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Weight Recurrence Trends Among Participants Post Laparoscopic Sleeve Gastrectomy: A 13-Year Single-Centre Retrospective Study in Kuwait

A. Alfailakawi[1,2], S. Al-Sabah[3], V. Nlebedim[1], J.B. Moore[1] and S. Moore
[1]*School of Food Science and Nutrition, University of Leeds, Leeds, UK*
[2]*Food and Nutrition Administration, Ministry of Health, Kuwait City, Kuwait*
[3]*Faculty of Medicine, Kuwait University, Kuwait City, Kuwait*

Weight recurrence (WR) is a frequent complication in patients post metabolic and bariatric surgery (MBS)(1). However, there is no consensus on WR definitions(2). Patients' preoperative characteristics are believed to have an association with WR(1). This study aimed to evaluate WR 3 to 13 years after laparoscopic sleeve gastrectomy (LSG) using three commonly used definitions and investigate potential risk factors.

A retrospective analysis examined data from patients' medical records who underwent primary LSG between 2008 and 2019. Inclusion criteria were patients aged 18 years or older, eligible for MBS, and with at least three years of follow-up. Those with previous MBS, revised surgical procedures post-LSG, or who had the surgery in 2019 were excluded. Dividing the analysis into three post-LSG periods (1st year, 2nd year and >2nd year). The primary outcome was WR over time utilizing three definitions: >10% increase in nadir weight, >10% increase in nadir weight (nadir 1 to 2 years), and percentage of excess weight loss (EWL) <50% with a body mass index (BMI) >35 kg/m^2. Survival analysis techniques were used to assess the occurrence and timing of WR. Potential risk factors of WR including age, gender, BMI, obesity-related comorbidities, duration post-LSG, and attendance to follow-up visits were assessed using binary logistic regression.

Only 219 out of 2982 patients met the inclusion criteria and were included in the analysis. Patients' mean age and BMI were 37.21 ± 10.44 years and 45.92 ± 6.99 kg/m^2, respectively, with females constituting the majority (64%). Weight recurrence varied between different definitions, ranging from 31% to 61%. The estimated median time for WR was significant starting from 9 years when applying the nadir weight definitions while from 6 years when EWL<50% & BMI>35 kg/m^2 definition was used. Binary logistic regression analysis identified several risk factors for WR considering the definition of EWL <50% with BMI >35 kg/m^2: older age [OR 1.104, 95% CI (1.0591.151), *p*-value <0.001] and higher preoperative BMI [OR 1.352, 95% CI (1.242-1.473), *p*-value <0.001]; while male gender [OR 0.314, 95% CI (0.137–0.720), *p*-value 0.006] and frequent follow-up visits [OR 0.528, 95% CI (0.382–0.730), *p*-value <0.001] were protective factors against WR. Other definitions did not demonstrate significant associations except for a longer duration post-LSG as a risk factor for WR when applying the definition of >10% increase from nadir weight (nadir weight 1 to 2 years) [OR 1.153, 95% CI (1.050-1.267), *p*-value 0.003].

This study explored factors that influenced WR post-LSG. Potential risk factors including age, gender, BMI, and time varied according to the WR definition applied. More research is necessary to establish a consensus on a suggested definition that aligns with the clinical parameters and comorbidity status of patients for application in upcoming research and clinical settings.

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