Adult Oral Presentation

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LONGITUDINAL CHANGES IN SKELETAL MUSCLE MASS AND PHASE ANGLE FOLLOWING METABOLIC BARIATRIC SURGERY: A 12-MONTH FOLLOW-UP

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INTRODUCTION

Metabolic bariatric surgery (MBS) is an effective intervention for weight loss, but muscle retention remains a concern, as excessive muscle loss can impact metabolic health and physical function. Phase angle (PhA), derived from bioelectrical impedance analysis (BIA), is a marker of cellular integrity and quality. While previous studies have explored muscle loss post-surgery, the longitudinal trends of PhA alongside muscle retention remain underexplored. This study aims to describe trends in skeletal muscle mass (SMM) retention and PhA change over time in post MBS patients.

METHODOLOGY

This is a multicentre intervention study involving patients with obesity undergoing metabolic surgery in private centres around Klang Valley. Those with a body mass index (BMI) of ≥25 kg/m^2 included in this study. Body composition components including body fat mass (BFM), SMM and PhA were measured using a BIA (InBody S10). Statistical analysis was conducted using SPSS software version 29.

RESULT

This study involved 120 patients, with most being female (n=75, 62.5%) and Malays (n = 80, 66.7%). The overall mean age was 39.10 (SD 7.8) years. Mean preoperative values for BMI, SMM and PhA were 41.17 ± 9.40 kg/m^2, 32.4 ± 8.3 kg and 6.04 ± 1.0 respectively. Skeletal muscle mass significantly declined at 6 months (-5.61 kg, p <0.001) and remained lower at 12 months (-6.13 kg, p <0.001) compared to baseline, with minimal improvement between 6 months and 12 months (p = 0.268). Similarly, PhA decreased significantly at 6 months (-1.18, p <0.001), but despite a slight increase by 12 months, the change was not statistically significant (p = 1.00).

CONCLUSION

Significant decline in both SMM and PhA occur within the first 6 months post-surgery, with minimal recovery observed at 12 months. This suggests that early postoperative phase is critical for muscle retention and cellular health. While nutritional and physical activity interventions have been shown to support muscle preservation in previous studies, further research is needed to confirm their effect in post-MBS recovery. These findings highlight the importance of targeted approaches to prevent long-term muscle deterioration.