

Improved Quality of Life after bariatric surgery in morbidly obese patients. Interdisciplinary group of bariatric surgery of Verona (G.I.C.O.V.)

L. NADALINI¹, M.G. ZENTI², L. MASOTTO¹, L. INDELICATO¹, G. FAINELLI², F. BONORA², M. BATTISTONI³, B. ROMANI¹, M. GENNA³, G. ZOPPINI², E. BONORA²

SUMMARY: Improved Quality of Life after bariatric surgery in morbidly obese patients. Interdisciplinary group of bariatric surgery of Verona (G.I.C.O.V.).

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Background. Our aim was to evaluate the changes of health-related Quality of Life (HR-QoL) after bariatric surgery.

Patients and methods. 110 patients, who underwent laparoscopic bariatric surgery (N=34 gastric banding; N= 69 Roux-en-Y gastric bypass, N=7 sleeve gastrectomy), were evaluated before surgery and after

an average of 36±13 months with SF-36 Health Survey.

Results. Mean preoperative age and body mass index (BMI) were 43±12 years and 45±7 kg/m² respectively. At follow-up, mean BMI was 33±6 kg/m². A significant improvement was observed for all dimensions of SF-36, except for General and Mental Health dimension. Satisfaction was greater in patients with the higher reduction in weight. Only the PF (Physical Functioning) domain (F=6,349, p=0.01) resulted a significant predictor of the weight lost after surgery independently of age, sex and type of surgery.

Conclusions. We confirm a beneficial effect of bariatric surgery on HR-QoL. Moreover, we found that PF domain of SF-36 is a significant predictor of weight loss.

KEY WORDS: Obesity - Bariatric surgery - Quality of Life.

Introduction

More than half of the European population is overweight [body mass index (BMI) >25 and <30 kg/m²] and up to 30% is obese (BMI>30 kg/m²) (1). Overweight and obesity are associated with many comorbidities such as: insulin resistance/type 2 diabetes, dyslipidemia, hypertension, cholelithiasis, cancer, liver steatosis, gastroesophageal reflux, obstructive sleep apnea, degenerative joint disease, gout, and others (2). It has been demonstrated that weight reduction in short term (1-3 years) leads to a decline in insulin resistance, a better metabolic regulation in patients with diabetes mellitus, a reduction in blood pressure, and a less atherogenic lipid profile (3-5). Several investigations have reported impairments in specific domains of Quality of Life (QoL)

in persons with extreme obesity (6, 7). More specifically, these studies have suggested that both health-related (HR-QoL) and weight-related quality of life (WR-QoL) are dramatically impacted by extreme obesity. Encouragingly, both health-related and weight-related quality of life appear to improve following bariatric surgery (8-11). Some studies indicate that weight reduction in the severely obese is accompanied by improvements in HR-QoL and that a dose-response relationship exists between the magnitude of weight loss and HR-QoL benefits (9, 12-17).

At present, surgical intervention is the only treatment yielding a more durable weight loss and an improvements in health status and in HR-QoL (18). Karlsson et al. (18) examined trends and effects of weight loss treatment on HR-QoL in severely obese of SOS intervention Study over 10 years, and showed that long-lasting weight reduction in the severely obese has a general long-standing positive outcome on HR-QoL.

Sarwer et al. (19) assessed changes in quality of life and body image in the first 92 weeks following gastric bypass surgery in 200 individuals. Participants reported significant improvements in several domains of health- and weight-related quality of life, as well as changes in body image, following surgery which were correlat-

University Hospital, Verona, Italy

¹ Section of Radiotherapy, Department of Surgery and Oncology

² Section of Endocrinology, Department of Medicine

³ Section of General Surgery, Department of Surgery

Corresponding Author: Maria Grazia Zenti, e-mail: mariagrazia.zenti@univr.it

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ed with percent weight loss. These changes were, with few exceptions, maintained into the second postoperative year. Therefore, the aim of the present study was to assess changes in quality of life following bariatric surgery in morbid obese patients.

Patients and methods

Participants

Study participants were 110 patients (31 male; 79 female) who underwent laparoscopic bariatric surgery [N=34 gastric banding; N= 69 Roux-en-Y gastric bypass (RYGB), N=7 sleeve gastrectomy] at the University Hospital of Verona (AOUI Verona), Italy, between January 2007 and September 2009. Patients were evaluated at basal and at follow-up between September 2010 and April 2011. Twenty patients were affected by type 2 diabetes before surgery.

