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Longitudinal changes in body composition are associated with all-cause mortality in patients on peritoneal dialysis

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Objectives: Peritoneal dialysis (PD) is associated with a number of adverse body compositional changes, including fat gain and muscle wasting. Whether body compositional changes are associated with the long-term prognosis is uncertain. The purpose of this study was to analyze the effects of longitudinal changes in body composition on all-cause mortality in PD patients

Methods: PD patients were subjected to bioimpedance spectroscopy (BIS) and handgrip strength (HGS) at baseline and after 2 years. Among 160 patients, 131 patients were tested with a repeat BIS and HGS. Lean tissue index (LTI) loss and fat tissue index (FTI) gain were defined as a 10% decline in LTI and a 10% gain in FTI, respectively after 2 years.

Results: The prevalence of sarcopenia at baseline was 13.8%. After 2 years, LTI loss and FTI gain were observed in 40 (30.5%) and 58 (44.3%) patients, respectively. Baseline clinical factors did not predict longitudinal body compositional changes, and there was a negative association between changes in the LTI and FTI ($r = -0.574$, $p < 0.001$). Low LTI and low HGS at baseline were significant predictors of all-cause mortality after adjusting for demographic and biochemical parameters, but not when cardiovascular factors were included in the multivariate analysis. However, LTI loss and FTI gain were independent risk factors for all-cause mortality after adjusting for demographic, biochemical, and cardiovascular parameters.

Conclusions: In PD patients, longitudinal changes in LTI and FTI were more strongly associated with all-cause mortality than single values in LTI and FTI.

Kaplan–Meier estimates of survival according to longitudinal changes in the LTI(A) and FTI (B)