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Original article

Quality of life after gastric sleeve and gastric bypass for morbid obesity

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ABSTRACT

Background: Obesity is associated with reduced quality-of-life (QoL), which generally improves after bariatric surgery. The differential effect of each type of surgery (gastric sleeve [SG] and gastric bypass [RYGB]) on QoL is not yet fully understood.
Objectives: To understand which of these surgeries offers greatest improvement in QoL and patient satisfaction.
Methods: Systematic literature search on Pubmed in July 2014. Relevant articles were selected in a step-wise approach. The 2482 titles were scanned for relevance and 191 were selected for abstract reviewing; and 88 papers were selected for full text analysis.
Results: Only 5 papers compared the 2 techniques and only 17 more had retrievable data either on SG or RYGB. The reports were very heterogeneous, preventing a direct comparison of patient reported outcomes (PRO) among studies.
Improved results have been reported as early has 3 months and SF-36 scores were improved in all domains in medium to long-term. The question remains whether the improvement in QoL is related to the weight loss and which factors are associated with improved patients' perceptions.
Conclusions: There is wide heterogeneity in the reporting of PRO measures after bariatric surgery, but data is consistent with a significant improvement after both surgeries.
Larger and better-designed studies are required to understand if there are significant differences in the quality of life after SG or RYGB.

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Introduction

The worldwide epidemic of obesity, fueled by a sedentary lifestyle and an energetically dense diet, has contributed to an unprecedented event in the history of mankind: for the first time, the number of obese people is greater than the number of undernourished.[1] Obesity is a growing public health concern in developed countries, and it is estimated that there are over than 1.5 billion obese people worldwide.[2] This represents about 5% of all the health related expenditures in the USA[3] and leads to a significant decrease in life expectancy.[4]

Bariatric surgery is the most effective available treatment and the one that allows more significant and durable weight loss.[5] It leads to reversal of co-morbidities and components of the metabolic syndrome,[6–10] as well as a reduction in all-cause mortality[6–14] by as much as 89%.[15] Its cost-effectiveness has been widely reported, and we conducted a cost-utility study based on a Markov model that concluded that RYGB is a cost-saving strategy.[16]

However, up to 18% of patients fail to achieve a body mass index (BMI) < 35 kg/m^2, and unsuccessful weight loss has been reported in 10–30% of patients who have undergone bariatric surgery.[17]

Roux-en-Y gastric bypass (RYGB) was one of the first approved surgical options for morbid obesity. In 1991 the National Institutes of Health (NIH) determined that RYGB was indicated for patients with a BMI greater than 35 with obesity related comorbidities and for patients with BMI greater than 40 without comorbidities.[18]

Since its inception in 1994, the totally laparoscopic RYGB, though technically demanding, has become the procedure of choice for morbid obesity.[18] The laparoscopic technique is associated with a decrease in complications and an improvement in quality-of-life.[18] There are several variations to the technique, but all include

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the creation of a small gastric reservoir, a gastro-jejunal anastomosis and a biliary limb and Roux-limb of varying lengths.

Sleeve gastrectomy (SG), originally performed as the restrictive component of the duodenal switch procedure,[19] has recently been recognized as a valid option for the surgical treatment of morbid obesity.[20] In the past 10-years it has evolved from an investigational stand-alone procedure to ~%5 of all bariatric surgeries.[21] It usually is performed through a laparoscopic approach and involves the creation of a narrow tubular stomach due to a vertical gastrectomy based along the greater curvature.[22] It has shown an intermediate result between gastric banding and RYGB in terms of weight loss, and an improvement in co-morbidities similar to that seen after RYGB.[21,23,24]

Development of gastroesophageal reflux disease (GERD) is one of the most frequent complications of SG with up to 26% of patients experiencing new symptoms after surgery[25] and up to 30% requiring reoperation due to GERD or weight increase caused by dilatation of the gastric tube.[26,27]

The evaluation of outcomes in bariatric surgery is of utmost importance, although it is not easy to do. There are several different risks at stake (including death) and different outcomes to be achieved: health related quality of life (QoL), weight loss and resolution of associated diseases. Several studies evaluating QoL measures have shown conflicting results.[28–31]

Also, due to the technical nature of the procedures, small variations in the technique (such as pouch size, anastomoses diameter or limb lengths) or different techniques (RYGB, gastric band, SG, and others) being used by different surgeons and different centers makes it more difficult to analyze the results and compare data. Patient follow-up and reporting are usually sub-optimal and the parameters used to measure improvement or resolution of comorbidities have not been standardized.[32] Many of the published studies are retrospective cohorts or case series rather than prospective randomized trials, and may not be truly representative of differences in QoL between different procedures. So, despite the more than 350,000 surgeries performed worldwide each year, we are still lacking consensus on which is the best surgery for each patient.[33]

Obesity is associated with reduced QoL and in general, QoL improves after bariatric surgery.[34] The differential effect of each surgery on QoL is not yet fully understood, but it seems that RYGB is associated with better patient-centered outcome measures and greatest improvement in QoL.[26,32,35]

Since SG numbers are increasing and the clinical results seem to be comparable to RYGB, at least in the short term, it is important to understand which of these surgeries offers greater improvement in QoL and patient satisfaction.

