A comparison of outcomes after living donor kidney transplantation done in parallel and sequentially in a large centre and a survey of UK national practice.

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INTRODUCTION

Living donor kidney transplantation is considered the gold standard renal replacement therapy. The donor and recipient can be done either sequentially or in parallel with shorter cold ischemia times and different surgical teams. The aims of this study were to analyse outcomes in 873 living donor transplants in a large transplant centre where both approaches are used.

METHODS

All living donor nephrectomies and transplants done in a single centre from 01/2006 to 11/2018 were analysed retrospectively from all patient record sources. Recipient variables which were analysed included cold ischemia time (CIT) graft function, transplant renal artery stenosis, ureteric stenosis, graft loss and recipient death with or without a functioning graft. A analysis of national practice was extrapolated from anonymised CIT data provided by NHSBT.

RESULTS

873 donors were performed laparoscopically of which 860 were by the laparoscopic hand assisted technique. 741 were done sequentially by the same surgeon or a colleague being mentored by the donor surgeon and 132 were done in parallel by different donor and recipient surgeons. The donors in the parallel group were younger but gender distribution was equable. The outcomes were as below and were not statistically significant (p>0.05) except for cold ischaemia times which were much lower in the parallel group and statistically significant (p<0.05). The outcomes were comparable to national practice.

	Sequential (n,%)		Parallel (n,%)		Overall
Number of cases	741	84.88%	132	15.12%	873
Average age in years	48.26	-	41.42	-	47.21
MALE	339	45.74%	65	49.24%	404(46.27%)
FEMALE	402	54.26%	67	50.76%	469(53.73%)
Average BMI	26.9	-	26.83	-	26.93

