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Phase Angle is Independently Associated with Controlling Nutritional (CONUT) Score in Dialysis Naive CKD5 Patients

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Objectives: Simple and well-established nutritional screening tools such as the controlling nutritional status (CONUT), prognostic nutritional index, and geriatric nutritional risk index have been introduced in clinical practice. Here we investigated whether there were associations between body composition measured by bioimpedance spectroscopy (BIS) and CONUT score in patients with non-dialysis chronic kidney disease stage 5 (CKD5-ND).

Methods: We retrospectively analysed a prospective cohort of 201 patients (mean age, 59.85 ± 13.38 years; 43.3% women). BIS and serum laboratory measurements were performed at enrolment. Patients were stratified into CONUT score < 5 (normal to slight undernutrition) and CONUT score ≥ 5 (moderate to severe undernutrition) groups.

Results: Malnourished patients had significantly lower calcium level ($p < 0.001$), fat tissue index (FTI)($p = 0.029$), and phase angle (PhA)($p < 0.001$) than well-nourished patients. Malnourishment was accompanied by higher phosphorus ($p = 0.006$) and high-sensitivity C-reactive protein (hs-CRP) levels ($p < 0.001$). Fluid balance markers (OH, OH/ECW) were significantly higher ($p < 0.001$). Multivariate logistic regression revealed that PhA (odds ratio [OR], 0.259; 95% confidence interval [CI], 0.097–0.691; $p = 0.007$), hs-CRP (OR, 1.315; 95% CI, 1.063–1.627; $p = 0.012$), and calcium (OR, 0.559; 95% CI, 0.362–0.862; $p = 0.008$) were independently associated with CONUT score. However, the significant association between OH/ECW and CONUT score was not remained.

Conclusions: PhA was independently related to the CONUT score. Our observations suggest that PhA had an acceptable ability to detect undernutrition in patients with CKD5-ND.