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Changes in bowel habits and patient-scored symptoms after Roux-en-Y gastric bypass and biliopancreatic diversion with duodenal switch

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Abstract

Background: Bariatric procedures are increasingly being used, but data on bowel habits are scarce.

Objectives: To assess changes in gastrointestinal function and patient-scored symptoms after Roux-en-Y gastric bypass (RYGB) and biliopancreatic diversion with duodenal switch (BPD/DS).

Setting: University hospital in Sweden.

Methods: We recruited 268 adult patients (mean age of 42.5 yr, body mass index 44.8, 67.9% female) listed for RYGB and BPD/DS. Patients answered validated questionnaires prospectively concerning bowel function, the Fecal Incontinence Quality of Life Scale, and the 36-Item Short Form Health Survey before and after their operation.

Results: Postoperatively, 208 patients (78.2% of 266 eligible patients) answered the questionnaires. RYGB patients had fewer bowel motions per week (8 versus 10) and more abdominal pain postoperatively ($P < .001$). Postoperatively, the 35 BPD/DS patients (69% versus 23%) needed to empty their bowel twice or more than twice daily, reported more flatus and urgency, and increased need for keeping a diet ($P < .001$). Concerning Fecal Incontinence Quality of Life Scale, coping and behavior was slightly reduced while depression and self-perception scores were improved after RYGB. Lifestyle, coping and behavior, and embarrassment were reduced after BPD/DS ($P < .05$). In the 36-Item Short Form Health Survey, physical scores were markedly improved, while mental scores were largely unaffected.

Conclusion: RYGB resulted in a reduced number of bowel movements but increased problems with abdominal pain. In contrast, BPD/DS-patients reported higher frequency of bowel movements, more troubles with flatus and urgency, and increased need for keeping a diet. These symptoms affected quality of life negatively, however, general quality of life was markedly improved after both procedures. These results will be of great value for preoperative counseling. (Surg Obes Relat Dis 2017;■:00–00.) © 2017 American Society for Metabolic and Bariatric Surgery. All rights reserved.

Keywords:

Bowel habits; Fecal incontinence; Obesity; Gastric bypass; Duodenal switch

Obesity is a rising threat to health due to significant comorbidities (type 2 diabetes, sleep apnea, cardiovascular disease) [1,2] and reduction in life expectancy [3].

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Furthermore, severe obesity is associated with lower quality of life. The use of gastrointestinal procedures to treat severe obesity has increased because of the good results, concerning both co-morbidities [4,5] and quality of life [6]. However, data on bowel habits are scarce. Previous studies have shown that high intra-abdominal pressure, often linked to incontinence [7], a socially isolating condition [8–10],

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and pelvic floor disorders are more frequent in obese patients [11,12]. Obesity is also associated with abdominal pain, increased bowel motion, and reflux [13].

In Roux-en-Y gastric bypass (RYGB), food intake is restricted by creating a small gastric pouch that empties directly into the small bowel, which in turn affects various gastrointestinal hormones. In biliopancreatic diversion with duodenal switch (BPD/DS), intake is reduced by a sleeve gastrectomy, and the uptake of fat and fat-soluble nutrients is limited to a common channel of approximately 1 m. Although both procedures result in improved glucose metabolism and weight loss, BPD/DS is considered to be the most effective bariatric procedure [5] and thus is often used in super-obese patients (body mass index [BMI] > 50 kg/m²) [14].

The aim of this prospective study was to investigate bowel function and its impact on quality of life, before and 2 years after gastric bypass and duodenal switch, by using 3 validated questionnaires. A secondary aim was to compare the 2 operations in this aspect.

Methods

Patients assessed for bariatric surgery between March 2012 and April 2014 were invited to answer 2 questionnaires; a validated questionnaire concerning bowel function [15] and the Fecal Incontinence Quality of Life Scale (FIQL) by Rockwood et al. [16], before and 2 years after their operation. Data from the routinely used 36-Item Short Form Health Survey (SF-36) was collected from the Scandinavian Obesity Registry at baseline and at 1 and 2 years postoperatively. Of 518 patients, 268 patients accepted to participate in the study. Patients were asked to answer the questionnaires again by mail 2-years postoperatively, when most of the weight loss has occurred [17].

Questionnaires

The bowel function questionnaire includes 49 questions, covering 4 items; bowel motion, incontinence and urgency, abdominal pain and urologic symptoms, and social and physical issues [15].

The FIQL contains 29 items, forming 4 scales that describe how incontinence affects lifestyle (10 items), coping and behavior (9 items), depression and self-perception (7 items), and embarrassment (3 items). All answers are categoric and registered in a score from 1 to 4, with higher values indicating less difficulties [16].

SF-36 measures general quality of life across 8 health domains: physical functioning, bodily pain, role limitations due to physical health problems, role limitations due to personal or emotional problems, emotional well-being, social functioning, energy/fatigue, and general health perceptions. The 8 health concepts are summarized in 2

scores, concerning physical (physical component summary) and mental (mental component summary) health. All scores range from 0 to 100, higher score indicates better health [18].

Statistical analysis

Excess BMI loss was defined as $([\text{baseline BMI} - \text{BMI at 2 years}] / [\text{baseline BMI} - 25]) \times 100$. The outcomes of the 2 operations were compared with Wilcoxon signed ranks test for numerical values and McNemar test was used for categoric variables. Due to the multiple comparisons in the bowel function questionnaire, a Bonferroni adjustment was used, resulting in a *P* value of $\leq .001$ for statistical significance. χ^2 test was used to compare categoric values and Mann-Whitney *U* test for nonparametric values. SPSS version 23 (IBM, Armonk, NY) was used. The study was approved by the regional ethical committee in Uppsala (2012/024).

Results

Postoperative questionnaires were responded to by 208 patients (response rate 78.2%, 208/266 eligible patients). As expected, weight loss was significant after surgery; mean BMI was reduced from 42.7 to 29.5 for RYGB and 57.1 to 35.3 for BPD/DS. This corresponds to an excess BMI loss of 78.1% and 68.4%, respectively (Table 1).

Bowel function in Roux-en-Y gastric bypass

Compared with the preoperative values, RYGB patients had fewer bowel motions per week (8 versus 10) with a clear shift toward ≤ 1 bowel motion per day (49% versus 28%), shorter deferring time for solid stools, and an increased incidence of abdominal pain (32% versus 17%), (*P* < .001 for all; Table 2). Moreover, a tendency toward increased laxative use (*P* = .012), painful defecation (*P* = .002), and increased need for digital assistance to

Table 1
Patient characteristics at 2-years follow-up

	RYGB (n = 173)	BPD/DS (n = 35)	<i>P</i> value
Age, yr	42.9 ± 11.1	40.4 ± 9.4	.076*
Sex (percent male/female)	26/74	52/48	.001†
Preoperative BMI	42.7 ± 5.3	57.1 ± 5.8	<.001‡
Postoperative BMI	29.5 ± 4.7	35.3 ± 4.5	<.001‡
BMI reduction	13.4 ± 4.0	22.2 ± 5.6	<.001‡
% excess BMI loss	78.1 ± 21.4	68.4 ± 12.7	.004‡
Total weight loss, kg	38.3 ± 11.6	66.7 ± 17.9	<.001‡
% total weight loss	31.2 ± 7.5	38.4 ± 7.1	<.001‡

RYGB = Roux-en-Y gastric bypass; BPD/DS = biliopancreatic diversion with duodenal switch; BMI = body mass index.

Data are presented as mean ± standard deviation.

**t* test.

† χ^2 test.

‡Mann-Whitney *U* test.

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