

## The relationship between physical activity and sarcopenia in patients with chronic kidney disease

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**Background/Aims:** Low physical activity (PA) is associated with poor clinical outcomes and appropriate exercise is recommended in patients with chronic kidney disease (CKD). Physical inactivity has been reported as an important risk factor for sarcopenia in older adult population, but the relationship between PA and sarcopenia has been poorly evaluated in non-dialysis CKD patients.

**Methods:** A cross-sectional study was performed in 643 CKD patients not yet on dialysis. Level of PA was verified by the short version of the International Physical Activity Questionnaire (IPAQ). Body composition was assessed by multi-frequency bioelectrical impedance analysis and muscle strength was determined by handgrip strength.

**Results:** The mean age was  $65.6 \pm 14.2$ , 419 (65.2%) was male and 306 (47.6%) had diabetes. The mean serum creatinine and estimated glomerular filtration rate (eGFR) were  $2.3 \pm 2.6$  mg/dL and 41.8 ml/min/m<sup>2</sup>, respectively. Of these, 278 had low PA, 308 had moderate PA, and 57 had active PA. Sarcopenia was observed in 179 (27.8%). Fat tissue index and body mass index (BMI) were significantly higher in patients with low PA level than those with moderate to high PA levels, whereas lean tissue index and handgrip strength were significantly lower in patients with low PA group than moderate to high PA group (Figure 1). Serum albumin level, hemoglobin, age and eGFR were significantly associated with PA. In multivariate analysis, PA level was significantly associated with sarcopenia in non-dialysis CKD patients after adjusting age, sex, diabetes, BMI and eGFR.

**Conclusions:** Insufficient PA level was significantly associated with sarcopenia in non-dialysis CKD patients and these associations suggest the importance of exercise and lifestyle interventions in these patients.

