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# Contributing factors associated with slow progression of sarcopenia in patients receiving maintenance hemodialysis

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**Objectives:** Sarcopenia has gained interest among end-stage renal disease (ESRD) patients, due to the high incidence along with poor nutrition and comorbidities and the association with adverse outcomes, such as poorer quality of life, hospitalization or mortality. We aimed to identify the factors associated with slow progression of sarcopenia in ESRD patients.

**Methods:** Clinical and laboratory data of maintenance hemodialysis patients were collected from seven dialysis units. Sarcopenia was assessed with hand-grip test and 4-meter walking test at the time of enrollment and after one year, and sarcopenia was defined as having abnormal value regarding each sex at least one test. Patients were divided into two groups; the better-function group – those who were not in sarcopenia at both time points or recovered from sarcopenia at one year, the worse-function group – those who remained in sarcopenia since baseline or newly categorized as sarcopenia at one year.

**Results:** Finally, 174 patients were enrolled. The prevalence of sarcopenia was 51.7% initially and 56.9% after one year. At one year, the better-function group was 45.4%, and they were in younger age, lower Charlson-comorbidity-index (CCI), higher K-MMSE score, less depression and shorter duration of dialysis. Additionally, scores measuring pain, fatigue and work-status assessed by KDQOL-SF$^{tm}$ 1.3 at baseline were significantly higher in the better-function group. Multivariate logistic regression analyses showed that baseline hemoglobin and phosphorus were positively correlated with the better-function group in addition to younger age, fewer comorbidities and shorter duration of hemodialysis. Whereas spKt/V, serum uric acid and log-TNFa were associated with the worse-function group.

**Conclusions:** Cognitive function, depression and subjective symptoms along with nutrition and inflammatory markers had the association with the progression of sarcopenia in hemodialysis patients. Therefore, careful management and assessment for those parameters should be taken into account for avoiding the progression of sarcopenia.