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Original article

Insurance-mandated preoperative diet and outcomes after bariatric surgery

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Abstract

Background: Despite a lack of demonstrated patient benefit, many insurance providers mandate a physician-supervised diet before financial coverage for bariatric surgery.

Objectives: To compare weight loss between patients with versus without insurance mandating a preoperative diet.

Setting: University hospital, United States.

Methods: Retrospective study of all patients who underwent laparoscopic Roux-en-Y gastric bypass or sleeve gastrectomy over a 5-year period, stratified based on whether an insurance-mandated physician-supervised diet was required. Weight loss outcomes at 6, 12, and 24 months postoperation were compared. Linear mixed-models and backward-stepwise selection were used. $P < 0.05$ was considered significant.

Results: Of 284 patients, 225 (79%) were required and 59 (21%) were not required to complete a preoperative diet by their insurance provider. Patients without the requirement had a shorter time to operation from initial consultation ($P = .04$), were older ($P < .01$), and were more likely to have government-sponsored insurance ($P < .01$). There was no difference in preoperative weight or body mass index or co-morbidities. In unadjusted models, percent excess weight loss was superior in the group without an insurance-mandated diet at 12 ($P = .050$) and 24 ($P = .045$) months. In adjusted analyses, this group also had greater percent excess weight loss at 6 ($P < .001$), 12 ($P < .001$), and 24 ($P < .001$) months; percent total weight loss at 24 months ($P = .004$); and change in body mass index at 6 ($P = .032$) and 24 ($P = .007$) months. There was no difference in length of stay or complication rates.

Conclusions: Insurance-mandated preoperative diets delay treatment and may lead to inferior weight loss. (Surg Obes Relat Dis 2018;■:00–00.) Published by Elsevier Inc. on behalf of American Society for Metabolic and Bariatric Surgery.

Keywords:

Insurance; Diet; Bariatric surgery; Weight loss; Outcomes

Obesity has reached epidemic status over the past several decades, and studies predict the problem to continue growing in the foreseeable future [1,2]. Obesity threatens health in terms of increased risk of diabetes, cardiovascular disease, and certain cancers, and it has been shown to

increase all-cause mortality [2,3]. It also has tremendous economic impact and has been estimated to account for >9% of all medical expenditures [2]. In fact, each point increase in body mass index (BMI) is associated with an increase in medical and pharmaceutical costs.

Bariatric surgery is the best available intervention to achieve and maintain weight loss long term. Additionally, surgery has been shown to improve or effect remission of co-morbidities, including diabetes, hypertension, obstructive sleep apnea, and dyslipidemia. Despite its significant benefits, bariatric surgery is not easily accessible for all

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patients in need. One such barrier to treatment is an insurance-mandated physician-supervised preoperative diet. It is presumable that insurance providers require preoperative diets to improve patients' weight loss success and reduce the risk of perioperative complications. However, studies have suggested there is no difference in pre- or postoperative weight loss outcomes when comparing patients who had required preoperative diets versus those who did not, and the preoperative diet only delays treatment and leads to increased rates of attrition from bariatric programs [4–7]. Furthermore, patients denied surgery by their insurance provider develop new diagnoses of obesity-related co-morbidities, suffer from worsening glycemic control with increased need for new diabetic medications, and have decreased overall survival compared with patients who underwent bariatric surgery [8,9]. These results have challenged the practice of insurance-mandated preoperative diets. Recently, the American Society for Metabolic and Bariatric Surgery updated its position statement on the issue, again stating that there is no medical evidence of benefit to patients [10]. The purpose of this study was to compare weight loss outcomes of patients who were required to participate in a physician-supervised preoperative diet by their insurance provider with those who were not subjected to this mandate.

Methods

The institutional review board approved this study. A retrospective review of all patients who underwent laparoscopic Roux-en-Y gastric bypass or laparoscopic sleeve gastrectomy at a university hospital from January 2009 through December 2013 was performed from a prospectively maintained database. Exclusion criteria included open operations and age <19 years. Patients were stratified into 2 groups based on whether they were required by their insurance provider to complete a physician-supervised preoperative diet before financial coverage. Preoperative characteristics included demographic information, insurance type (private versus government-sponsored), and presence of obesity-related co-morbidities. Preoperative weight and BMI were reported for both the "initial visit" (very first consultation with the surgeon) and the "preoperative visit" (visit closest to the time of operation, usually within 2 wk of operation). Weight changes were determined from the initial visit to the immediate preoperative visit. Postoperative outcomes including length of hospital stay and complications, and weight loss outcomes of percent excess weight loss (%EWL), percent total weight loss (%TWL), and change in BMI (Δ BMI) were compared between the groups. Postoperative weight loss outcomes were calculated using weights from the preoperative visit, defined above.

Descriptive statistics were used to compare patient characteristics and insurance-mandated diet status. χ^2 and Student's *t* tests were used to compare categoric and

continuous variables, respectively. Generalized linear models and mixed-effects multivariate regression with a spline fit adjustment for time since operation was used to model %TWL, %EWL, and Δ BMI, both with and without adjustment for factors independently associated with weight loss outcomes. Data are reported as medians and interquartile range rather than means and standard deviations due to a nonnormal distribution for many of the continuous variables studied. Statistical analyses were conducted using SAS Version 9.4 (SAS Institute Inc., Cary, NC, USA) and R (Version 3.13.0, The R Development Core Team, Vienna, Austria); statistical significance was determined by $P < .05$.

Results

A total of 284 patients were included in the study. Of these, 225 (79%) were required by insurance providers to participate in a physician-supervised preoperative weight loss program before approval for surgery, while 59 patients (21%) were not held to this mandate. For the entire cohort, median age was 44 years, and the majority was female (78%) and Caucasian (64%). Obesity-related co-morbidities included diabetes (46%), hypertension (72%), obstructive sleep apnea (66%), and gastroesophageal reflux disease (51%; Table 1). Median weights at initial consultation and immediate preoperative visits were 131.5 kg (BMI 47.1 kg/m²) and 134.7 kg (BMI 47.8 kg/m²), respectively (Table 2). At the time of operation, 240 patients (84.5%) underwent Roux-en-Y gastric bypass while 44 (15.5%) had SG.

After stratification, patients in the insurance-mandated diet group were younger (median age 43 years versus 51 years; $P < .001$) and more likely to have private insurance rather than a government-sponsored plan ($P < .001$). There was no difference in race, sex, or presence of obesity-related co-morbidities (Table 1). At initial consultation, the median weight of those who had an insurance-mandated diet was 131.9 kg (BMI 47.2 kg/m²), which increased to 134.7 kg (BMI 47.9 kg/m²) by the time of their immediate preoperative visit. Patients who did not have the insurance-mandated diet weighed 130.2 kg (BMI 46.5 kg/m²) at initial consultation and 133.8 kg (BMI 46.8 kg/m²) at immediate preoperative visit. There was no significant difference in initial consultation or preoperative weights or BMIs between the groups, or in %EWL or %TWL from initial consultation to immediate preoperative visit. However, time from initial consultation to operation was significantly delayed for the insurance-mandated diet group (218 versus 154 days; $P = .037$). Operation performed, length of hospital stay, and complication rates were similar (Table 2).

In unadjusted comparisons, there was no significant difference in weight, BMI, %TWL, or Δ BMI between the groups at 6 months, 1, or 2 years postoperation (Table 3), but median %EWL was superior at 1 year for the group

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