Progression of aortic pulse wave velocity in patients with chronic kidney disease.

Abstract:
Aortic pulse wave velocity (aPWV) is elevated in patients with chronic kidney disease (CKD) and predicts cardiovascular risk. However, the natural progression of arterial stiffness in these patients remains uncertain. Therefore, the main aim of this study was to investigate the development of aPWV and to identify potential factors associated with its progression. aPWV measurement was carried out in 70 CKD patients at baseline and after 12 months. Correlations to several variables, in particular annual glomerular filtration rate reduction and diabetes mellitus, were studied. In the cohort, aPWV significantly increased in 1 year by 1.1 m/s (P<.01). Dividing the group into patients with stable and progressive aPWV, factors associated with accelerated progression were age, systolic blood pressure, and diabetes, whereas loss of renal function had no significant impact. The annual aPWV progression in CKD patients reached 1 m/s, which predicts an increased cardiovascular risk. Variables involved with progressive arterial stiffness need further evaluation.