Topic Area: Nutritional Assessment and Therapy

Abstract Title

Phase angle and malnutrition in Canadian community-dwelling adults
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Abstract

Introduction: Bioimpedance-derived phase angle (PhA) has been investigated recently as a surrogate marker for malnutrition. Phase angle is known to vary depending on age, gender, and BMI due to variability in body water, lean tissue, and adipose tissue.

Objectives: The primary objective was to determine PhA in a sample of Canadian, overweight/obese, community-dwelling adults categorized by age, gender, and BMI. The secondary objective was to compare PhA of our sample to a healthy reference population matched for age, gender, and BMI.

Methods: This study was a sub-analysis within the larger NOW Trial (NCT: 03015012). Overweight/obese adults attending a lifestyle counselling program in Southwestern Ontario, underwent body composition analysis via bioelectric impedance analysis (BIA). Phase angle is an output measure given by the device. Participants' PhA values were matched for age, gender, and BMI to previously published reference values. Z-scores were calculated to compare our values to a healthy reference population, then dichotomized into low or normal PhA groups depending on distance from the mean (<-1 SD, or ≥ -1 SD, respectively). Statistical analysis included calculating means±SD, frequencies, Z-scores, and paired t-tests to assess changes in PhA in response to the intervention.

Results: Mean PhA (n=72) was 5.3º±0.8 at baseline, and 5.2º±0.7 three months into the program (p=0.14) for a sub-set of the group (n=34). In total, 40.3% had low PhA, while 59.7% were categorized as normal PhA at baseline. At 3 months, 38.2% had low PhA, and 61.8% had normal PhA values.

Conclusions: Since PhA is likely a surrogate marker of malnutrition, 40% of participants may be malnourished at baseline. It is probable that 3 months is not enough time to observe changes in PhA. More research is needed to determine responsiveness of this marker.

Significance to dietetics: PhA may be an objective marker for assessment of malnutrition which is easily and reliably obtained with BIA