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Safety and effectiveness of bariatric surgery in dialysis patients and kidney transplantation candidates

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Abstract

Background: Chronic renal disease is known to adversely affect the results of bariatric surgery. There is a paucity of literature on the safety and effectiveness of bariatric surgery on dialysis patients who are at very advanced stages in their renal disease. The objective of this study was to determine the safety and effectiveness of bariatric surgery in dialysis patients.

Methods: A retrospective review of a prospectively collected database was conducted for dialysis patients who underwent bariatric surgery between January 2006 and January 2012. Age, gender, body mass index (BMI), cause of renal failure, associated co-morbidities, type of surgery, early and late complications, and mortality were collected.

Results: Of the 3048 patients undergoing bariatric surgery during the study period, 21 dialysis patients (.7%) were identified. Eighteen patients underwent laparoscopic Roux-en-Y gastric bypass (LRYGB), 2 patients underwent laparoscopic sleeve gastrectomy, and 1 patient underwent laparoscopic adjustable gastric banding. Mean preoperative BMI was 47.1 ± 5.5 kg/m^2, and BMI decreased to 35.3 ± 8.4 kg/m^2 after a mean follow-up period of 27.6 months (range = 1.4–78.0 mo). Early major complications (<30 days of surgery) occurred in 2 patients (1 anastomotic leak and 1 anastomotic stricture). Four patients had a late complication, including 1 marginal ulcer with bleeding managed endoscopically, 1 small bowel obstruction requiring laparoscopic lysis of adhesions, 1 cholecystitis requiring cholecystectomy, and 1 anastomotic stricture requiring endoscopic dilation. There was 1 death in this cohort, at 45 days after LRYGB, that was unrelated to a surgery.

Conclusions: Chronic renal failure requiring dialysis should not be considered a contraindication to bariatric surgery. Our experience with this patient population has shown excellent medium-term weight loss and an acceptable (albeit increased) risk/benefit ratio. (Surg Obes Relat Dis 2015;11:419–423.)

Keywords: Renal transplantation; Dialysis; morbid obesity.

Many obesity-related co-morbid conditions, including diabetes mellitus, hypertension, and dyslipidemia are also risk factors for chronic kidney disease (CKD) [1–3]. In addition, obesity itself is an independent risk factor for CKD. Obesity is closely associated with diabetes and hypertension, both of which are major causes of kidney disease accounting for approximately 70% of CKD requiring dialysis [4,5].

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The prevalence of obesity is increasing in the United States among the general population and also among patients with CKD. In 2006, of all patients starting dialysis, 34.6% had a body mass index (BMI) higher than 30, compared with only 19.1% in 1995. There was also a higher prevalence of morbid obesity (BMI >35) among patients starting dialysis in 2006 (17.3%), compared with only 9.7% in 1995 [6]. This poses a challenge to physicians treating CKD and to bariatric surgeons selecting patients for bariatric operations. There is little published data evaluating bariatric surgery in dialysis patients. The aim of this study is to report the results of bariatric surgery performed in patients on dialysis.

Methods

After obtaining institutional review board approval, a retrospective review of a prospectively maintained database was conducted to include patients who were on dialysis and had a bariatric surgery between January 2006 and January 2012. Data collected included demographic characteristics, body mass index at presentation and at time of last follow up, cause of renal failure, associated co-morbidities, type of surgery, duration of hospital stay, early and late complications, and mortality. Descriptive statistical analysis was performed in JMP Pro 10 version for Windows (SAS Institute Inc., Cary, NC). Categorical variables were summarized as frequencies, and continuous variables were summarized as mean ± standard deviation or median.

Results

Baseline patient characteristics are summarized in Table 1. Of the 3048 patients undergoing bariatric surgery during the study period, 21 dialysis patients (.7%) were identified. Patients included were on maintenance dialysis in the preoperative and postoperative period. Diabetic nephropathy was the cause of renal failure in 11 patients, and hypertensive nephropathy was the cause in 8 patients; the cause was unknown in 2 patients.

Eighteen patients underwent laparoscopic Roux-en-Y gastric bypass (LRYGB), 2 patients underwent laparoscopic sleeve gastrectomy (LSG), and 1 patient underwent laparoscopic adjustable gastric banding (LAGB). Mean preoperative BMI was 47.1 ± 5.5 kg/m^2, and BMI decreased to 35.3 ± 8.4 kg/m^2 after a median follow-up period of 24.7 ± 23.1 months (range = 1.4–78 mo). The mean percentage of excess weight lost was 60.5% ± 35.4%.The median duration of hospital stay was 5 ± 4 days. Early complications (<30 days of surgery) occurred in 3 patients (14%). One patient had a minor complication (delirium), and 2 patients undergoing LRYGB had major complications (1 leak requiring reoperation and 1 gastrojejunal anastomotic stenosis requiring multiple balloon dilations). Four patients (19%) had a late complication, including 1 marginal ulcer with bleeding managed endoscopically, 1 small bowel obstruction requiring laparoscopic lysis of adhesions, 1 cholecystitis requiring cholecystectomy, and 1 anastomotic stenosis requiring dilation (Table 2). There was 1 death in this cohort, at 45 days after LRYGB, that was unrelated to surgery; the patient achieved 20 kg of weight loss, but unfortunately expired at a peripheral hospital due to presumed line sepsis. All patients were referred for bariatric surgery to achieve candidacy for kidney transplantation. At the time of last follow-up, 16 patients had lost sufficient weight and were placed on the transplant list, and 2 patients underwent kidney transplantation; 1 patient who had a LAGB was denied because of failure of weight loss, and 2 patients were denied because of their high cardiopulmonary risk (Table 3). Two of the 11 diabetic patients had remission of their type 2 diabetes at time of last follow up, with an HbA_{1c} level below 5.5% off medication.

Table 1
Patient characteristics and evolution

Number of patients	21
Age (yr)	50.6 ± 10.3
Gender, M/F	12/9
Baseline BMI, kg/m^2	47.1 ± 5.5
BMI at last follow-up, kg/m^2	35.3 ± 8.4
Co-morbidities	
Diabetes, n (%)	14 (66.6%)
Hypertension, n (%)	18 (85.7%)
OSA, n (%)	10 (47.6%)
CAD, n (%)	3 (14.2%)
Type of surgery	
Gastric bypass, n	18
Sleeve, n	2
Banding, n	1
Renal function	
GFR baseline	8.2 ± 3.4
GFR at last follow-up	10.6 ± 4.0
Time from diagnosis to start dialysis, years	1.8 ± 1.9
Mean follow up, months	27.6 ± 22.8

Abbreviations: M = male; F = female; BMI = body mass index; OSA = obstructive sleep apnea; CAD = coronary artery disease; GFR = glomerular filtration rate.

Discussion

Results of this small single institution series show that bariatric surgery can be performed with acceptable weight

Table 2
Postoperative complications

Early (<30 d)	n = 3 (14%)
Delirium	1
Anastomotic leak	1
Anastomotic stenosis	1
Late (>30 d)	n = 4 (19%)
Marginal Ulcer	1
Small bowel obstruction	1
Acute cholecystitis	1
Anastomotic stenosis	1