

One-year Pathological and Clinical Outcomes of Recipients of Donor Exchange Kidneys

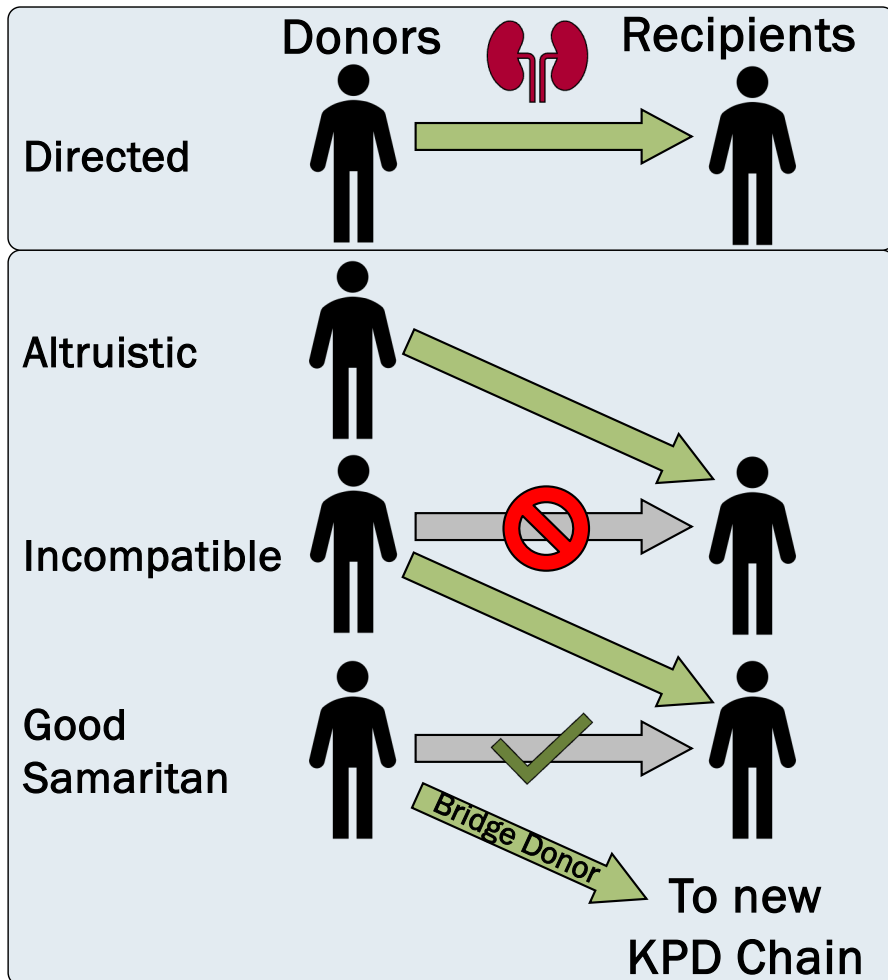
Lillian W Gaber, MD

Houston Methodist Hospital, Houston, Texas USA; Weill Cornell Medical College

Gaber LW, Moore LW, Meinders AM, Edilbi A, Patel K, Truong L, Barrios R, El-Zaatari Z, Yi SG, Knight RJ, Gaber AO

I have no conflicts of interest to disclose.

Center Development of Kidney Paired Donation



1. Incorporation of Kidney Paired Donation (KPD) for ABO-incompatible pairs
2. Encouraged altruistic donors to start KPD chains
3. Included Good Samaritan/Compatible KPD pairs in chains
4. Integration of External KPD system with established Internal KPD
5. Computerization of matching system

Methods

- Living donor kidney recipients from 2006-2023
- Recipient and donor characteristics by donor source
 - Paired
 - Directed
 - Non-biological
 - Biological
 - Relatedness: first- or second-degree relative
- Evaluated outcomes at 1-year post-transplant
 - rejection, kidney function, graft loss, patient death

