Supratherapeutic Tacrolimus Levels in a Kidney Transplant Recipient after Laparoscopic Sleeve Gastrectomy

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Purpose

- Elevated BMI has been linked to poor outcomes such as worsened patient and allograft survival in kidney transplant patients.
- We present the case of a kidney transplant patient who received laparoscopic sleeve gastrectomy (LSG) for metabolic syndrome and weight management, and experienced supratherapeutic tacrolimus levels post-LSG.
- As there are no guidelines available to guide the dosing of tacrolimus after LSG, we hope that our observations will add to the existing data and aid clinicians caring for kidney transplant patients post-LSG surgery.

Methods

- For this case report, we conducted a comprehensive chart review.

Case

- The 45-year-old female patient, who required kidney transplantation two years ago for severe nephrosclerosis, had been on stable doses of immediate-release tacrolimus, mycophenolate mofetil, and prednisone for over 1 year.
- Tacrolimus levels and serum creatinine were stable within target range before LSG surgery.
- The patient did not experience complications post-LSG, and was discharged the next day from hospital.

Results

- Tacrolimus levels increased by day 4 after LSG (Table 1). Further investigations did not identify other causes for patient's supratherapeutic level.
- The patient's total daily dose was gradually tapered by a total of 2 mg to reach target tacrolimus levels.
- The patient continued to be on the reduced tacrolimus dose 6 months post-LSG. No graft rejection or tacrolimus-related toxicity were reported.

Table 1: Immediate-release tacrolimus (PROGRAF) trough levels and serum creatinine pre- and post-LSG

	Two weeks pre-LSG	Post-LSG					
		Day 4	Day 12	Day 18	Day 30	Day 35	Day 69
Tacrolimus trough level (mcg/L)	4.6	**8.3**	**9.6**	**9.7**	5.7	5.7	5.6
Serum creatinine (mcmol/L)	93	85	-	-	**107 in setting of reduced PO intake**	87	78
Weight	145 kg	-	-	137 kg	-	134.5 kg	-
Changes to tacrolimus dose based on tacrolimus level	Continue 3 mg in morning, 4 mg in evening	Continue 3 mg in morning, 4 mg in evening	Decrease to 3 mg twice daily	Decrease to 2.5 mg twice daily	Continue 2.5 mg twice daily		

Conclusion

- As tacrolimus levels may increase after LSG, it is recommended to monitor tacrolimus levels closely after the surgical procedure.
- Future high-quality pharmacokinetic studies may further evaluate the effect of LSG on tacrolimus levels.

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