure and Chronic Kidney Disease Progression in Patients with Advanced Chronic Kidney Disease: Findings from KNOW-CKD Study

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Objectives : Blood pressure (BP) control is an important component in the management of chronic kidney disease (CKD). However, whether BP control provides benefits in delaying the progression of CKD remains uncertain in patients with advanced CKD.

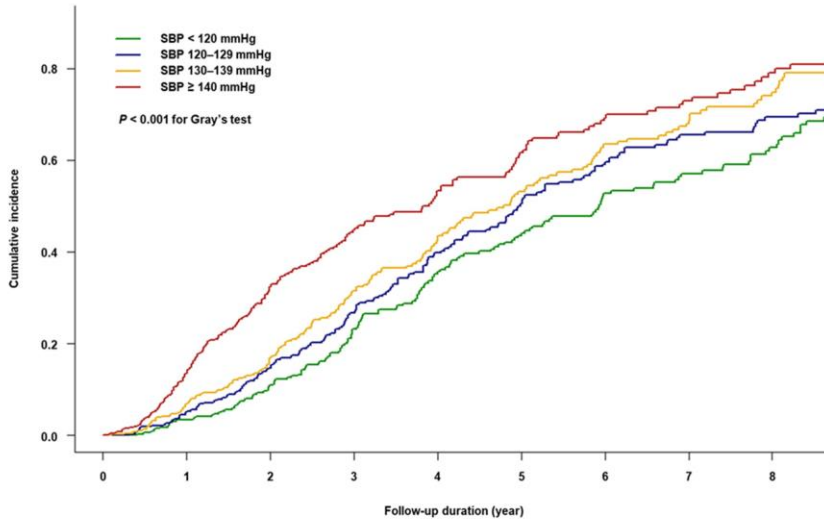
Methods : We investigated the association between BP levels and CKD progression among 1,790 participants enrolled in KNOW-CKD (Korean Cohort Study for Outcomes in Patients With Chronic Kidney Disease) with an estimated glomerular filtration rate (eGFR) <45 ml/min/1.73 m². The main predictors were baseline and time-updated systolic BP (SBP) and diastolic BP (DBP). The primary outcome was a composite kidney outcome of $\geq 50\%$ decline in eGFR from baseline measurement or the initiation of kidney replacement therapy.

Results : During 5,646 person-years of follow-up (median, 2.4 years), the composite outcome occurred 767 (42.8%) participants. Compared with baseline SBP <120 mmHg, the hazard ratios (HRs) (95% CIs) for 120–129, 130–139, and ≥ 140 mmHg were 1.19 (0.97–1.48), 1.17 (0.94–1.45), and 1.62 (1.31–2.01), respectively, in multivariable cause-specific hazard model. This association was more evident in analysis with time-updated SBP, where the corresponding HRs (95% CIs) were 1.30 (1.04–1.62), 1.35 (1.07–1.70), and 2.07 (1.67–2.57), respectively. Furthermore, the slopes of eGFR decline were -2.57 (-2.92 to -2.23), -2.62 (-3.00 to -2.25), -3.02 (-3.37 to -2.67), and -3.42 (-3.99 to -2.84) for respective SBP categories. Additional analyses with DBP also showed similar results.

Conclusions : In patients with advanced CKD, higher BP levels were associated with increased risk of CKD progression.

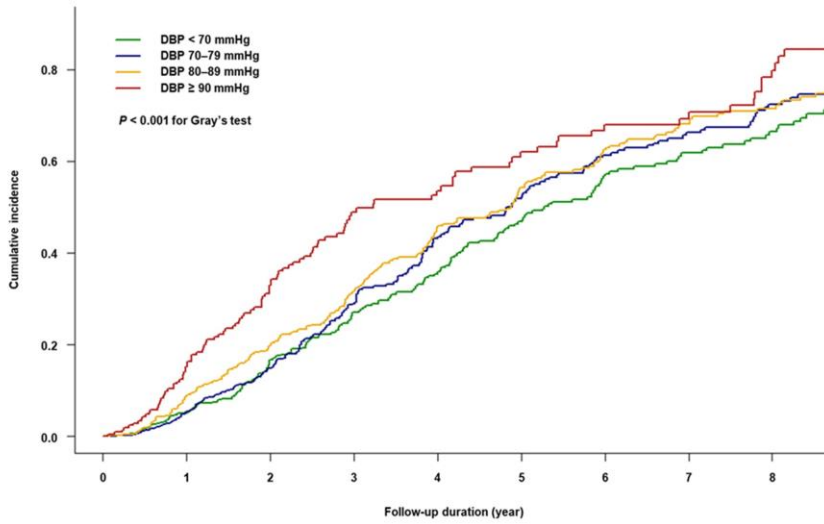
Figure 1_Cumulative incidence function.jpg

A



Number at risk	0	1	2	3	4	5	6	7	8
SBP < 120 mmHg	424	357	271	188	131	112	83	65	48
SBP 120-129 mmHg	443	379	296	203	130	105	83	59	45
SBP 130-139 mmHg	439	357	268	161	105	80	59	47	30
SBP ≥ 140 mmHg	484	356	216	118	82	63	45	36	23

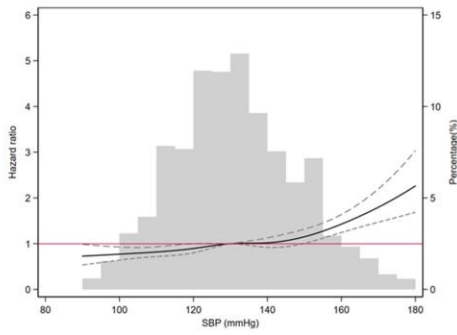
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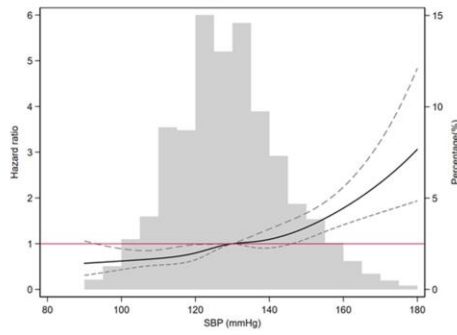
Number at risk	0	1	2	3	4	5	6	7	8
DBP < 70 mmHg	514	425	302	201	143	113	83	64	46
DBP 70-79 mmHg	571	467	341	208	124	104	77	58	41
DBP 80-89 mmHg	488	397	299	200	134	109	84	63	46
DBP ≥ 90 mmHg	217	157	109	61	47	34	26	22	13

Figure 1_Cumulative incidence function.jpg

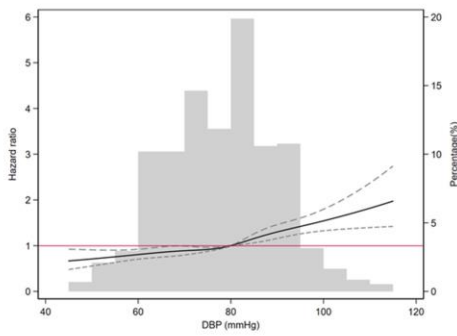
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B



C



D

