KSN 2017 Abstract

KSN-17-P224

Peripheral pulse wave velocity (PWV) may be more predictive of rapid decline of kidney function than central PWV in KNOW-CKD Cohort

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Objectives : Few studies have evaluated whether peripheral pulse wave velocity (PWV) is as comparable as central PWV in predicting rapid decline of kidney function.

Methods : The database of a large-scaled multicenter prospective study in Korea of 2238 patients enrolled from 2011-2016 was reviewed. After excluding patients with missing brachial-ankle PWV (baPWV, n = 257), heart-femoral PWV (hfPWV, n= 719) and serum creatinine 1 year later after the enrollment (n = 288), the study included 974 non-dialysis chronic kidney disease (CKD) patients. Rapid decline of kidney function was defined as glomerular filtration rate decline more than -3 ml/min/1.73m2/year.

Results : Both baPWV and hfPWV were significantly associated with rapid decline of kidney function. To compare the predictive power, we performed the receiver operating characteristic analysis which revealed that the area under the curve of baPWV (0.57) was similar to that of hfPWV (0.56). However, in multivariate analysis logistic regression analysis adjusting for age, sex, pulse pressure, high blood pressure, hyperglycemia, hypertriglyceridemia, abdominal obesity and low high-density-lipoprotein cholesterolemia, baPWV was significantly associated with rapid decline of kidney function, whereas hfPWV lost the statistical significance.

Conclusions : Peripheral PWV may be more predictive of rapid decline of kidney function than central PWV in non-dialysis CKD patients. Future studies need to be followed to confirm the study results.

Keywords : PWV, rapid decline, non-dialysis CKD