Measures

Approximately 1 month prior to surgery all participants completed a psychosocial assessment that involve two parts: a clinical interview and psychological testing. In detail, clinical interview focused on eating behaviour, psychiatric symptoms and readiness for surgery (20). As part of this assessment patients completed the SF-36 Health Survey (SF-36), a self-report measure used to assess health related quality of life. The SF-36 assesses eight dimensions of health, each ranging from 0-100; higher scores represent better health. The SF-36 comprises 36 items that describe the following eight dimensions of functioning: Physical Functioning (PF), Physical Role Limitation, Bodily Pain, General Health, Vitality, Social Functioning, Emotional Role Limitation, and Mental Health. The Italian version of SF-36 has as much good validity and reliability as original version (25). All patients were re-evaluated at 36±13 months follow-up and completed a new SF-36. Body weight was measured in light clothing without shoes to the nearest 0.1 kg using calibrated balances or electronic scales. Height was measured in a standing position without shoes to the nearest 0.01 m. BMI was calculated as weight divided by height squared (kg/m^2). Blood pressure was measured with a standard mercury manometer with an appropriately sizes cuff in sitting position after five minutes of rest.

At follow-up was also evaluated satisfactory levels about bariatric surgery by means of "open questions" with 5 predefined answers, 2 of positive sign (very satisfied, satisfied) somewhat satisfied and 2 of negative sign (dissatisfied and very dissatisfied).

Statistical analysis

Results are presented as mean SE. The following statistical tests were performed: Student's t tests for paired

data, One way Anova. When the distribution of continuous variables was skewed, logarithmic transformations were carried out. Non-parametric statistical tests were also performed; but only the parametric procedures are presented since the results obtained with parametric and non-parametric statistical procedures were similar. A generalized linear model was applied to study the relation among SF36 items and the amount of weight lost after surgery. Comparisons between groups were considered significant with the conventional $p < 0.05$.

Results

Demographic and descriptive variables are presented in Table 1. The entire sample of 110 patients (31 male; 79 female) had a preoperative mean age of 43 ± 12 years, and mean BMI of $45 \pm 7 \text{ kg}/\text{m}^2$. Twenty patients were affected by diabetes. Surgical treatment included gastric banding (n=34), Roux-en-Y gastric bypass (n=69) and sleeve gastrectomy (n=7). The mean BMI at follow-up of 36 13-months was $33 \pm 6 \text{ kg}/\text{m}^2$. The values of the eight dimensions of health of SF-36 before and after surgery are presented in Figure 1. A significant improvement was observed for all dimensions at follow-up ($p < 0.001$) except for General Health and Mental Health. Levels of satisfaction about bariatric surgery were greater in patients who showed the higher reduction of weight (Figure 2). Patients who underwent the RYGB/sleeve gastrectomy were also more satisfied. In the generalized linear model, among the domains of SF-36 only the PF domain ($F=6,349$, $p=0.01$) resulted a significant predictor of the weight lost after surgery independently of age, sex and type of surgery.

TABLE 1 - MAIN DEMOGRAPHIC AND CLINICAL CHARACTERISTIC OF PATIENTS (N=110) BEFORE SURGERY.

Age, years	43 ± 12
Sex (F/M)	79/31
BMI kg/m^2	45 ± 7
Diabetes, n	20(18%)
Type of surgery, n	
Gastric bypass/sleeve gastrectomy	76
Banding	34

Data are presented as mean±SD. BMI: body mass index

Discussion

The main result of this study is the significant improvement of HR-QoL after bariatric surgery. Moreover, we also found that the proportion of satisfied patients

