

Association of Serum Adiponectin Concentration with Aortic Arterial Stiffness in Chronic Kidney Disease: From the KNOW-CKD Study

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Background: High serum adiponectin levels predict all-cause and cardiovascular mortality in chronic kidney disease (CKD). However, the relationship between serum adiponectin concentration and arterial stiffness in CKD is not well established. The aim of this study was to assess this relationship by measuring pulse wave velocity (PWV) in CKD patients.

Methods: Serum adiponectin concentration was measured in 1,455 CKD patients in the prospective KoreaN Cohort Study for Outcome in Patients with Chronic Kidney Disease. The study group consisted of 892 men and 563 women; mean age was 53.4 years, and baseline estimated glomerular filtration rate (eGFR) was 49±29 mL/min per 1.73m². Heart to femoral PWV (hfPWV) and mean brachial to ankle PWV (baPWV) served as indicators of aortic artery stiffness and arterial stiffness, respectively.

Results: Increasing quartiles of serum adiponectin levels were associated with women, lower eGFRs and body mass indices, and higher urinary albumin-creatinine ratios. Serum adiponectin concentration also correlated with hfPWV and mean baPWV, even after adjusting for age and sex. It independently associated with hfPWV (B, 28.6; 95% confidence interval, 3.20-54.0; p=0.027) but not baPWV in a multivariable linear regression analysis. In a multivariable logistic regression analysis, it correlated significantly with the highest quartile of hfPWVs but not mean baPWVs.

Conclusion: The independent and significant correlation of serum adiponectin concentration with hfPWV in CKD patients suggests that adiponectin contributes to CKD-associated aortic stiffness.

Key Words: Adiponectin, CKD, PWV