The Impact of Timing of Bariatric Surgery Relative to Kidney Transplantation on Allograft Function and Perioperative Outcomes

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INTRODUCTION

- For obesity and end-stage renal disease (ESRD) patients, bariatric surgery (BS) is the most efficacious approach to sustained weight loss and enhances kidney transplant (KT) allograft outcomes.
- Literature shows variance on the morbidity and mortality for patients undergoing BS either before or after KT.
- Aim: Compare BS perioperative risk and long-term allograft function between a KT-first versus BS-first approach

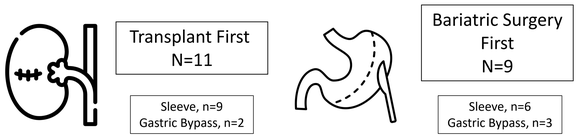
METHODOLOGY

- **Study design:** single-center retrospective cohort analysis
- **Population:** adult patients who underwent tandem BS and KT between 2012 and 2023
- **Primary outcome:** BS post-operative outcomes including weight loss at one year
- **Secondary outcomes:** long-term graft function, immunosuppression levels after BS

RESULTS

Study Population, n=20

- Females (85%), Race: 40% White, 55% Black



- BMI at Transplant lower for BS-first patients (31.9 kg/m² vs 38.1, p=0.04)

BMI

- Weight loss at 1 year post-BS similar with BMI change -8.9 kg/m² (BS-first) and -7.6 (KT-first), p=0.790

RESULTS

Table 1. Incidence of salient patient comorbidities at the time of BS

	All N=20	Kidney Transplant First (n=11)	Bariatric Surgery First (n=9)	P value
OSA requiring CPAP	5 (25%)	5 (45.5%)	0	0.038
GERD	5 (25%)	4 (36.4%)	1 (11.1%)	0.303
Diabetes Type 2	12 (60%)	5 (45.5%)	7 (77.8%)	0.197
Hypertension requiring medication	17 (85%0	11 (100%)	6 (66.7%)	0.074
Hyperlipidemia	13 (65%)	6 (60%)	7 (70%)	0.374
Dialysis at time of bariatric surgery	9 (45%)	1 (11.1%)	8 (88.9%)	0.001

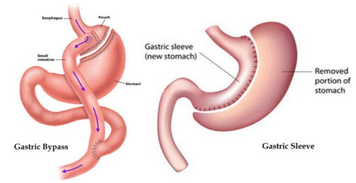


Figure 1. Standard BS procedures. Gastrointestinal Society.

Table 2. BS classifications and perioperative outcomes

	All N=20	Kidney Transplant First (n=11)	Bariatric Surgery First (n=9)
Any 30-day complication	5 (25%)	2 (18.2%)	3 (33.3%)
ED Visit within 30 days	3 (15%)	2 (18.1%)	1 (11.1%)
Readmission	1 (5%)	1 (9.1%)	0
Wound complication	2 (10%)	1 (9.1%)	1 (11.1%)
Other infection	1 (5%)	0	1 (11.1%)

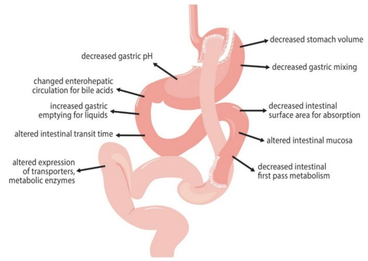


Figure 2. Physiological basis for tacrolimus pharmacokinetic changes post BS. Konstantinidou et al.

Table 3. Tacrolimus goal deviance, graft function, and mortality

	All N=20	Kidney Transplant First (n=11)	Bariatric Surgery First (n=9)	p value
% tac levels within goal during the 12 months following bariatric surgery	28.9% (13.5%,42.0%)	38.9% (11.1,50.0)	26.7% (15.9,31.1)	0.425
Graft Failure	4 (20%)	2 (18.2%)	2 (22.2%)	1.000
Mortality	4 (20%)	2 (18.2%)	2 (22.2%)	1.000
Years of follow-up after kidney transplant	4.6 (3.5,7.0)	5.6 (4.8,8.8)	3.5 (2.9,4.3)	0.014

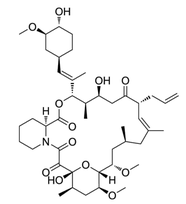


Figure 3. Tacrolimus: immunosuppressant of interest.

Perioperative Outcomes & Allograft Function

- Complications occurred in n=5 (25%) patients within 30 days after BS
  - 3 ER visits, 1 readmission, 2 wound complications, one peritoneal dialysis catheter infection
- Median length of stay for BS similar between BS-first and KT-first patients (Median 2 days).
- n=2 (10%) grafts nonfunctioning at time of BS, n=2 (10%) grafts with failure post-BS.

RESULTS

Long-Term Graft Function

Last known graft function was intact in n=16 (80%) patients at a median follow-up of 4.6 years post-KT

CONCLUSIONS

- Timing of BS with respect to KT in the ESRD population does not appear to impact long-term allograft function and mortality.
- While BMI was lower at the time of KT if BS was performed first, equivalent weight loss was observed between cohorts.
- BS intervention is both feasible and safe in this high-risk population without adverse effects on allograft function and stability and immunosuppression.
- Future directions:
  - Evaluate incidence of vitamin deficiencies (D, B12) to gauge how surgery timing influences postoperative nutrition and vitamin management
  - Collaboration between teams to increase access to KT

DISCLOSURES

The authors have no financial relationships to disclose.