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Obesity

Can Metabolic Surgery Be Used to Improve Access to and Outcomes of Kidney Transplantation?

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Obesity is common in people with chronic kidney disease (1) and is associated with a higher risk of kidney allograft complications (2); thus, BMI ≥ 35 kg/m^2 and BMI ≥ 40 kg/m^2 are generally considered relative and absolute contraindications, respectively, to kidney transplantation (2). Metabolic surgery improves renal outcomes in patients with type 2 diabetes (3), and diabetes is an important risk factor for renal functional decline after kidney transplantation, raising the possibility that metabolic surgery may improve graft survival and mortality in this setting (2). An understanding of the efficacy and safety of metabolic surgery in people with end-stage kidney disease (ESKD) and in kidney transplant recipients is required.

Guggino et al.'s systematic review and meta-analysis (4) of 30 studies examined the safety and efficacy of metabolic surgery in people with ESKD (n = 18), in kidney transplant recipients (n = 14), or in both (n = 2). Patients with ESKD achieved expected weight loss after metabolic surgery, but postoperative mortality and complication rates were higher than in the general population at 2% and 7%, respectively. Approximately 20% of patients with ESKD subsequently received a kidney transplant after metabolic surgery. In kidney transplant recipients, metabolic surgery reduced serum creatinine and proteinuria, but Roux-en-Y gastric bypass (RYGB) increased risk of allograft rejection in one study.

The use of serum creatinine to infer changes in renal function after metabolic surgery is a limitation of the meta-analysis. This is not reliable, owing to changes in lean muscle mass postoperatively (5). Most studies were small, single center, and observational with limited follow-up. Randomized controlled trials (RCTs) of metabolic surgery in people with kidney disease are limited to early-stage chronic kidney disease (6). Abdominal surgeries are challenging in people on peritoneal dialysis; differences in outcomes of pre-transplant metabolic surgery between dialysis modalities were not explored.

RCTs investigating metabolic surgery in ESKD populations are required to understand the proportion of patients progressing to kidney transplant wait-listing, as well as duration of wait-listing and subsequent receipt of kidney transplant. Given the apparent paradox that people with obesity have better survival on maintenance dialysis, the impact of metabolic surgery on mortality in the 80% of people on dialysis who do not receive a kidney transplant postoperatively, as well as associations with sarcopenia, should be determined. Medical treatment of obesity in people with ESKD may also improve transplant candidacy. Liraglutide induced a mean weight loss of 2.4 kg after 12 weeks in people with type 2 diabetes and ESKD (7). Thus, comparator groups in RCTs of metabolic surgery in ESKD should use pharmacotherapy for obesity.

Although more data support the role of RYGB in improving metabolic, renal, and cardiovascular outcomes as well as mortality, particularly in patients with type 2 diabetes (3), sleeve gastrectomy may offer advantages in kidney transplant recipients, namely a lower risk of enteric hyperoxaluria and better immunosuppressant bioavailability (2). RCTs evaluating renal allograft outcomes after sleeve gastrectomy and RYGB should be performed in both the pre-transplant and post-transplant settings.

This study (4) provides valuable evidence that while postoperative complications and mortality after metabolic surgery increase in people with ESKD, absolute event rates remain low. The risks appear small in the context of extremely high mortality rates in ESKD. With appropriate counseling, metabolic surgery should be considered a viable treatment option for obesity among people with ESKD, and prospective studies should endeavor to establish the impact of different surgical approaches to optimize kidney transplantation rates, renal allograft outcomes, and mortality.O

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