Abstract

Chronic kidney disease – mineral and bone disorders (CKD-MBD) substantially contribute to the high burden of cardiovascular morbidity in patients with impaired renal function. During progression of chronic kidney disease (CKD), individual components of CKD-MBD occur at specific time points. Nonetheless, the exact temporal sequence of these alterations remains unclear. Only very recently, the phosphaturic hormone fibroblast growth factor (FGF)-23 and its cellular coreceptor Klotho have been identified as central components of CKD-MBD, and it has been hypothesized that a decreased expression of Klotho may represent the very initial pathophysiological alteration in early CKD-MBD. Of note, Klotho exists in both membrane-bound and secreted (sKlotho) forms.

Against this background, we analyzed plasma sKlotho and FGF-23 levels as well as other components of CKD-MBD in a cohort of 321 patients with stage 2–4 CKD. Patients were prospectively followed for an average of 2 years for the occurrence of death, halving eGFR or initiation of renal replacement therapy.

At baseline, plasma sKlotho levels were significantly associated with age, but not with glomerular filtration rate or other parameters of CKD-MBD. In longitudinal analysis, FGF-23 independently predicted renal outcome, while sKlotho did not.

Thus, plasma levels of sKlotho were not related to kidney function and did not predict adverse outcome in patients with chronic kidney disease. Future studies are needed to understand in how far tissue expression, urinary excretion, and plasma levels of Klotho may diverge in progressive chronic kidney disease.