Results – Recipient Demographics

Recipient Characteristics	All n=1,416	Paired n=289	Directed	Directed, Biological	
			Non-biological n=505	First-degree n=528	Second-degree n=95
Age, years; mean (SD)	50.2 (14.1)	50.9 (13.7)	51.0 (56.0)	49.3 (15.5)	47.8 (14.9)
BMI, kg/m ² ; mean (SD)	27.4 (4.8)	27.7 (5.0)	27.5 (4.9)	27.0 (4.6)	27.5 (5.0)
Sex, female, n (%)	531 (37.5)	132 (45.8)	151 (29.9)	211 (40.0)	37 (39.0)
Race & Ethnicity, n (%)					
Hispanic	333 (23.5)	62 (21.4)	96 (19.0)	145 (27.5)	30 (31.6)
Non-Hispanic Black	216 (15.3)	55 (19.1)	66 (13.2)	86 (16.3)	9 (9.5)
Non-Hispanic White	741 (52.3)	145 (50.3)	296 (58.7)	252 (47.7)	48 (50.5)
Other	126 (8.9)	27 (9.2)	46 (9.1)	45 (8.5)	6 (6.3)
Repeat transplant	104 (7.3)	35 (12.1)	30 (5.9)	33 (6.3)	6 (6.3)
Pre-emptive transplant	526 (37.1)	85 (29.5)	198 (39.2)	208 (39.4)	35 (36.8)
cPRA, %; median (IQR)	0 (0, 34.3)	14 (0, 61)	0 (0, 24)	0 (0, 31)	0 (0, 20)

Bold text indicates statistically significant difference from other groups, p<0.05

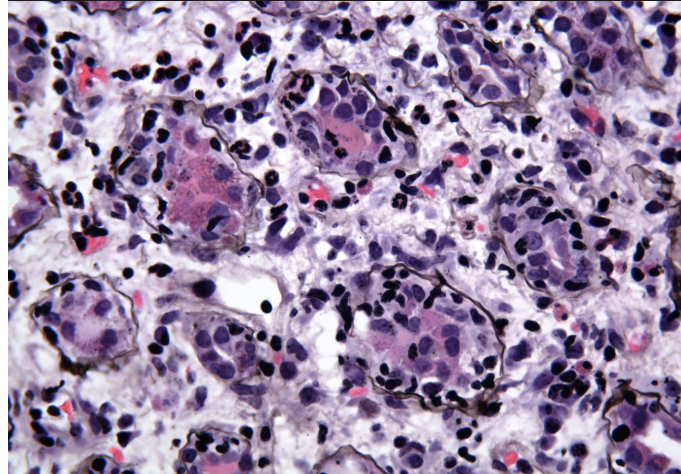
Results – Donor Demographics

Donor Characteristics	All n=1,416	Paired n=289	Directed	Directed, Biological	
			Non-biological n=504	First-degree n=528	Second-degree n=95
Age, years; mean (SD)	44.1 (12.4)	45.4 (12.6)	46.2 (12.1)	42.0 (12.2)	41.1 (12.3)
BMI, kg/m ² ; mean (SD)	26.9 (4.0)	27.1 (4.1)	26.7 (3.9)	26.9 (4.0)	27.3 (4.1)
Sex, female, n (%)	900 (63.6)	169 (58.7)	350 (69.3)	326 (61.7)	55 (57.9)
Race & Ethnicity, n (%)					
Hispanic	347 (24.5)	63 (21.8)	103 (20.4)	151 (28.6)	30 (31.6)
Non-Hispanic Black	173 (12.2)	30 (10.3)	50 (9.9)	84 (15.9)	9 (9.5)
Non-Hispanic White	774 (54.7)	165 (57.3)	313 (62.2)	246 (46.6)	50 (52.6)
Other	122 (8.6)	31 (10.6)	38 (7.5)	47 (8.9)	6 (6.3)

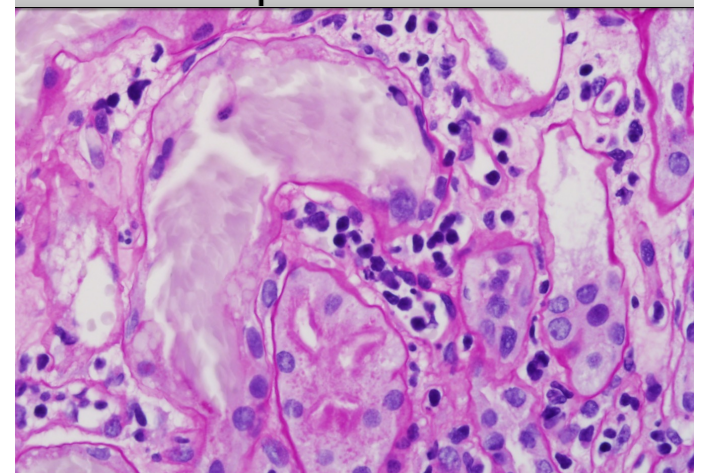
Bold text indicates statistically significant difference from other groups, p<0.05

