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The impact of abdominal aortic calcification on progression of chronic kidney disease

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Objectives:

Although abdominal aortic calcification (AAC) is known to be associated with cardiovascular mortality in patients with chronic kidney disease (CKD), there are little information about the impact of AAC on progression of CKD. Therefore, we investigated the relationship between the AAC and progression of renal insufficiency in CKD patients with early stage.

Methods: A total of 120 patients with CKD, stage 3 was included. The patients were divided into two groups according to presence of AAC. The AAC was assessed by computed tomography and the score was calculated as follows: abdominal calcification index (ACI)= (total score of calcification on all slices)/12 × 1/(number of slices) × 100%. The annual decline of glomerular filtration rate (GFR) and time to dialysis was evaluated.

Results:

The AAC was found (ACI > 0) in 93 patients (77.5%), and the median ACI was 15.3 %. The average duration of follow-up were 48.5 months. Patients with the highest tertile of ACI showed higher annual decline in GFR compared to other groups (21.8 vs 12.5 mL/min, p=0.04). During the follow-up, 42 patients received dialysis and the patients with highest tertile of ACI also showed more short time to dialysis than other groups (15.2 month vs. 24.8 months, p=0.48)

Conclusions:

In this study, we showed the AAC was associated with rapid progression of CKD. Evaluation of the AAC in CKD with early stage provides useful information for predicting the progression of CKD.