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KIDNEY TRANSPLANTATION FROM ELDERLY DONORS AFTER CONTROLLED CIRCULATORY DEATH HAVE SIMILAR OUTCOMES COMPARED TO THOSE FROM ELDERLY DECEASED DONORS

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INTRODUCTION: During the past decade, the number of donors after circulatory death (DCD) has increased exponentially in Spain. However, there are concerns about medium and long-term outcomes of elderly DCD kidney transplants (KT). We aimed to compare graft outcomes from elderly DCD-KT with young DCD-KT and KT from elderly donors after brain death (DBD).

METHODS: We analyzed 85 DCD-KT and 101 KT from ≥65 years-old (y) DBD-KT from January 2013 to December 2017. Median follow-up was 9 months [IQR 4.6-29.6 months] for DCD-KT and 20 months [IQR 7.7-38.28] for ≥65y-DBD-KT.

RESULTS: ≥65y-DCD-KT represented the 53% of our DCD cohort, and 64.4% of these grafts were transplanted to ≥65y recipients. ≥65y-DCD-KT had more delayed graft function (DGF) compared to <65y-DCD-KT (43.2% vs 17.9%, p=0.013), but similar to ≥65y-DBD-KT (38.3%; p=0.585). One-month renal function was worst compared to both groups (creatinine= 2.71, 1.89 and 2.11 mg/dl, respectively, p=0.003 and 0.05), but renal function at 6 months was similar (creatinine= 1.92, 1.53 and 1.93mg/dl; p=0.055 and 0.934). There were no differences in primary non-function or vascular graft-loss between groups. Table 1A. Donor age was the only determinant of DGF (HR 1.126 [1.025-1.236; p=0.013). Table 1B.

Table 1A.

	<65y-DCD (39)	≥65y-DCD (n=46)	≥65y-DBD (n= 101)	p value¹	p value²
Recipient					
HD as RRT before KT (n, %)	52.62 ± 10.61	66.11 ± 6.59	69.74 ± 6.82	<0.001	0.003
Male gender (n, %)	22 (56.4)	33 (73.3)	60 (59.4)	0.104	0.106
HD as RRT before KT (n, %)	28 (71.8)	38 (86.4)	84 (83)	0.101	0.628
Time in RRT, (months, median [IQR])	21 [12.6 - 48]	23 [15.25-41.40]	20.5 [10.85 - 33.88]	0.638	0.169
Donor /KT					
ECD (n, %)	11 (28.2)	45 (100)	101 (100)	<0.001	n.a.
KDPI (mean ± SD)	62.65 ± 18.31	96.87 ± 3.08	97.69 ± 4.02	<0.001	0.376
Cold ischemia time (hours, mean ± SD)	11.27 ± 6.63	10.32 ± 6.28	16.86 ± 5.02	0.512	<0.001
Immunosuppression					
Thymoglobulin induction (n, %)	7 (17.9)	4 (8.9)	15 (14.85)	0.220	0.323
mTORi (n, %)	13 (35.3)	12 (26.7)	12 (11.88)	0.505	<0.001
Outcomes					
DGF (n, %)	7 (17.9)	19 (43.2)	36 (38.3)	0.013	0.585
Days until Cr descent (days, mean ± SD)	7.5 ± 9.27	8.85 ± 8.03	8.08 ± 8.12	0.499	0.623
1 month Cr (mg/dl, mean ± SD)	1.89 ± 1.00	2.71 ± 1.65	2.11 ± 1.02	0.013	0.05
6 months Cr (mg/dl, mean ± SD)	1.53 ± 0.62	1.92 ± 0.77	1.93 ± 0.77	0.055	0.934
Vascular graft-loss (n, %)	2 (5.1)	3 (6.7)	12 (11.88)	0.766	0.338
Primary non-function (n, %)	1 (2.6)	0 (0)	4 (3.96)	0.280	0.176

HD, hemodialysis; RRT, renal replacement therapy; KT, kidney transplantation; IQR, interquartile range; ECD, expanded criteria donor; KDPI, kidney donor profile index; SD, standard deviation; mTORi, mammalian target of rapamycin inhibitor; DGF, delayed graft function; Cr, creatinine.

p value¹ = <65y-DCD vs ≥65y-DCD
p value² = ≥65y-DCD vs ≥65y-DBD
n.a. = not applicable

Table 1B.

	DGF					
	Univariate analysis			Multivariate analysis		
	HR	CI	p value	HR	CI	p value
Recipient age (years)	1.064	[1.011 - 1.120]	0.017			
Donor age (years)	1.060	[1.013 - 1.109]	0.013	1.126	[1.025 - 1.236]	0.013
Diabetes Mellitus	1.240	[0.496 - 3.259]	0.659			
Hypertension	0.962	[0.165 - 5.606]	0.965			
Ischemic cardiopathy	1.270	[0.496 - 3.259]	0.616			
Time in RRT (years)	1.009	[0.994 - 1.025]	0.254			
HD as RRT before KT	2.667	[0.695 - 10.225]	0.156			
Previous KT	2.364	[0.621 - 8.991]	0.201			
KDPI	1.042	[0.999 - 1.086]	0.057			
HLA missmatch	1.034	[0.642-1.665]	0.891			
Pre-KT DSA	2.429	[0.607-9.722]	0.210			
Peak PRA >30%	5.278	[1.096-25.410]	0.038			
Cold ischemia time (hours)	0.975	[0.903 - 1.053]	0.515			
mTORi	0.484	[0.05 - 4.793]	0.539			
Thymoglobulin induction	4.637	[1.224 - 17.566]	0.024	* Excluded recipient age by collinearity		

RRT, renal replacement therapy; HD, hemodialysis; KT, kidney transplantation; KDPI, kidney donor profile index; DSA, donor specific antibody; PRA, panel reactive antibodies; mTORi, mammalian target of rapamycin inhibitor.

CONCLUSIONS: ≥65y-DCD-KT have more DGF compared to <65y-DCD-KT but similar to ≥65y-DBD-KT. Renal function at 6 months was similar between the three groups. However, additional studies are needed to assess long-term outcomes. The only determinant of DGF among DCD groups was donor age.