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Comparison of lean mass indices as predictors of mortality in incident peritoneal dialysis patients

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Objectives: Few studies have considered optimal adjusted lean mass indices for prediction of clinical outcomes in peritoneal dialysis (PD) patients. The aim of our study was to evaluate clinical variables using various adjusted indices in PD patients.

Methods: Total 528 incident PD patients were included. Lean mass was measured using dual X-ray absorptiometry. Appendicular lean mass (ALM) was calculated using the sum for both upper and lower extremities. Each ALM index was calculated using ALM per body weight (ALM/BW), height squared (ALM/Ht²), or body mass index (ALM/BMI). Limb/trunk lean mass (LTLM) ratio was defined as the sum for both upper and lower extremities divided by trunk lean mass. All mortality events were retrieved from patient medical records.

Results: A total of 528 patients were analyzed men: 286, women: 242. In AUROC analyses, LTLM alone was associated with 1 year mortality. In the LTLM ratio, the cut-off value for 1-year mortality was ≤ 0.829 in men and ≤ 0.717 in women, respectively. In both sexes, LTLM ratio alone showed statistical significance in all-cause mortality in both univariate and multivariate Cox-regression analyses. Compared with other indices, the LTLM ratio was independent of edema and fat in both sexes. Edema- and C-reactive protein-adjusted correlation analysis showed that LTLM ratio alone was associated with serum albumin in men. Although statistical significance was not obtained for women, the correlation coefficient was highest for the LTLM ratio compared with other indices.

Conclusions: Among various indices using lean mass, LTLM ratio was independent of volume status and fat mass and was associated with mortality in incident PD patients.