Aortic to brachial pulse pressure amplification as functional marker and predictor of renal function loss in chronic kidney disease.

Abstract:

Pulse pressure amplification (PPA) reflects large artery function. Its contribution in chronic kidney disease (CKD) remains uncertain. The authors assessed PPA in CKD progression in patients with CKD stage 2 to 4 (n=128) and 89 controls (follow-up: 42 months). PPA was reduced in CKD patients as compared with control patients and associated with decline in renal function. Sixteen renal endpoints, defined by 50% loss of renal function or start of renal replacement therapy, were detected. In Cox regression analysis, PPA, estimated glomerular filtration rate, and proteinuria predicted renal endpoints. Patients with CKD stage 4 and low PPA had the highest risk for developing renal endpoints (unadjusted 8.1; 2.4-27.7 and adjusted for age and proteinuria 5.6; 1.5-21.9, log-rank P<.001). Taken together, PPA is reduced in CKD and is associated with declining renal function. In addition, low PPA predicts renal endpoints in severe CKD. Furthermore, this study emphasizes the role of systolic blood pressure as a major determinant of PPA.