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Higher serum myostatin level represents higher skeletal muscle mass regardless of chronic kidney disease in the Korean elderly

Soo Jeong Choi[1], Duk Hee Kang[2], Gang Jee Ko[3], Byung Chul Yu[1], Moo Yong Park[1], Jin Kuk Kim[1], Seung Duk Hwang[1], Jun Chul Kim[4], Won Suk An[5]
[1]Department of Internal Medicine-Nephrology, Soonchunhyang University College of Medicine, Korea, Republic of
[2]Department of Internal Medicine-Nephrology, Ewha Womans University School of Medicine, Korea, Republic of
[3]Department of Internal Medicine-Nephrology, Korea University Guro Hospital, Korea, Republic of
[4]Department of Internal Medicine-Nephrology, CHA University, Korea, Republic of
[5]Department of Internal Medicine-Nephrology, Dong-A University, College of Medicine, Korea, Republic of

Objectives: Myostatin increases in chronic kidney disease (CKD); it and sarcopenia are associated with CKD. Myostatin is suggested as a missing link between inflammation, wasting, and vascular disease in CKD. However, few reports are available about the associations of myostatin with sarcopenia and CKD. The aim of this study was to examine the significance of myostatin in the association between muscle mass and CKD.

Methods: This cross-sectional study is based on the Korean Frailty and Aging Cohort study, which involved a population of 1,053 people aged 70 years or over. Anthropometric, physical performance, and baseline laboratory data were collected. CKD was defined as an estimated glomerular filtration rate (eGFR) by serum cystatin C < 60 ml/min/1.73 m^2.

Results: The mean age of the participants was 75.8 ± 3.9 years, and 50.7% of them were female. The numbers of CKD patients and mean eGFR were 178 (16.9%) and 79.9 ± 19.9 ml/min/1.73m^2, respectively. Serum myostatin level (mean 3.4 ± 1.2 ng/ml) was associated with appendicular skeletal muscle mass (ASM) index, eGFR, diabetes mellitus, white blood cell count, platelet count, high sensitivity C-reactive protein and sit to stand time. In addition, CKD reinforces their correlation between ASM index and myostatin.

Conclusions: serum myostatin level was associated with higher muscle mass and better physical performance. Myostatin level was associated with lower kidney function. Serum myostatin level represents muscle mass regardless of CKD. More detailed prospective studies are needed.