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## **Brachial-ankle pulse wave velocity can be a predictor of the risk of renal outcome and mortality**

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**Objectives:** The clinical implications of brachial-ankle pulse wave velocity (baPWV), a marker of arterial stiffness, are well established as the risk factor of cardiovascular morbidity and mortality. Nevertheless, the relationship between baPWV and renal outcomes with or without chronic kidney disease (CKD) remains unresolved in a Korean population. We hypothesized that baPWV can predict for renal function declining or progression to end stage kidney disease and mortality.

**Methods:** A total of 2236 patients who measured brachial-ankle pulse wave velocity (baPWV) in outpatient clinics were included in the study. Patients were divided into tertile group according to baPWV value. The hazard ratios (HRs) of renal composite outcome (i.e., doubling of creatinine levels, a 50% or more decrease of the estimated glomerular filtration rate, or development of end-stage renal disease), and all-cause mortality were calculated after adjustment of multiple variables using Cox regression model.

**Results:** During the median follow-up period of 4.0 years (maximum 4.5 years), the events of renal composite outcome and mortality occurred in 148 and 121 patients, respectively. The highest baPWV group had a higher risk of renal composite outcome than the lowest baPWV group (HR, 2.08 [95% CI 1.38 - 3.13];  $P < 0.001$ ). The risk of all-cause mortality was higher in the highest group than the lowest group (HR, 2.27 [95% CI 1.45 - 3.54];  $P < 0.001$ ). In CKD patients, the 3<sup>rd</sup> tertile group had a higher risk of renal progression (HR, 2.00 [95% CI 1.08 - 3.68];  $P = 0.03$ ) and mortality (HR, 3.50 [95% CI 1.19 - 10.22];  $P = 0.02$ ) than those in non-CKD group in subgroup analysis.

**Conclusions:** The measurement of baPWV may be needed to predict the risk of renal progression and mortality especially in CKD group.

Figure 1. Kaplan-Meier curve for (A) Renal composite outcome and (B) Mortality

  
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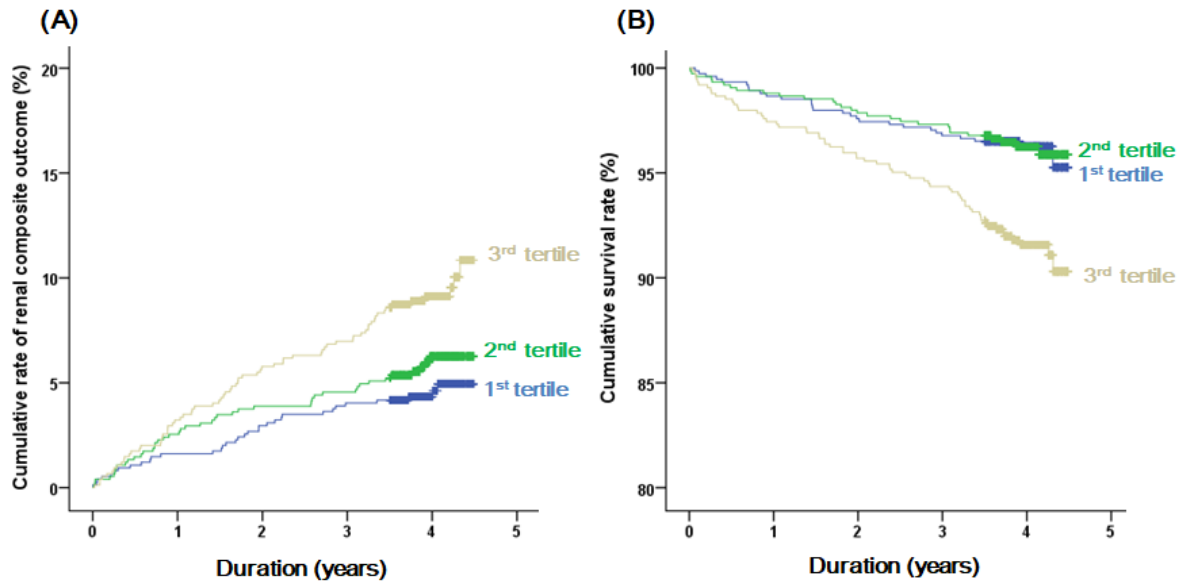


Table 1. Cox Regression analysis for renal composite outcome and mortality

Tertile Groups of baPWV	Renal composite outcome		Mortality	
	HR (95% CI)	P	HR (95% CI)	P
1 <sup>st</sup> tertile	1 (Reference)		1 (Reference)	
2 <sup>nd</sup> tertile	1.30 (0.83-2.03)	0.255	1.00 (0.59-1.68)	0.979
3 <sup>rd</sup> tertile	2.08 (1.38-3.13)	<0.001	2.27 (1.45-3.54)	<0.001