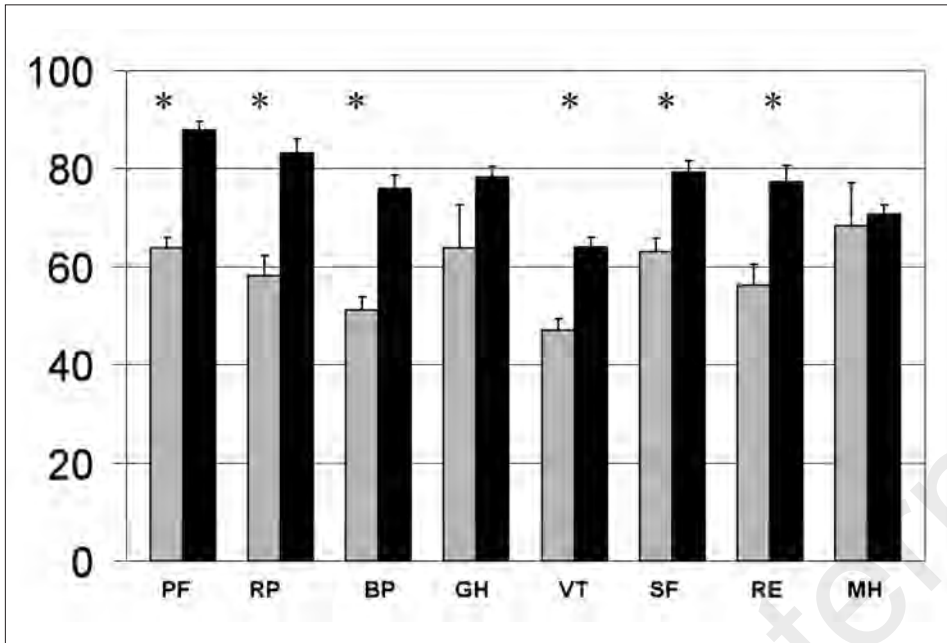


Fig. 1 - Mean values of the items (SF36) before (gray) and after (black) bariatric surgery. Data are reported as mean and the bar refers to SE. PF: physical functioning; RP: role physical; BP: bone pain; GH: general health; VT: Vitality; SF: social functioning; RE: role emotional; MH: mental health.

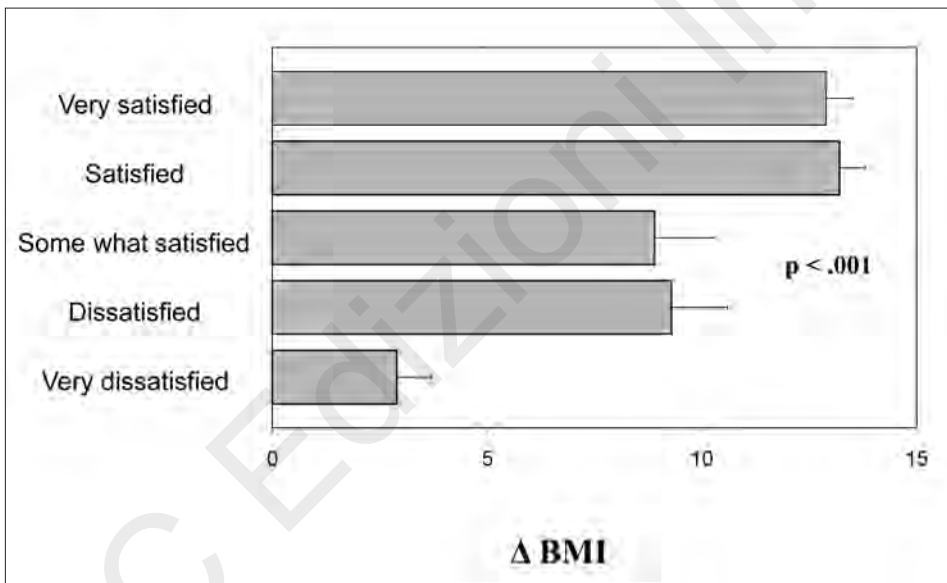


Fig. 2 - Difference of weight before and after surgery according to the level of satisfaction.

is directly correlated to the amount of weight lost with the surgical procedure. Individuals who undergo bariatric surgery experience durable weight loss, at least for the 3 years period of follow-up. The present results are in line with other studies that also reported an improvement in HR-QoL after a weight loss of more than 30% after bariatric surgery (18, 19). Karlsson J et al., in a ten years follow-up study, showed that HR-QoL markedly improved after surgery and the peak improvement was located between 6 months and 1 year after surgery (18). This period corresponds to the weight loss phase. In our

study we also had the opportunity to compare different surgical approaches. Levels of satisfaction about bariatric surgery were higher in patients who underwent RYGB/sleeve gastrectomy respect to gastric banding: with a significant relation to weight loss after surgery.

Interestingly, the PF domain of the SF36 resulted as the only significant predictor of the weight lost after surgery independently of age, sex and type of surgery. This result may imply that the perceived physical functioning before surgery may be a useful measure to predict which subjects will have a higher probability to main-

tain the weight reached after surgery. Habitual physical activity is considered a crucial component for long-term weight control, therefore a higher score in PF domain may be consistent with a more favourable weight control behaviour. In particular, there is strong evidence that regular exercise is an efficient component for primary and secondary prevention of several chronic conditions associated with obesity, such as diabetes, hypertension and cardiovascular diseases. Alternately, this result may be explained by the fact that limitations in functional and physical ability are in general associated with poor general health and number of medical diagnosis. Therefore, a better PF domain may simply indicate a better state of general health before surgery. Further studies are need-

ed in this area to better understand the role of perceived physical functioning in the strategy of weight control.

Conclusion

In conclusion, we confirm a beneficial effect of bariatric surgery on HR-QoL. Moreover, we found that PF domain of SF-36 is a significant predictor of weight loss.

Conflict of interest

None to declare.

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