Quality of Life After MGB Compared to Other Operations

18

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18.1 Introduction

Health-related quality of life (HRQOL) refers to the impact of health conditions on an individual's general life functioning. It reflects the way that patient's perceive and react to their health status and the effect their health has on other aspects of their lives, such as work, leisure activities, and social relationships [1].

In obese patients, HRQOL is significantly impaired; therefore, HRQOL improvement is one of the primary outcome measurements after bariatric surgery; however, recent studies reported great variation in the effect of bariatric surgery upon HRQOL because of two possible reasons. First, HRQOL is assessed with numerous questionnaires, because there is no specific questionnaire to assess HRQOL in bariatric surgery patients. Second, weight loss may also influence HRQOL [2–5].

There are several questionnaires for evaluation of the quality of life (QoL) after gastric bypass. They include the short-form 36 (SF-36) questionnaire and the Moorehead-Ardelt Quality of Life Questionnaire II (MA II) [6]. MA II questionnaire is specifically designed to measure subjective QoL in obese subjects in the following six key areas: self-esteem, physical well-being, social relationships, work, sexuality and eating behavior. The different items are scored from −0.5 to +0.5. The total score is the sum of the six aspects (from−3 to +3). The sum below −2.1 is "very poor", between −2.1 and −1 is "poor", from −1 to +1 is "fair", between +1 and 2.1 is graded "good" and above 2.1, it is "very good" [7].

The results of this questionnaire were combined with scores for weight loss and improvement of medical conditions in the Bariatric Analysis and Reporting

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Outcome System (BAROS), which is a quantitative measure used to measure the outcome of bariatric surgery [6]. The BAROS consists of standardized clinician ratings of surgical complications, post-surgical weight loss and medical changes, and a brief, patient-rated measure of QoL. The BAROS generates subscale scores for weight, medical co-morbidities, and QoL, and a total outcome score of surgical success, ranging from 0 (failure) to 9 (excellent) [7, 8].

The SF-36 estimates the physical and the mental well-being of the patients. It is divided into eight aspects: general health, physical functioning, role-physical, role-emotional, social functioning, bodily pain, vitality and mental health. The scores range from 0 to 100 for each dimension [9].

The SF-36 is a general health status measure that contains 36 items in eight domains of functioning: physical functioning, role limitations due to physical health problems, bodily pain, general health perception, vitality, social functioning, role limitations due to emotional problems, and mental health. Each of these items is scored from 0 to 100, with a high score being associated with a high level of functioning in that domain. The SF-36 also contains a single item where patients are asked to estimate their overall health status compared with 1 year before, termed a health transition (HT) score. The scale ranges from 1 to 5, where 1 = much better, 2 = somewhat better, 3 = about the same, 4 = somewhat worse, and 5 = much worse [9, 10]. Reliability values (Pearson r) range from 0.89 to 0.94 for the Physical Component Summary (PCS) and from 0.84 to 0.91 for the Mental Component Summary (MCS) [11].

The World Health Organization Quality of Life—Brief (WHOQOL BREF) is a generic QoL instrument designed to assess physical, psychological, social and environment domains. It has been shown to have good validity for use across different countries and different patient groups, including those with morbid obesity [12, 13].

Other measures for assessment of QoL after bariatric surgery include the Impact of Weight on Quality of Life-Lite Questionnaire (IWQOL-Lite), the Beck Depression Inventory (BDI) and the Rosenberg Self-Esteem Scale (RSE) [14].

The IWQOL-lite is a 31-item questionnaire which assesses the impact of weight on QoL in five domains. This questionnaire has shown good validity and reliability in obese patients and has been was used in the bariatric population. In addition to a total score, there are scores on five scales: physical function, self-esteem, sexual life, public distress, and work [15, 16].

The Beck Depression Inventory (BDI) is a standard self-report questionnaire consisting of 21 multiple-choice items designed to assess the presence and severity of depressive symptomatology. On the BDI, higher scores indicate more severe depression [17].

The Rosenberg Self-Esteem Scale (RSE) is a widely used self-report instrument consisting of ten items that measure overall self-esteem. On the RSE, higher scores indicate poorer self-esteem [18].

Bariatric surgery has been demonstrated to contribute to dramatic improvements in QoL after surgery compared to other weight loss methods [19, 20].

Gastric bypass surgery (GBS) is an accepted and effective means of managing morbid obesity, not only for weight loss but also for reducing or eliminating

associated co-morbid conditions. These benefits may result in improved HR-QoL, enhanced functional abilities, and improved cardiorespiratory fitness [21].

Dymek et al. [14], in their cross-sectional study found that there were significant differences among patients before and after RYGB, regarding weight, body mass index (BMI) and BAROS outcome data. Also, significant differences were noted in the results of BDI and RSE before and after surgery, denoting that depressive symptoms and self-esteem were outstandingly improved especially in the first year after RYGB [14]. Using SF-36 and IWQOL-Lite questionnaires, there was significant post-operative improvement of physical and mental health states which increased gradually [14].

