

ONLINE SUPPLEMENTS:

I. Detailed Methods:

Original KDRI¹⁶ (15 factors)

Donor factors (KDRI-UNOS):

Donor age (year)
Donor race (African American vs. others)
History of donor hypertension (yes/no)
History of donor diabetes (yes/no)
Donor terminal serum creatinine level (mg/dL)
Donor cause of death (cerebrovascular accident vs. trauma)
Donor height (cm)
Donor weight (kg)
Donation after cardiac death (yes/no)
History of donor HCV (yes/no)

Transplant factors:

HLA B mismatch (0, 1, and 2)
HLA DR mismatch (0, 1, and 2)
Cold ischemia time (hour)
Enbloc kidney (yes/no)
Double kidney (yes/no)

The KDRI formula:

$$\text{KDRI} = \text{Exp} (-0.0194 \times I [\text{age} < 18 \text{ yr}] \times I [\text{age} = 18 \text{ yr}] + 0.0128 \times I [\text{age} = 40 \text{ yr}] + 0.0107 \times I [\text{age} > 50 \text{ yr}] \times I [\text{age} = 50 \text{ yr}] + 0.179 \times I [\text{race} = \text{African American}] + 0.126 \times I [\text{hypertensive}] + 0.130 \times I [\text{diabetic}] + 0.220 \times I [\text{serum creatinine} = 1 \text{ mg/dL}] - 0.209 \times I [\text{serum creatinine} > 1.5 \text{ mg/dL}] \times I [\text{serum creatinine} = 1.5 \text{ mg/dL}] + 0.0881 \times I [\text{cause of death} = \text{cerebrovascular accident}] - 0.0464 \times I \left[\frac{\text{height} - 170 \text{ cm}}{10} \right] - 0.0199 \times I [\text{weight} < 80 \text{ kg}] \times I \left[\frac{\text{weight} - 80 \text{ kg}}{5} \right] + 0.133 \times I [\text{donation after cardiac death}] + 0.240 \times I [\text{hepatitis C positive}] - 0.0766 \times I [\text{HLA-B mismatch} = 0] - 0.0610 \times I [\text{HLA-B mismatch} = 1] - 0.130 \times I [\text{HLA-DR mismatch} = 0] + 0.0765 \times I [\text{HLA-DR mismatch} = 2] + 0.00548 \times I [\text{cold ischemia time} - 20 \text{ hr}] - 0.364 \times I [\text{en bloc transplant}] - 0.148 \times I [\text{double kidney transplant}])$$

Where I (A) is set to 1 if condition A applies to the donor kidney of interest (i.e., if the donor kidney of interest possesses condition A), and otherwise it is set to 0.

Supplemental Table 1. Multivariable risk analysis for delayed graft function (DGF) and early graft loss within three months post-transplant in ECD transplants and DKTs which met UNOS DKT criteria (including death as an allograft failure) and their characteristics.

Total N= 12,127	DGF	OR (95% CI)	Graft Loss Within 3 Months Post-transplant	OR (95% CI)
N (%)	4,202 (34.8)		670 (5.5)	
Re-graft (%)	6.2	0.98 (0.74-1.30)	5.4	0.90 (0.46-1.78)
Recipient age (yr)	57.2 ± 11.7	0.99 (0.98-0.99)	59.9 ± 11.1	1.02 (1.01-1.03)
Recipient diabetes (%)	50.6	1.44 (1.28-1.63)	51.4	1.38 (1.08-1.77)
Dialysis duration (yr), categories (%)	4.1 ± 3.2		4 ± 3.2	
<1 yr	3.9	Referent		Referent
1-3 yr	19.6	1.64 (1.16-2.32)		0.56 (0.30-1.03)
>3 yr	76.5	1.74 (1.25-2.43)		0.87 (0.49-1.54)
Peak PRA	13.2 ± 25.3	1.00 (1.00-1.01)	12.4 ± 24	1.00 (0.99-1.01)
Pre-transplant biopsy (%)	62.4		63.6	
Pulsatile Perfusion (%)	61	0.66 (0.58-0.75)	63.7	1.01 (0.76-1.34)
Cold ischemia time (h), (%) categories	21.7 ± 9.3		20.7 ± 9.4	
<20	42.4	(Reference)	45	(Reference)
20-40	47.5	1.45 (1.27-1.64)	40	0.96 (0.73-1.26)
>40	10.1	1.49 (1.07-2.07)	15	1.54 (1.08-2.22)
HLA mismatch	4.1 ± 1.5	1.03 (0.98-1.10)	4.2 ± 1.5	1.08 (0.96-1.22)
DCD donor (%)	4.5	2.88 (2.13-3.90)	3.9	1.22 (0.73-2.56)
Donor diabetes (%)	15.1		18.2	
Donor age (year) and categories (%)	62 ± 6.1		63.1 ± 6.1	
50-59	17.3		15.6	
60-69	66.8		70.3	
≥70	16.9		14.1	
Donor hypertension (%)	79.2		78	
Donor CVA (%)	79.7		80	
Donor terminal creatinine (mg/dL)	1.5 ± 2.1		1.4 ± 1.7	
Donor terminal creatinine clearance (ml/min)	70.2 ± 37.9		70.2 ± 32.1	
Donor terminal eGFR per MDRD equation (ml/min/1.73m ²)	61.8 ± 34.6		61.5 ± 28.9	
KDRI-UNOS	2.06 ± 0.36		2.10 ± 0.39	
KDRI-UNOS categories (%)				
<1.7	12.3	(Reference)	8.7	(Reference)
1.7-2.0	37.1	0.79 (0.65-0.97)	37.0	1.20 (0.77-1.86)
>2.0	50.1	0.88 (0.72-1.06)	54.3	1.19 (0.78-1.81)
DGF (%)			55	2.54 (2.01-3.31)