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Original article

Sleeve gastrectomy surgery in obese patients post-organ transplantation

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Abstract

Background: Among organ transplant recipients, a common side effect of immunosuppressive therapy is the development of obesity, which affects a third of the patients within 3 years after transplantation. Bariatric surgery represents a possible surgical option for weight loss among posttransplant patients.

Objectives: The aim of this study was to examine percent excess weight loss (%EWL), and percent weight loss (%WL) and perioperative and postoperative complications in posttransplant obese patients after sleeve gastrectomy (SG) compared with nontransplant patients. We hypothesize that transplant patients who undergo SG will not significantly differ in their perioperative or postoperative complications or in their %EWL and %WL compared with nontransplant patients who undergo SG. The second aim was to evaluate the impact of SG on graft function and immunosuppressive therapy in transplant patients.

Setting: University hospital.

Methods: Among 500 consecutive patients who underwent SG from January 2008 to June 2014, 10 patients were organ transplant recipients. The following variables were compared between groups: patient demographic characteristics and co-morbidities, type of transplant surgery, date of transplant surgery, pretransplant body mass index (BMI), date of bariatric surgery, prebariatric surgery BMI, operative time, length of hospitalization, postoperative complications, and change in BMI, %EWL, and %WL. Data were also collected on renal, liver, and pancreas graft function parameters and changes in immunosuppressive medications.

Results: Six patients had a kidney transplant, 2 patients had a liver transplant, and 2 had a pancreas transplant. No significant differences were observed in %EWL or %WL at 6 and 12 months follow-up between transplant and nontransplant patients. No transplant patients were lost to follow-up at 6 and 12 months. Among nontransplant patients, 36.7% and 35.7% were lost to follow-up at 6 and 12 months, respectively. No postoperative complications were registered in the transplant group. SG did not negatively affect the graft function.

Conclusion: Initial results found that there were no significant differences in %EWL or %WL at 6 and 12 months follow-up between transplant and nontransplant patients. There were also no perioperative and postoperative complications among transplant patients after SG. (*Surg Obes Relat Dis* 2016;■:00–00.) Published by Elsevier Inc. on behalf of American Society for Metabolic and Bariatric Surgery.

Keywords:

Sleeve gastrectomy; Organ transplantation; Morbid obesity; Immunosuppressive treatment

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Weight gain and obesity postorgan transplantation is a serious and growing health problem [1]. Many factors contribute to posttransplant weight gain, including immunosuppressive therapies, endocrine changes, and physical

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inactivity [2-6]. Pretransplant and posttransplant obesity has been shown to increase the risk of graft loss, delayed graft function, and decreased patient survival after transplant surgery [7,8]. Obesity also increases surgical morbidity in general, including postoperative hernias, wound dehiscence, and wound infections [9]. In addition, obesity interferes with patients' recovery and rate of improvement in quality of life posttransplantation [9].

Bariatric surgery is the most effective option in reducing weight among morbidly obese patients [10]. However, its efficacy in obese patients posttransplantation has not been completely established. Bariatric surgery can be used either before or after organ transplantation to facilitate weight loss and improve the outcome of the transplant surgery. Posttransplant bariatric surgery has been shown to normalize renal and liver functions. It also normalizes metabolic parameters, including lipid profiles and levels of glycemia [11-14]. Although bariatric surgery improves the outcomes associated with obesity, the risk of complications, such as prolonged wound healing, infections, and leaks may increase in post-transplant patients because of immunosuppressive therapies. Bariatric surgery may also alter the absorption of immunosuppressive medications and may affect graft function [14].

Among all bariatric surgeries, sleeve gastrectomy (SG) is less complex and is associated with fewer complications [15,16]. Although gastric band is also considered a low-risk procedure, the potential for complications from a foreign body in immunosuppressed patients can make gastric band surgery a less favorable option for posttransplant patients [17,18]. Roux-en-Y gastric bypass (RYGB) surgery is a procedure that may affect the absorption of the medications [12,13]. Thus, RYGB surgery may not be the optimal choice for those like transplant patients, who are taking immunosuppressive medications. Therefore, restrictive procedures may be a well-tolerated approach for the transplant population because they have a minor impact on the absorption of immunosuppressive drugs [19,20]. Despite the lower complexity and fewer complications associated with SG versus other bariatric surgeries, there has been a dearth of studies examining SG in obese posttransplant patients. Therefore, the aim of this study was to examine percent excess weight loss (%EWL), percent weight loss (%WL), and perioperative and postoperative complications in posttransplant obese patients who underwent SG surgery compared with obese patients who underwent SG who did not receive organ transplantation. The secondary aim was to evaluate the impact of SG in graft function and immunosuppressive therapy among posttransplant patients.

Material and methods

This study is a retrospective review of a prospectively maintained database with 500 consecutive patients who underwent either laparoscopic or /robot-assisted, minimally invasive SG at the University of Illinois Hospital and Health

Sciences System (UIHSS) between January 2008 and June 2014. Ten patients had transplant surgery before bariatric surgery: 6 had a kidney transplant, 2 had a pancreas transplant, and 2 had a liver transplant. All but 1 of the liver transplant patients had their transplant surgery performed at the UIHSS before seeking bariatric surgery at UIHSS. This study was conducted with Institutional Review Board approval (2011-1104).

All patients met the standard eligibility criteria for bariatric surgery based on the National Institutes of Health Guidelines on obesity [21]. Specifically, these patients had a body mass index (BMI) of >35 kg/m² with weight loss recalcitrant to nonsurgical measures with 2 or more co-morbidities; or had a BMI ≥ 40 kg/m² without co-morbidities [22]. The following variables were obtained from the electronic medical records: Patients' demographic characteristics and co-morbidities; type of transplant surgery; date of transplant surgery; pretransplant BMI (for those who had their surgery at the UIHSS); date of bariatric surgery; prebariatric BMI; operative time; length of hospitalization; postoperative complications and parameters; and change in BMI, %WL, and %EWL at 6 and 12 months follow-up. These variables were compared between 2 groups of patients: patients who underwent organ transplantation before bariatric surgery and patients who did not undergo organ transplantation before bariatric surgery. For our secondary aim, we also collected data from transplant patients on kidney, liver, and pancreas function parameters and changes in immunosuppressive medications at 6 months (± 1 month) before bariatric surgery, at the time of bariatric surgery, and at 6 and 12 months (± 1 month) after SG.

Preoperative evaluation

All patients completed preoperative bariatric assessments that included medical, psychological, and nutritional evaluations. Cardiologists, pulmonologists, and endocrinologists were involved if patients presented with any pertinent risk factors. A patient was noted to have asthma if it was recorded in the medical record and/or treated by pulmonologist. A patient was noted to have gastroesophageal reflux disease if they were either treated by health provider and this was reported in their note or if it was self-reported by the patient. Patients who received a transplant in the past were also evaluated and cleared for bariatric surgery by the transplant team. Laboratory testing measuring organ functions were also ordered for transplant patients before and after bariatric surgery. No changes were made to transplant patients' immunosuppressive therapy and drug administration based on the bariatric surgery status before surgery.

Intraoperative and postoperative management

Standard antibiotic and antithrombotic prophylaxis was provided. Laparoscopic or robot-assisted SG was performed

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