

Title of the article:

Association between phase angle and sarcopenic obesity in post-stroke patients

Abstract**Background:**

Evidence is limited concerning the association between bioimpedance analysis-derived phase angle (PhA) and sarcopenic obesity.

Objectives:

To examine the association between PhA and sarcopenic obesity in patients who underwent convalescent rehabilitation after stroke.

Methods:

This cross-sectional study included hospitalized patients with post-acute stroke. PhA was measured using a multifrequency bioimpedance analysis. Sarcopenic obesity was diagnosed according to the European Society of Clinical Nutrition and Metabolism/European Association for the Study of Obesity criteria. A multiple linear regression analysis was used to examine the association between the PhA and sarcopenic obesity after adjusting for confounding factors. A receiver operating characteristic curve was used to calculate the optimal PhA cutoff value for predicting sarcopenic obesity.

Results:

A total of 760 patients (median age 71 years; 352 women) were analyzed. The median (interquartile range, 25th and 75th percentiles) PhA was 4.45° (4.10°, 4.88°).

Sarcopenic obesity was diagnosed in 16 (3.9%) men, 18 (5.1%) women, and 34 (4.5%) patients overall. The multiple linear regression analysis showed that sarcopenic obesity ($\beta = -0.185$, $p = 0.017$) and sarcopenia ($\beta = -0.121$, $p = 0.012$) were significantly and negatively associated with the PhA. Obesity was not significantly associated with the PhA ($\beta = -0.078$, $p = 0.094$). The optimal cutoff value of the PhA for diagnosing sarcopenic obesity was 4.29° (sensitivity 0.65, specificity 0.80, area under the curve [AUC] 0.79, 95% CI 0.77–0.87, $p < 0.001$) in men and 3.84° (sensitivity 0.67, specificity 0.84, AUC 0.81, 95% CI 0.79–0.86, $p < 0.001$) in women.

Conclusion:

PhA was associated with sarcopenic obesity, and the cutoff values of PhA that could predict sarcopenic obesity were 4.29° for men and 3.84° for women. This simple and practical phase angle-based prediction of sarcopenic obesity can be useful in clinical practice.