Longitudinal trends in body composition and clinical outcomes 3-years following sleeve gastrectomy

Original Contribution

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Abstract

Background&Aims: Longitudinal assessment of body composition following bariatric surgery allows monitoring of health-status. Our aim was to elucidate trends of anthropometric and clinical outcomes 3-years following sleeve gastrectomy (SG).

Methods: A prospective-cohort study of 60-patients who underwent SG. Anthropometrics including body composition analysis measured by multi-frequency bioelectrical-impedance analysis, blood tests, liver fat-content measured by abdominal-ultrasound and habitual physical activity were evaluated at baseline and at 6(M6), 12(M12) and 36(M36) months post-surgery.

Results: Sixty patients (55% women, age 44.7±8.7years) who completed the entire follow-up were included. Fat mass (FM) was reduced significantly 1-year post-surgery (55.8±11.3 to 26.7±8.3 kg;P<0.001) and then increased between 1 to 3-years post-operatively, but remained below baseline-level (26.7±8.3 to 33.1±11.1kg;P<0.001). Fat free mass (FFM) decreased significantly during the first 6-months (64.7±14.3 to 56.9±11.8kg;P<0.001), slightly decreased between M6 to M12 and then reached a plateau through M36. Weight-loss "failure" (<50%EWL) was noticed in 5.0% and 28.3% of patients at M12 and M36, respectively. Markers of lipid and glucose metabolism changed thereafter in parallel to the changes observed in FM, with the exception of HDL-C, which increased continuingly from M6 throughout the whole period analyzed (45.0±10.2 to 59.5±15.4mg/dl;P<0.001) and HbA1c which continued to decrease between M12 to M36 (5.5±0.4 to 5.3±0.4%;P<0.001). There were marked within-person variations in trends of anthropometric and clinical parameters during the 3-years follow-up.

Conclusions: Weight-regain, primarily attributed to FM with no further decrease in FFM occurs between 1 to 3-years post-SG. FM increase at mid-term may underlie the recurrence of metabolic risk-factors and can govern clinical-interventions.

Keywords: bariatric surgery, clinical parameters, excess weight loss, fat mass, fat free mass.