The Leeds Teaching Hospitals NHS
NHS Trust

A 10 year experience of dual kidney transplant from a single centre in the United Kingdom

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Leeds Kidney Unit

Introduction

- Bridging the disparity between the kidney waiting list and donor pool remains challenging
- Transplant centres have expanded their donor acceptance criteria and innovative ways of utilising these kidneys
- A significant number of kidneys in the UK continue to be discarded due to perceived sub-optimal donor function

Dual Kidney Transplantation (DKT)

- Increased nephron mass supply by transplanting marginal kidneys to the same recipient is expected to provide adequate GFR and graft half life compared to a solitary graft
- DKT allows for use of grafts that may potentially be discarded, increasing the number of patients being transplanted
- US National 5 year graft survival data for extended criteria solitary kidneys is currently 66.9%

Allocation of ECD kidneys for dual transplant

A. Histological assessment prior to allocation[1]

B. Function[2]

C. Machine perfusion parameters[3]

D. Donor Risk Index (DRI)[4]

E. Clinical

1. Remuzzi et al, *NEJM* 2006
2. Snanoudj et al, Am J Transplant 2009
3. Navaro et al, *J Urology* 2008
4. T Klair et al , AJT 2013;

Allocation of ECD kidneys for dual transplant

Age over 70 with

A.DCD donation

B.DBD donation with co-morbidities affecting renal function

- Hypertension
- DM
- MI
- Stroke (CVA)

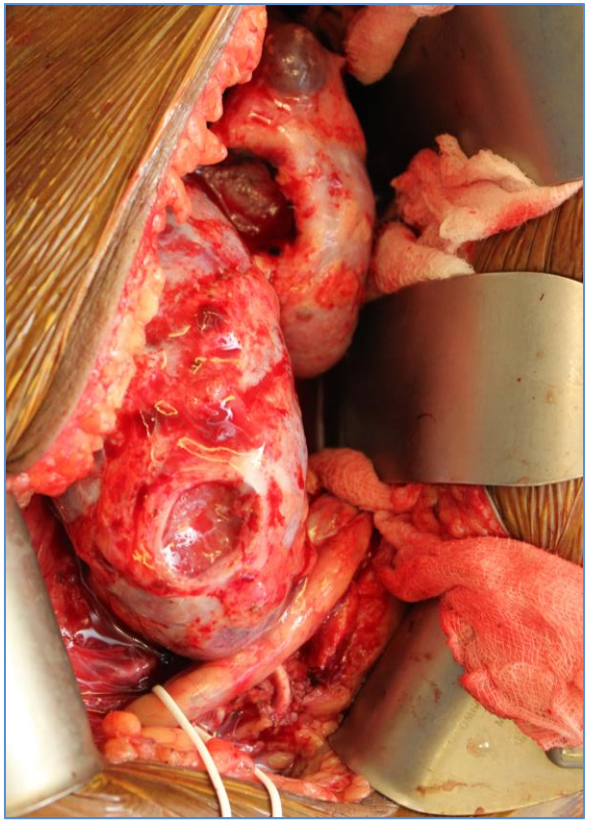
- Older kidneys have lower GFR
- Older kidneys are more sensitive to IRI, rejection and CNI toxicity
- Older kidneys have less reserve to compensate and hypertrophy

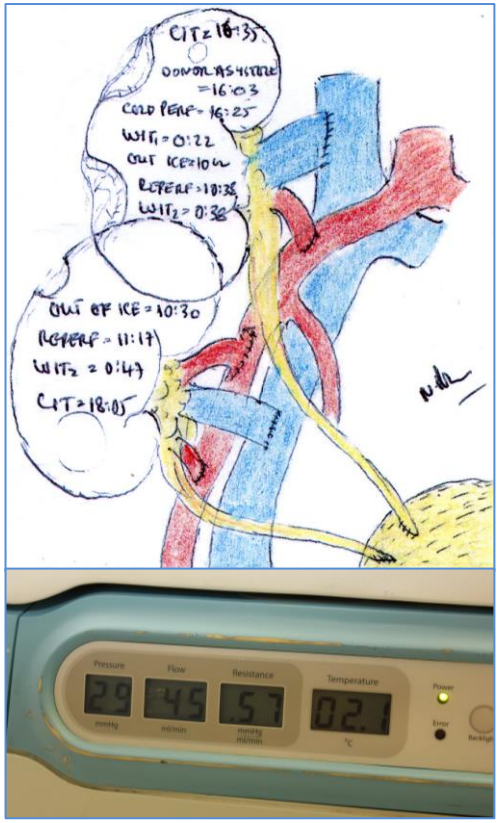
Recipient Selection

- Age > 50
- BMI ≤ 32
- Absent significant cardiac co-morbidity
- Absent significant PVD
- IDDM with diabetic complications
- Patient counselled in clinic setting

Technique

- R sided ‘Double Decker’ implant (n=65)
- K1: RV-IVC, RA-CIA/IIA
- K2: RV-EIV, RA-EIA
- 2 ureteric anastomoses





Results

- 68 DKT between 2007-2017
- 44 Male, 24 Female
- Median age 64 years (48-78)
- 21 pre-emptive transplants

