Bariatric Surgery Decreases Barriers for Kidney Transplant: Are There Other Weight-Loss Options?

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The incidence of obesity in kidney transplant candidates continues to increase, requiring more difficult transplant candidacy decisions as body mass index (BMI) requirements for surgery remain the same. Obesity is a barrier to transplant due to risks including mortality, graft failure, delayed graft function, and other surgical complications, thus excluding many patients from the opportunity of transplantation and improved quality of life (1,2). Although BMI and transplant outcomes have been extensively researched, limited data are available on the best treatment plan to help patients achieve target weights before kidney transplantation. According to Hajjar et al., despite most kidney transplant programs using a BMI limit, only 31% of transplant centers reported the use of a formal weight-loss program (3). As Kukla et al. suggest, bariatric surgery offers a time-efficient method for significant weight loss and increased access to transplants for those who would otherwise be precluded (4). However, bariatric surgery is not a one-size-fits-all approach, and adequate support and frequent follow-up by a registered dietitian nutritionist (RDN) should be available for those patients who choose conventional weight management.

The study by Kukla et al. presents valuable data to the growing body of evidence to support bariatric surgery before kidney transplant to increase access to listing, reduce waitlist time, and improve post-transplant outcomes. Specifically, they demonstrate the superiority of surgical intervention for weight loss versus conventional weight loss, with the intervention group losing 24% of body weight after 6 months compared with only 4% lost after 1 year in the conventional group (4). All 15 patients who underwent bariatric surgery were eligible for transplantation within 6 months of bariatric surgery, thereby decreasing dialysis time and increasing access to transplants. The study design offers a clear comparison of not only weight loss, but also waitlist time, subsequent medication complications, and comorbidities between the two cohorts to emphasize the value of bariatric surgery.

Limitations include a limited explanation of barriers to bariatric surgery and a lack of consistent support with weight loss in those pursuing conventional weight loss. Sixty-five percent of patients chose to forego bariatric surgery within the 1-year time frame due to insufficient education provided about the surgery and outcomes, patient apprehension and lack of autonomy, lack of insurance coverage, and undetermined goals of care. These concerns are not isolated to this study population and should be understood to provide more effective tools for patient-centered care. For conventional weight loss, patients did not receive diet and exercise counseling after the initial appointment for weight management. The authors note that this design mirrors “real life” with minimal weight-loss success. However, this design differs greatly from other conservative weight-management approaches, with aggressive interventions resulting in greater weight-loss outcomes. The conservative weight-management approach in Kukla et al.’s study noted as “ineffective” should not be generalized to all conservative weight-management approaches. Adequate education on weight-loss methods, including bariatric surgery, conventional weight loss, and weight-loss medication, is an important component of patient-centered care for elective surgery. Bariatric surgery results in rapid and significant weight loss, requiring less behavior modification compared with conventional weight loss. Roux-en-Y, gastric sleeve, or lap band surgeries are advantageous for reducing the time to and barriers for transplant if weight is the primary barrier. Advantages of bariatric surgery pretransplant include reduced incidence of new-onset diabetes after transplant, less weight regain post-transplant, and no change in infection risk with Roux-en-Y or sleeve gastrectomy surgery (2,5,6).

Table 1 summarizes the advantages and disadvantages of various weight-management options.

Disadvantages of bariatric surgery, including dumping syndrome, vomiting, micronutrient deficiencies, malnutrition, surgical complications, and weight gain, should be considered. Although bariatric surgery is time efficient, the underlying behaviors and nutrition-related knowledge deficit contributing to morbid obesity may still be present after surgery and exacerbated by a more liberalized diet and increased appetite with an improved clinical state and the addition of immunosuppressive medications. A recent retrospective review examined weight regain rates in kidney transplants after gastric sleeve and gastric sleeve alone patients (2). Weight regain, defined as the increase in BMI by 5 kg/m², occurred in 38% of the transplant candidates.
after gastric sleeve population, with 18% gaining to a BMI of >35 kg/m² versus only 4% of gastric sleeve alone patients regaining to a BMI of >35 kg/m² (2). In a recent study of 6 years of follow-up post-bariatric surgery, the average weight gain after nadir was 10%, with sleeve gastrectomy patients having the highest rates of weight regain (7). Despite the considerations, bariatric surgery may be beneficial for patients with limited previous weight-loss success and whose clinical state could decline beyond the window acceptable to transplant in the time it takes to lose the weight.

As Kukla et al. mention, there are limited data on the safety and efficacy of weight-loss medication in ESKD. Phentermine, bupropion-naltrexone, liraglutide, and, most recently, semaglutide are approved by the Food and Drug Administration, with liraglutide being the safest for all CKD stages (8). Early research indicates semaglutide as a glucagon-like-peptide-1 analog reduces albuminuria and weight in patients with type 2 diabetes and CKD; however, there are still several case reports of AKI and worsening kidney function in patients taking semaglutide (9,10). Although the weight-loss rates of these medications are promising in conjunction with conventional weight loss, more research is needed for it to be a primary treatment in patients with kidney failure.

Thorough education on bariatric surgery and conservative weight-management options should be provided to increase patient autonomy. Conservative weight management can still be an appropriate method for modest weight loss with the appropriate support from a multidisciplinary team including a RDN. Dietary changes resulting in a reduction of calories is the primary intervention for weight loss, with increased physical activity promoting additional weight loss and weight stabilization (11). Studies indicate that for significant weight loss, physical activity without dietary changes needs to be 250–450 minutes per week, far above the recommended 150 minutes per week for weight maintenance (12). Therefore, dietary changes should be the primary intervention for significant weight loss.

