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The effects of blood pressure components on cardiovascular events in a Korean hypertensive population according to age and sex: A nationwide population-based cohort study

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Objectives: There is no known study regarding the usefulness of each blood pressure (BP) components based on stratification by age and sex for predicting cardiovascular (CV) events among hypertensive populations without chronic kidney disease (CKD) or diabetes mellitus (DM). This study was performed to investigate the association the effects of BP components and CV events in a Korean hypertensive population according to age and sex.

Methods: A total of 22, 853 Korean hypertensive participants without CKD and DM were stratified into six groups according to age [40-49, 50-59, and 60 years or older] and sex. In each group, multivariate Cox proportional regression analysis was performed to reveal the associations of BP components [systolic BP (SBP), diastolic BP (DBP), and pulse pressure (PP)] with CV events

Results: The increase in PP and decrease in DBP were significantly associated with increased of CV events in males, but neither BP component was significantly associated the risk of CV events in females, When subjects were stratified by age and sex, an increase of SBP or PP was significantly related to the increased risk of CV events in 40`s male group, and only the elevation of PP was significantly associated with increase in incidence of CV events in 50`s male group, while a decrease in DBP was significantly with increased risk of CV events in older male group

Conclusions: This study suggests that, in hypertensive populations, BP management may need to be performed after full consideration of age and sex.

Figure1. A flow diagram of study subjects

Figure 1

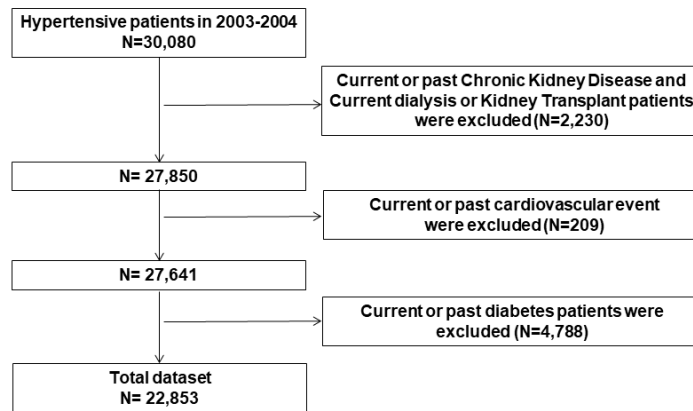


Table 1. Multivariate Cox proportional regression analysis of each blood pressure component for cardiovascular events according to age group and sex

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	Cardiovascular Event								
	Male				Female				
	N	HR	95% CI	P-value	N	HR	95% CI	P-value	
40-49	9,572				3,037				
SBP (per 10mmHg increase)		1.114	1.031	1.203	0.006	0.995	0.859	1.153	0.945
DBP (per 10mmHg increase)		0.979	0.865	1.109	0.742	0.824	0.662	1.026	0.083
PP(per 10mmHg increase)		1.158	1.061	1.264	0.001	1.104	0.938	1.299	0.235
50-59	3,640				2,176				
SBP (per 10mmHg increase)		1.075	0.985	1.174	0.103	0.957	0.844	1.085	0.494
DBP (per 10mmHg increase)		0.903	0.779	1.048	0.180	0.898	0.742	1.088	0.272
PP(per 10mmHg increase)		1.161	1.048	1.286	0.004	1.003	0.866	1.162	0.967
60 -	2,599				1,829				
SBP (per 10mmHg increase)		0.983	0.919	1.051	0.610	0.954	0.877	1.037	0.267
DBP (per 10mmHg increase)		0.879	0.795	0.972	0.012	0.964	0.850	1.093	0.567
PP(per 10mmHg increase)		1.047	0.975	1.124	0.205	0.964	0.882	1.055	0.428

Adjusted for age, body mass index, total cholesterol concentrations, smoking status, and Charlson comorbidity index.

Abbreviations; SBP, systolic blood pressure; DBP, diastolic blood pressure; PP, pulse pressure; HR, hazard ratio; CI, confidence interval