Donors

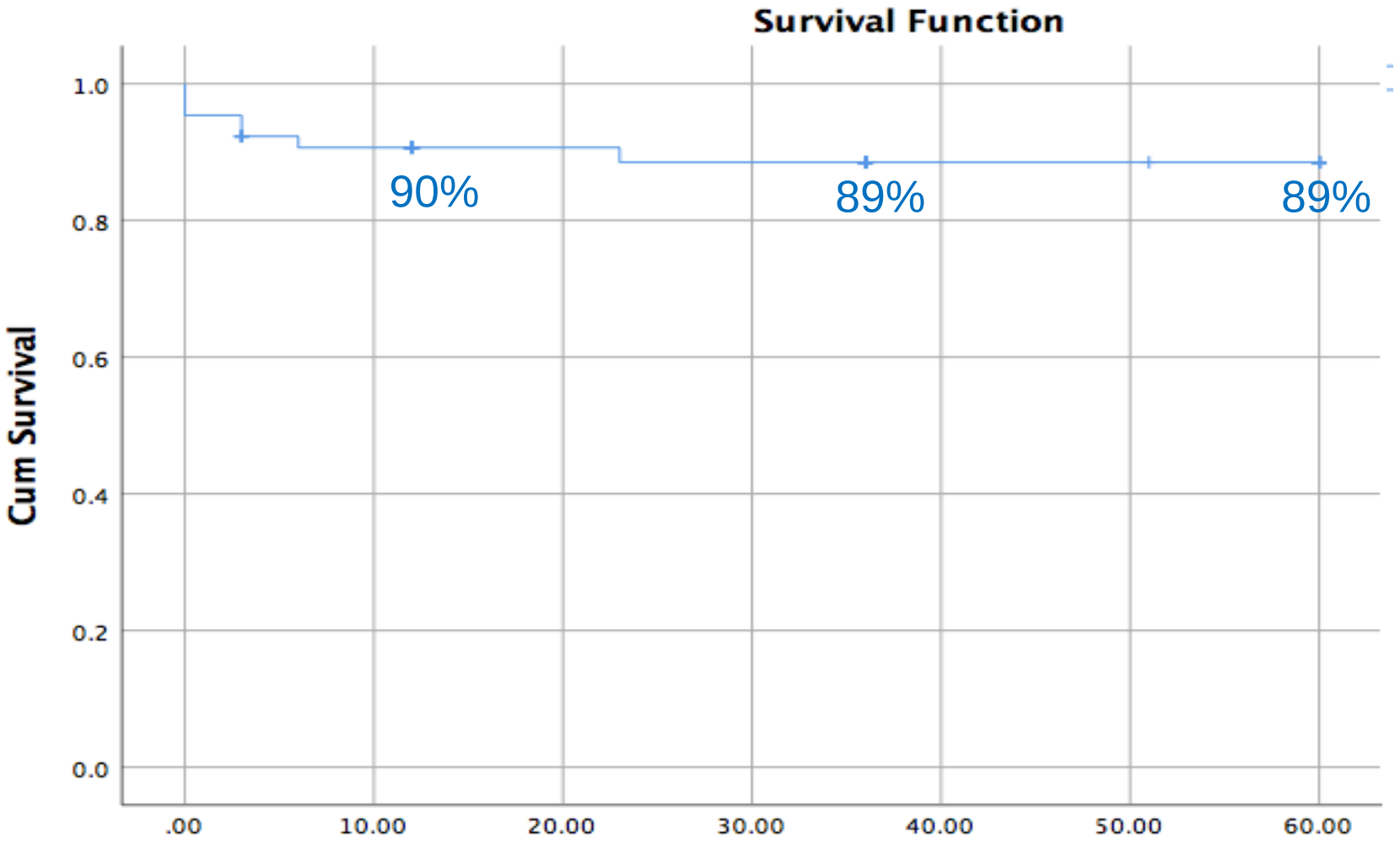
- Most donors (n=66) were ECD (UNOS criteria)
- 52 DCD and 16 DBD
- Median donor age 73 years (43-83)
- Median Donor GFR 77 (23-191)
- 40 Donors declined by other centres
- SCD donor kidneys were used in some cases for anatomical reason (e.g. polycystic, small kidneys)

Outcome

Primary Function in 41 cases (60%), DGF in 26 (40%), median duration of 6 days (1-22), 1 PNF

	90 day (n=64)	1 year (n= 62)	3 year (n=42)	5 year (n=17)
Median Creatinine	148 (78-562)	129 (73-275)	128 (62-241)	129 (80-262)
Median GFR **(CG)**	36 (6-73)	45 (18-84)	43 (17-83)	43 (15-83)

Outcomes



1- and 5- year graft survival for deceased donor SKT 95% and 87% (NHSBT)

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Outcomes

- Currently 84% (57/68) patients have functioning grafts
- Of the 59 surviving patients, 57 (96%) remain free from dialysis (median follow up 51 months)
- 6 patients returned to dialysis
  - 3 within 3 months (all deceased)
  - 2 within 1 year
  - 1 at 5 years
- 9 Patients died in the follow up period
  - 2 early (MI, Cardiac Tamponade)
  - 1 within 90 days (Sepsis)
  - 6 late (MOF, Malignancy, Bronchopnuemonia, Unknown x 3)

Conclusions

- DKT provides a viable option for dialysis free life
- DKT outcomes for 1 and 5 year graft survival of 90% and 89% is **comparable** to national registry data for SKT
- DKT provides superior outcomes to SKT using ECD Kidneys
- DKT reduces discard of kidneys that can be used effectively to treat CKD