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Disclosure

I have no financial interests or relationships to disclose.

Background



Following the rapid advancements in minimally invasive urology, living donor robotic-assisted kidney transplantation (RAKT) has developed into a feasible alternative to open kidney transplantation (OKT).

Background

In this study, we compare RAKT to OKT using a propensity score analysis to elucidate the efficacy of RAKT as an alternative to OKT.



Methods

- 101 LDKT (January 2016 – June 2018)
 - Selection based on robot availability
- Propensity score matching
 - Recipient age, donor age, race, gender, BMI, dialysis, pre-operative SCr, cPRA)
 - 35 cases in each group
- Primary outcomes
 - Perioperative factors: EBL, CIT, WIT
 - Patient outcomes: LOS, Narcotics consumed (POD #0, 1, 2), Change in SCr (POD #3, 7, 14, 6 mo, 12 mo)

Results

- 101 LDKT
 - 65 OKT, 35 RAKT
 - Mean age 49 (52 vs 46)
 - 61M, 40F
 - 62 white, 29 black, 10 other
 - 65 OKT, 35 RAKT

Variables	Open	Robotic	P vales
CIT (min)	83 (58-115)	77 (58-116)	0.86
WIT (min)	38 (34-48)	49 (43-53)	<0.001
EBL (mL)	150 (100-200)	62.5 (50-150)	<0.001
OR Time (min)	308 (272-354)	294 (279-314)	0.87

Results

- Postoperative narcotics consumed

Variable	Open	Robotic	P value
NARC Score (morphine equivalents)	31.8 (16.0-52.5)	23.3 (18.1-49.9)	0.98
POD #1	34.9 (21.3-53.0)	36.5 (21.5-46.7)	0.87
POD #2	28.5 (11.0-47.5)	24.0 (13.3-43.8)	0.91

- Post-operative serum creatinine

Variable	Open	Robotic	P value
SCr (3 day)	1.72 (1.24-2.57)	1.75 (1.24-2.55)	0.93
SCr (1 wk)	1.58 (1.21-2.28)	1.42 (1.19-2.14)	0.73
SCr (2 wk)	1.47 (1.15-1.99)	1.54 (1.18-2.03)	0.70
SCr (6 mo)	1.48 (1.18-1.77)	1.44 (1.24-1.97)	0.44
SCr (1 yr)	1.33 (1.16-1.50)	1.37 (1.14-1.67)	0.74

Complications:

- Conversion to open
 - 2 early in center experience
 - 1 during study period (venous hypertension, bleeding)
- Ureteral obstruction
 - N = 2 (no amenable to non-operative management)

Discussion

- RAKT offers a minimally invasive alternative to OKT, with similar graft and patient outcomes.
- Notably, this study compares RAKT to OKT with a heterogeneous study population, using propensity scoring.
- Although the small sample size limits our ability to detect differences in graft and patient outcomes, trends demonstrate shorter lengths of stay, shorter operative times, and less blood loss for RAKT recipients.

Conclusion

- Similar to the advent living donor nephrectomy, early findings in RAKT demonstrate a safe and reasonable alternative for kidney transplantation in various populations.