TABLE 1. DEMOGRAPHICS

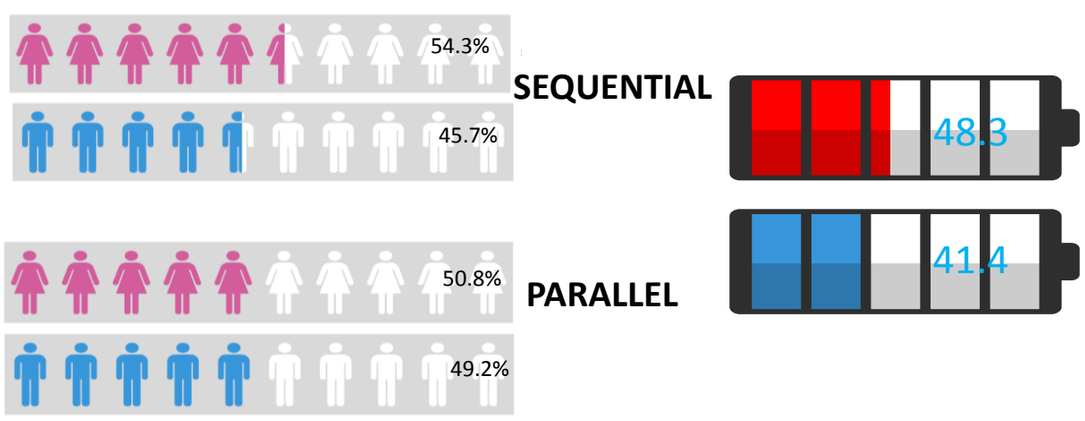

Fig 1. Sex distribution

Fig 2. Age distribution

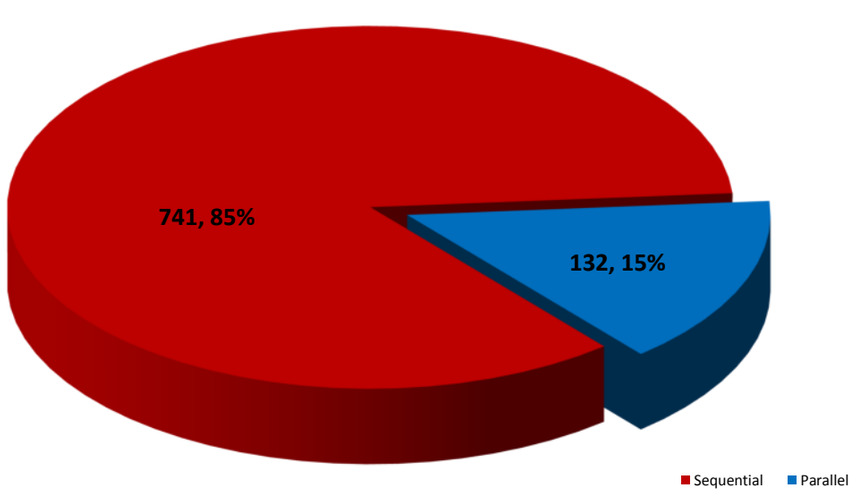

Fig 3. Distribution of cases

	Sequential (n,%)		Parallel (n,%)		TOTAL	%
Average warm ischaemia time (min)	3.56	-	3.41	-	3.53	-
Conversions in donor	8	1.07%	2	1.51%	10	1.16%
Bleeding in donor	10	1.34%	2	1.51%	12	1.39%
Reexploration in Donor	20	2.75%	4	3.03%	24	2.79%
Incisional herniae in donor	41	5.53%	5	3.78%	46	5.34%
Surgical site infections (SSI+DSI)	24	3.23%	5	3.78%	29	3.37%
Donor hospital stay average (days)	4.3	-	4.13	-	4.3	-
Paediatric recipient	0	0%	93	70.45 %	93	-
Average CIT (min)	221	-	81	-	-	-
Graft Thrombosis in recipient	6	0.80%	2	1.50%	8	0.93%
Bleeding in recipient	8	1.07%	1	0.75%	9	1.04%
PNF	0	0%	1	0.75%	1	0.11%
Reexplorations in recipients	14	1.87%	4	3.03%	18	2.09%
TRAS	3	0.04%	0	0%	3	0.34%
Ureteric stenosis	4	0.53%	0	0%	4	0.46%

TABLE 2. OUTCOMES

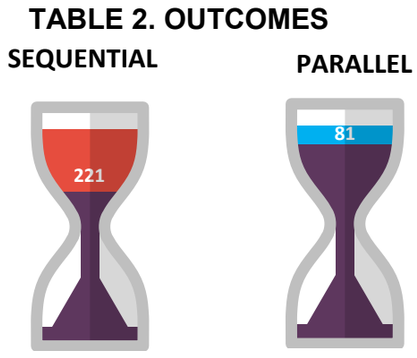

Fig. 4: Cold ischaemia times

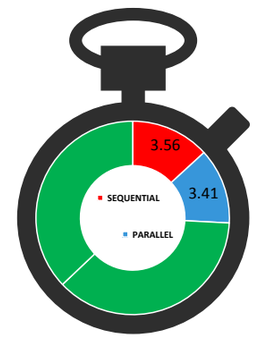

Fig 5. Warm ischaemia

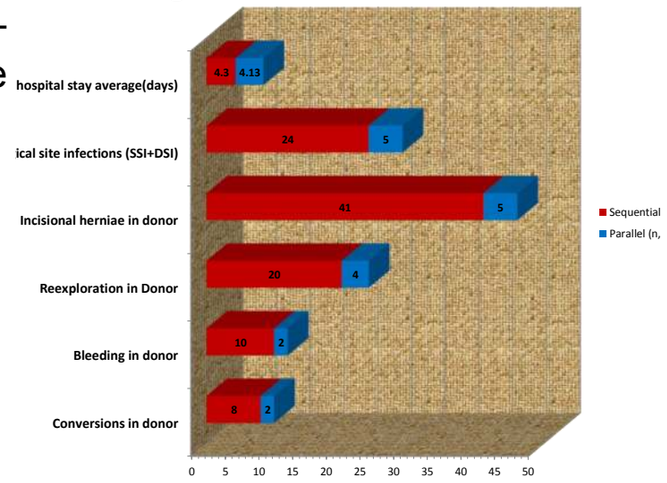

Fig 6. Donor complications

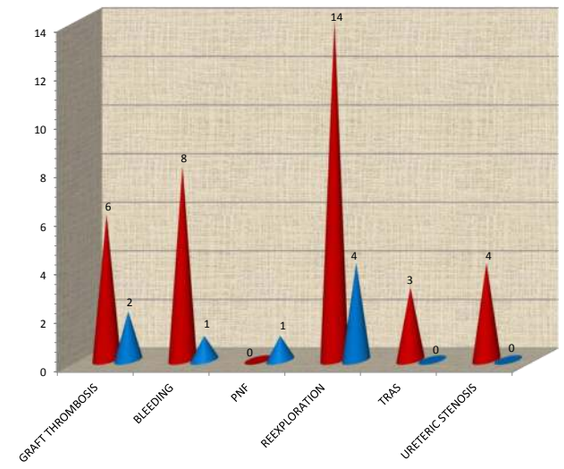

Fig 7. Recipient complications.

DISCUSSION

A parallel procedure is considered optimum as the graft undergoes shortest cold ischemia transplanted by a fresh surgical team. Local practice and logistics mainly the non-availability of parallel operating teams and theatres may deter this. Despite no statistically significant differences in our group, best practice should dictate a parallel procedure in centres. Conversely in the sequential procedure done by the same team, there could be nuanced technical aspects which could be adapted in the donor to optimise outcomes in the recipient by the operating surgeon.

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