

EFFECTS OF BARIATRIC SURGERY ON FEMALE PELVIC FLOOR DISORDERS: SHORT VERSUS MEDIUM TERM OUTCOME RESULTS

Hypothesis / aims of study

Pelvic floor disorders affect up to 75% of women considering bariatric surgery. There is a considerable, growing body of evidence regarding the beneficial effect of significant weight loss on pelvic floor disorders. However, most studies are either small, short, or focused solely on urinary incontinence (UI), ignoring other aspects of female pelvic floor disorders as well as sexual function. Moreover, it remains unclear whether these beneficial effects are long lasting. The aim of this prospective, nonrandomized study was to compare the short and medium term effect of surgically induced weight reduction on lower urinary tract symptoms (LUTS), pelvic organ prolapse (POP), colorectal-anal (CRA) complaints and sexual dysfunction among obese women undergoing bariatric surgery.

Study design, materials and methods

160 consecutive obese women, who underwent bariatric surgery in a single university-affiliated medical center, were prospectively enrolled. The study protocol was approved by the local hospital Helsinki Committee. Four validated questionnaires on UI (ICIQ-UI), LUTS (BFLUTS-SF), pelvic floor disorders (PFDI-20), and condition-related sexual dysfunction (PISQ-12) were used to evaluate patient's pelvic floor symptoms before, and 3-6 months after surgery. 150 participants completed pre- and postoperative questionnaires at 3-6 months (short term). All participants were then contacted at 12-24 months postoperatively, and invited to complete an additional set of the same four questionnaires during a follow-up office visit, or by mail. Of the 150 eligible patients, 101 (67%) completed the requested follow up questionnaires at 12-24 months (medium-term). Comparing the 101 responders versus the 49 non-responders, there were no statistically significant differences in terms of their mean age, parity, BMI, or presenting pelvic floor symptoms. A positive answer to the question "How often do you leak urine?" on the ICIQ questionnaire was used to define the presence or absence of UI. Similarly, any participant whose score was higher than 0 for either POP or CRA domains in the PFDI-20 questionnaire was classified as symptomatic for that particular domain. Sexual dysfunction was evaluated by the use of both sexual function domain in the BFLUTS questionnaire and the PISQ-12 questionnaire. Statistical analysis was performed using paired Student's t-test for continuous data and Fisher exact test for categorical data. Statistical significance was determined at $P < 0.05$.

Results

101 women (mean age 41.6 ± 11.8 years, mean preoperative BMI 41.6 ± 4.6 kg/m²) completed all questionnaires at baseline, 3-6 (mean 4.4 ± 1.9) months and 12-24 (mean 15.7 ± 4.2) months postoperatively. By 3-6 months after surgery, patients had experienced a mean percentage weight loss of $22 \pm 6.0\%$, (mean BMI 32.5 ± 4.5 kg/m²) with 32% of patients achieving BMI ≤ 30 kg/m². By 12-24 months after surgery, patients had experienced a mean percentage weight loss of $34.4 \pm 11.7\%$ (mean BMI 27.5 ± 4.4 kg/m²), with 49% of patients achieving BMI ≤ 30 kg/m².

Urinary incontinence: Before surgery, 50 (49.5%) women (mean age 46.3 ± 10.4 years; mean BMI 41.2 ± 4.9 kg/m²) had UI with a mean preoperative ICIQ score of 9.2 ± 4.0 . Of the 50 incontinent women, 32 (64%) had stress incontinence (SUI), 12 (24%) had mixed incontinence (MUI), 4 (8%) had urgency incontinence (UUI), and 2 (4%) women did not fall into any category and were therefore regarded as 'other UI'. By 3-6 months following surgery, 27 (54%) women were completely free of symptoms, and the mean ICIQ score decreased to 2.9 ± 3.6 ($p < 0.001$ compared to baseline). By 12-24 months following surgery, 30 (60%) women were completely symptoms free, and the mean ICIQ score was 2.8 ± 3.9 ($p < 0.001$ compared to baseline). Improvement was mainly documented in the SUI and MUI subtypes, with complete cure rates of 56% and 75%, respectively.

Pelvic organ prolapse symptoms: Before surgery, 31 (29.7%) women (mean age 42.8 ± 12.0 years; mean BMI 41.4 ± 5.1 kg/m²) had POP symptoms with a mean PFDI POP score of 17.1 ± 11.6 . By 3-6 months following surgery, 11 (35%) women were completely free of symptoms, and the mean POP score decreased to 9.7 ± 11.2 ($p = 0.005$ compared to baseline). By 12-24 months following surgery, 16 (52%) women were completely free of symptoms, and the mean POP score was 9.4 ± 14.7 ($p = 0.009$ compared to baseline).

Colorectal-anal symptoms: Before surgery, 48 (47.5%) women (mean age 44.5 ± 11.8 years; mean BMI 40.7 ± 4.0 kg/m²) had CRA symptoms with a mean preoperative PFDI CRA score of 20.9 ± 15.7 . By 3-6 months following surgery, 16 (33.3%) women were completely free of symptoms, and the mean CRA score decreased to 13.5 ± 15.0 ($p = 0.008$ compared to baseline). By 12-24 months following surgery, 11 (22.9%) women were completely free of symptoms, and the mean CRA score was 16.0 ± 14.7 ($p = 0.092$ compared to baseline).

Sexual dysfunction: Postoperatively, there was no significant increase in the number of sexually active women (75 and 79 at 3-6 and 12-24 months respectively, compared to 75 at baseline). According to the BFLUTS questionnaire, a statistically significant improvement (i.e. lower scores) was achieved and remained significant at both 3-6 and 12-24 months postoperatively (0.3 ± 0.9 at baseline; 0.2 ± 0.6 , $p = 0.021$ at 3-6 months; and 0.1 ± 0.5 , $p = 0.026$ at 12-24 months). According to the PISQ-12 questionnaire, a significant improvement (i.e. a higher score) was achieved at 3-6 months following surgery (38.9 ± 5.2 vs 36.7 ± 6.0 ; $p = 0.004$), however, at 12-24 months after surgery this improvement was no longer statistically significant (38.1 ± 5.0 vs 36.7 ± 6.0 ; $p = 0.155$).

Interpretation of results

Significant-rapid weight loss resulted in a striking improvement in LUTS, including resolution of UI in half of incontinent patients. Statistically significant improvements were also noted in POP and CRA symptoms. These beneficial early postoperative effects were sustained through 12-24 months after surgery. The short and medium term outcome results regarding sexual dysfunction remain inconclusive and further studies are required to investigate this important aspect. We believe that the benefit of bariatric

surgery in terms of pelvic floor disorders should be taken into account when discussing the option of bariatric surgery with relevant patients.

Concluding message

Rapid and significant improvement of female pelvic floor symptoms is expected following bariatric surgery. This beneficial effect is sustained through 12-24 months after surgery. Further studies are required to investigate the long-term impacts of bariatric surgery on the various aspects of pelvic floor function as well as female sexual dysfunction.

Disclosures

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