Materials and methods

We performed a systematic review of the literature, with the primary objective being to compare the quality of life of morbidly obese patients after RYGB and SG. A secondary focus was related to comparing weight loss and measures of alimentary satisfaction.

Literature search: We performed a systematic literature search on Pubmed in July 2014, with the following terms: [“patient satisfaction” or “quality of life” or “patient reported outcomes”] and [“gastric sleeve” or “gastric bypass” or “bariatric surgery” or “metabolic surgery”]. Since the MeSH thesaurus is not up to date, and several relevant papers were published in the latter year, we opted to use general language search. The search was restricted to humans and there was no date restriction nor any other restrictions to types of studies, participants or interventions. Only articles in English, Spanish, French or Portuguese were selected.

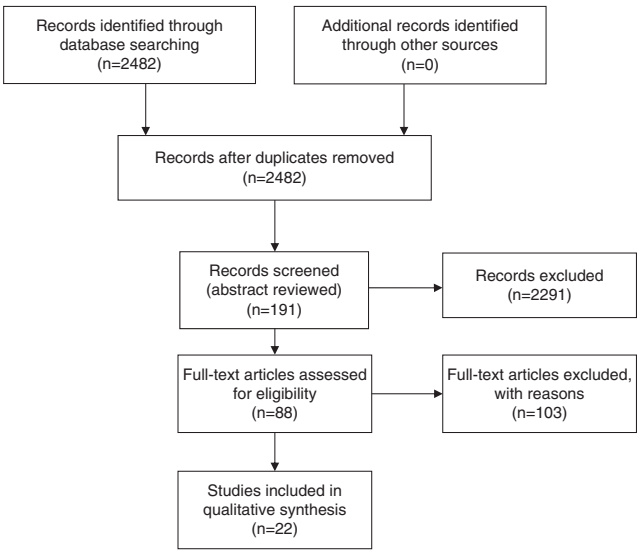

Fig. 1. Prisma flow diagram. From the 88 papers selected for full text revision, only 22 had retrievable objective data, which were used in the summary tables. Only 5 studies had a direct comparison between both techniques, 2 of which were randomized controlled trials.

Relevant articles were selected in a step-wise approach. The search retrieved 2482 titles that were scanned for relevance and 191 of these were selected for abstract reviewing. The abstracts were reviewed and 88 papers were selected for full text analysis (Fig. 1). Papers selection and reviewing was performed unblinded by the first author, based on relevance and the presence of retrievable (numeric) data in the full-text of the paper. Only papers that evaluated QoL after each intervention using validated QoL questionnaires were selected. Papers that mentioned “quality of life” but did not use any measure were excluded, as well as papers evaluating QoL in other types of surgery. Data was extracted from the papers in tables (Tables 1 and 2). Only 22 papers had retrievable data and were used in the analysis. One of the papers used the Food Tolerance Questionnaire, 3 used the M-A-II, 3 used the BAROS, 3 used the GIQLI and 13 used the SF-36.

Outcomes used

Many validated generic questionnaires can be used to assess QoL. The most frequently used questionnaire is the Short Form-36 (SF-36).[36] However, these instruments are often times exhaustive, might require interviewers and are not validated for follow-up of bariatric patients since they are not disease specific.[37] The condition specific Moorehead-Ardelt Quality of Life Questionnaire II[38] (MA-II, alone or integrated in the BAROS) is a simple, 1-page, valid, reliable, appropriate and reproducible instrument to assess patient’s QoL before and after bariatric surgery. Since it uses pictures to represent different health states, it bridges linguistic, cultural and educational barriers.[37] However, both BAROS and MA-II are copyrighted, which might preclude their widespread use.

The Gastrointestinal Quality of Life Index (GIQLI) is a questionnaire capable of providing information on generic and specific aspects of digestive symptoms and QoL. For this reason, GIQLI has been extensively used in different pathologies and to evaluate medical treatments or surgical procedures performed on the digestive tract.

BAROS

The Bariatric Analysis and Reporting Outcome System was proposed in 1998.[39] It included analysis of weight loss, improvement in

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