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CKD & associated complications

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The Association between Serum Klotho and Metabolic Syndrome in Chronic Kidney Disease: Korean CKD Patients

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Background: Metabolic syndrome (MS), characterized by hypertension, hyperglycemia, hypertriglyceridemia, decreased high-density lipoprotein cholesterol, and abdominal obesity, is prevalent in chronic kidney disease (CKD). Klotho is one of mineral metabolism regulator in CKD. Each component of MS and klotho has an association. However, little is known about the association of klotho with presence of MS. We investigated the association between serum klotho and MS from Korea CKD patients.

Methods: We analyzed 1,268 CKD patients (excluded autosomal dominant polycystic kidney disease) evaluated for MS at baseline from the prospective KoreaN Cohort Study for Outcome in PatientsWith Chronic Kidney Disease (KNOW-CKD) study. MS was defined using National Cholesterol Education Program Adult Treatment Panel (NCEP-ATP) III criteria. Serum klotho was measured by enzyme-linked immunosorbent assay.

Results: Patients were 55.0 ± 12.3 years old and 63.9% were male. The prevalence of MS was 61% (n = 778). The median level of serum klotho was 495 pg/mL (interquartile range, 388-628). Patients with MS were older (56.6 ± 11.4 vs.52.6 ± 13.2) and had more comorbidities. Patients with MS had higher serum klotho level (P = 0.008). Klotho level tends to decrease with increasing number of MS components (P = 0.039). After adjustment for age, sex, estimated glomerular filtration rate, proteinuria, diabetes, and hypertension, the presence of MS was inversely associated with serum klotho (adjusted odds ratio,0.34; 95% confidence interval, 0.16-0.70; P = 0.004).

Conclusion: Lower serum klotho level was significantly associated with increased presence of MS. Further studies are warranted to elucidate the mechanistic link between klotho and MS in CKD patients.

Keywords: chronic kidney disease, Klotho, Metabolic syndrome