Chang et al. [22], reported that improvements were documented in various domains and aspects of QoL for the first 3 months, after which there was a slight downward trend in physical and psychological domains between 3 and 6 months that seemed to be associated with complications, followed by further improvement up to the end of the first year. Their study showed that laparoscopic gastric bypass could improve both physical and mental health dimensions of the SF-36 [22, 23].

The laparoscopic mini-gastric bypass (MGB) is a modification of the Mason loop gastric bypass (but with a long lesser curvature pouch) with weight loss results similar to laparoscopic RYGB [24, 25].

In their comparative study using gastrointestinal QoL Index (GIQLI) for assessment of QoL after laparoscopic MGB and RYGB, Lee et al. [26] reported that GIQLI scores after MGB were significantly higher than pre-operative scores. Physical, social and emotional functions were markedly improved after surgery. MGB patients had a better score in abdominal pain but lower score in eating with pleasure and trouble with diarrhea than RYGB patients.

In this study, the GIQLI detected no significant difference between RYGB and MGB. At 5 years after surgery, both operations can significantly improve the total score on QoL, but the improvement was confined to psychological, physical, and social domains. The disease-specific and core symptom domains decreased after surgery because many patients developed certain gastrointestinal symptoms, mainly related to vomiting, eating disorders, and abdominal discomfort. In specific symptoms analysis, RYGB patients experienced a higher frequency of abdominal pain than MGB. MGB patients, on the other hand, experienced higher frequency of oil stool passage and diarrhea, likely related to the short bowel effect. However, there was no difference between the groups in symptoms of heartburn or regurgitation [26].

RYGB patients had a higher incidence of internal hernia (1–4%) and intestinal obstruction requiring more frequent revisional surgery compared to MGB [27].

Lee et al. [26] concluded that MGB is an effective bariatric operation which significantly increases the QoL and has the advantage of being simpler with lower need for revisional surgery compared to RYGB.

The authors have assessed the outcome of MGB on the QoL in 1520 patients over a period of 6 years (between 2009 and 2015) [28], and the following data were obtained:

- *Physical functioning*

Physical functions were markedly improved in most patients apart from a few patients who developed post-operative iron deficiency anemia that negatively affected patients' daily physical activities. This problem was managed by medical treatment with supplementation of iron and other trace elements, and physical activity improvement was regained.

- *Social relationships*

In general, there was significant improvement of patients' relationships which can be attributed to marked weight loss and improvement of physical activities and other co-morbidities. However, some issues were reported by a small percentage of patients, such as offensive flatus and stools and diarrhea, which were managed by diet and probiotics.

- *Psychological impact*

The majority of patients reported that they perceived a marvelous change in their psychological status after surgery. Almost all patients who were receiving pre-operative antidepressant drugs completely discontinued these medications at various periods after MGB. Self-esteem was significantly elevated for most patients, and positive mood changes were progressively acquired. Few patients (<3%) reported poor outcome after surgery, and this was attributed to alterations in dietary habits, inadequate excess weight loss (EWL), limitation of physical activities and gastrointestinal symptoms including diarrhea, nausea, abdominal pain and GERD symptoms.

- *Sexual activity*

More than 70% of patients of both genders declared that their sexual activity improved after surgery especially in the late post-operative period (after 6 months); however, 23% complained of post-operative hypofunction, possibly because of nutritional and psychological disruption in the early post-operative period. This problem could be solved by dietary adjustment, correction of malnutrition, supplementation of vitamins and trace elements and reassurance.

- *Mental health*

Few patients (<2%) developed post-operative amnesia due to thiamine deficiency, which was corrected by dietary control. However, the majority of patients reported that their mental health remains unchanged or slightly enhanced.

- *Resolution of co-morbidities*

MGB is a very efficient bariatric measure in resolving obesity-related co-morbid conditions. This was confirmed in the follow-up period, because at 3-year

follow-up, 90.9% of diabetic patients had complete remission [28], which is comparable to other studies [29, 30]. Also the remission rate of hypertension at the end of 3-year follow-up was 91.6% [28], which is comparable to other results [29].

With follow-up, various co-morbidities including respiratory, cardiovascular and musclo-skeletal, were improved by varying degrees over varying periods after surgery. Postoperative co-morbidities improvement contributed to optimizing physical, social and psychological functions of the patients.

- *Eating behavior*

MGB helps to change the poor dietary habits of patients to post-operative healthy Mediterranean diets, as reported by Rutledge [31]. Some patients may exhibit inconvenience with the nutritional program after surgery and this may lead to nutritional or emotional disorders. Thus, continued surveillance of patients' nutritional status after surgery is essential.

- *Percentage of excess weight loss (%EWL)*

MGB has proved to achieve higher %EWL compared to other bariatric measures [32]. The authors found that %EWL at 3-year follow-up was 80.2% [28], which is comparable to other published studies.

Conclusion

MGB is a competent bariatric option for management of morbid obesity, and significantly improves the QoL, especially physical, social and psychological aspects.

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