Sampling of Pathological Findings in Rejection Allografts

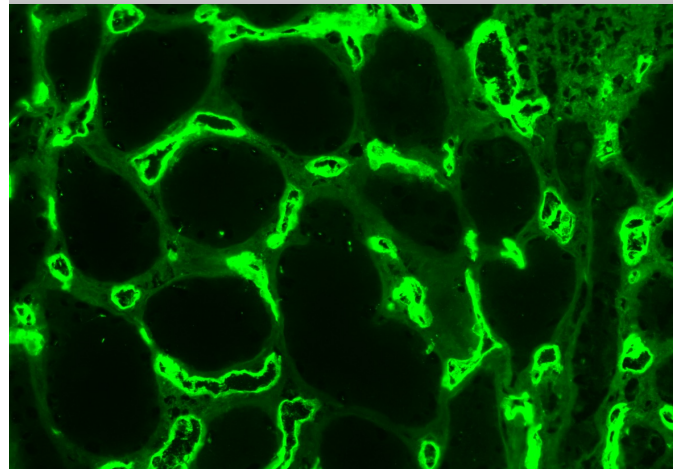
Acute Cellular Rejection with Tubulitis



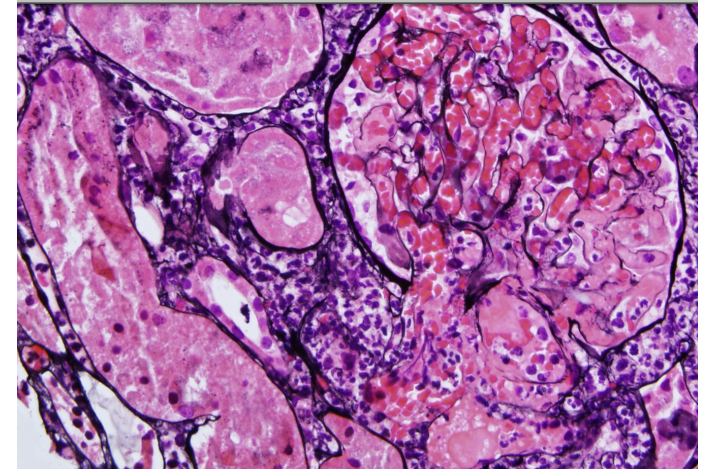
Peritubular Capillaritis



C4d staining of peritubular capillaries



Advanced Antibody-mediated Rejection with TMA



Results: 1-year pathologic and survival outcomes

Variable	All	Paired	Directed – Non-biological	Directed - Biological	
				First-degree	Second-degree
N	1,415	288	504	528	95
Acute Rejection, n (%)	140 (9.9)	35 (12.2)	62 (12.3)	34 (6.4)	9 (9.5)
T-Cell-mediated	106 (7.5)	29 (8.6)	47 (9.3)	24 (4.6)	6 (6.3)
Antibody-mediated	31 (2.2)	7 (2.4)	14 (2.8)	8 (1.5)	2 (2.1)
eGFR, mL/min	60.8 (49.4,74.6)	59.7 (47.2,73.9)	59.0 (47.9,71.4)	63.0 (51.6,77.5)	62.3 (52.1,73.3)
Graft survival, n (%)	1,368 (96.6)	282 (97.9)	489 (96.8)	506 (95.8)	91 (95.8)
Patient survival, n (%)	1,396 (98.6)	282 (97.9)	489 (96.8)	523 (99.1)	92 (96.8)

Bold text indicates statistically significant difference from other groups, p<0.05

Conclusion

- Outcomes of recipients of Paired Kidney Donor and Directed, Non-Biological Donor kidneys are equivocal
- Directed, Biological Donor kidneys experience lowest rate of acute rejection and better eGFR at 1-year
- First-degree relative donors have lowest rate of acute rejection with equivocal eGFR and graft survival at 1-year