According to the Academy of Nutrition and Dietetics, weight-management interventions provided by a RDN increases percent weight loss and also increase the likelihood of achieving 5% weight loss (13). Interventions that included a multidisciplinary team and at least five contacts with a dietitian were the most efficacious compared with controls in subgroup analyses, and interventions lasting 6–12 months were more effective than shorter interventions (13). Thus, conservative weight management employing RDNs should be initiated early via referral from the patient’s primary clinic, nephrologist, or endocrinologist (13). Medicare covers 2 hours of medical nutrition therapy provided by a RDN in the first year after CKD diagnosis, with 2 hours in subsequent years for those with an GFR of 13–50 ml/min per 1.72 m² (14). Unfortunately, RDNs are underutilized, with only 0.1% of Medicare beneficiaries with CKD taking advantage of this medical nutrition therapy benefit. Increasing referrals to RDNs may help patients improve candidacy by the time they are evaluated. On the other hand, beginning the transplant evaluation process early may increase motivation and determination to continue with conventional weight loss. If early weight management is not possible, transplant teams should be quick to consult local RDNs or enroll patients in lifestyle change programs.

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<th>Weight-Loss Option</th>
<th>Advantages</th>
<th>Disadvantages</th>
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<tr>
<td>Surgical</td>
<td>• Rapid and significant weight loss&lt;br&gt;• Reduced cardiovascular disease risk&lt;br&gt;• Safe for transplant&lt;br&gt;• Improved post-transplant outcomes&lt;br&gt;• 70% weight loss after 2 yr&lt;br&gt;• Superior long-term weight loss due to restrictive and malabsorption techniques</td>
<td>• Malnutrition risk&lt;br&gt;• Surgical complications&lt;br&gt;• Weight-regain risk&lt;br&gt;• Micronutrient deficiencies&lt;br&gt;• Malabsorption of food and medications</td>
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<tr>
<td>Roux-en-Y</td>
<td>• 60% weight loss after 2 yr&lt;br&gt;• Low surgical complication and mortality rate&lt;br&gt;• Preserves physiologic food passage</td>
<td>• High revisional surgery rate&lt;br&gt;• Dumping syndrome&lt;br&gt;• Micronutrient deficiencies</td>
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<tr>
<td>Gastric sleeve</td>
<td>• 50%–60% weight loss after 2 yr&lt;br&gt;• Lowest mortality rate&lt;br&gt;• Low surgical complication rate</td>
<td>• Requires significant behavior change and motivation&lt;br&gt;• Prolonged process with lower rates of weight loss&lt;br&gt;• Limited data in CKD/ESKD&lt;br&gt;• Risk of AKI&lt;br&gt;• Gastrointestinal side effects</td>
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<td>Gastric band</td>
<td>• Less invasive&lt;br&gt;• Allows for more patient autonomy</td>
<td>• Prolonged process with lower rates of weight loss&lt;br&gt;• Limited data in CKD/ESKD&lt;br&gt;• Risk of AKI&lt;br&gt;• Gastrointestinal side effects</td>
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<tr>
<td>Conventional weight loss</td>
<td>• Safer than sodium/glucose cotransporter 2 inhibitors for CKD&lt;br&gt;• May be used in conjunction with conventional weight loss&lt;br&gt;• Promising weight loss: o Semaglutide: 15% loss×68 wk&lt;br&gt;o Liraglutide: 8 kg loss×56 wk</td>
<td>• Prolonged process with lower rates of weight loss&lt;br&gt;• Limited data in CKD/ESKD&lt;br&gt;• Risk of AKI&lt;br&gt;• Gastrointestinal side effects</td>
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Table 1. Advantages and disadvantages of various options for weight loss
One noteworthy lifestyle change program is the Diabetes Prevention Program, which began as a study in 1996 and involved lifestyle change programs focusing on calorie reduction and increasing physical activity to at least 150 minutes per week (15). The results indicated that a structured lifestyle change program resulted in 5%–7% body weight loss within 1 year and reduced the risk of developing type 2 diabetes by 58% by year 3 (15). These findings have launched year-long Diabetes Prevention Programs since 2011. The success of this program is attributed to close follow-up and frequent accountability from cohort members and frequent contact with a lifestyle coach (16).

Similar options may be reasonable for patients needing to lose 5%–7% of body weight to reach the BMI requirements without bariatric surgery. However, one study indicated conventional weight-loss interventions for patients with a BMI >40 kg/m² may not be effective (3).

In conclusion, Kukla et al.’s study contributes to the growing body of evidence regarding the usefulness of bariatric surgery to decrease the barriers to kidney transplantation in patients needing to lose a significant amount of weight before their clinical state declines. Conservative weight management without frequent follow-up from a RDN or multidisciplinary team will likely have poor outcomes, which was demonstrated in this study. Conversely, preemptive RDN referrals or enrolling patients in lifestyle change programs can be an appropriate option for those patients needing to lose 5%–7% of their body weight before transplantation. However, more research is needed to determine the most effective nutrition counseling intervention in kidney transplant candidates. The modality of weight loss should be determined after extensive education and a patient-centered decision, prioritizing the patient’s quality of life and goals.

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References

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