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Abstract

The Importance of Nutritional Status Assessments for Preoperative Bariatric Patients: Correlations between BIA, CRP and Vitamin Status †

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Abstract: Background and Objective: Preoperative assessments of nutritional status are crucial for optimizing outcomes in bariatric surgery patients. Parameters such as bioelectrical impedance analysis (BIA), C-reactive protein (CRP), vitamin D, folic acid and vitamin B12 have been individually studied in relation to nutritional status in bariatric patients. However, a comprehensive understanding of their interrelationships and the importance of a preoperative nutritional status assessment is still needed. The objective of this study is to determine the baseline nutritional status, explore the correlations between BIA, CRP and vitamin status in preoperative bariatric patients, and to assess the significance of nutritional status evaluation before surgery. Methods: Nutritional status, including anthropometric measurements (determined by Tanita, MC-780 MA) and biochemical parameters, were obtained from medical records of 50 adult obese patients who attended a clinic between 2022–2023 and who were advised to have sleeve gastrectomy. A Spearman correlation was used to determine correlation between observed parameters. Results: Most of the patients were women (88%) with an average age of 41 $\pm$ 10 years. Their BMI ranged from 39.4 to 63.0 kg/m^2 and their body fat from 33.9% to 58.5%. The phase angle ranged from 4.6° to 7.1°, while total body water (TBW) for all patients was below 45% for women and 50% for men. A deficiency was observed among 43%, 55% and 20% of patients for folic acid, vitamin D and vitamin B12, respectively. Elevated CRP was present in 73% of patients. A correlation ($p < 0.05$) was found between CRP and BMI (r = 0.322), and body fat (r = 0.488) and TBW (r = −0.420), while 25OH-vitamin D correlated ($p < 0.001$) with the same parameters but the correction was reversed (BMI, r = −0.424; body fat r = −0.662; TBW r = 0.525). Both vitamin B12 and folic acid correlated only with extracellular water (r = −0.424 and r = −0.447). Discussion: Preoperative sleeve gastrectomy patients with inadequate nutritional status and increased CRP levels made up a significant portion of this population. These findings highlight the need for preoperatively treating dietary deficiencies and inflammation. The long-term effects of preoperative dietary therapy on patient outcomes and general health in the context of bariatric surgery should be the main subject of future study.

Keywords: bariatric surgery; nutritional status

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