DELAYED GRAFT FUNCTION DOES NOT HARM THE RESULTS OF CONTROLLED DONATION AFTER CARDIAC DEATH KIDNEY TRANSPLANTATION

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Introduction

Delayed graft function (DGF) occurs more frequently in kidney transplants (KT) from donation after cardiac death (DCD) than from donation after brain death (DBD). Initial studies suggest that DGF occurring in DCD-KT may have a more benign effect and portend a better prognosis compared to DGF after DBD-KT.

This study aimed at examining the influence of DGF on graft function, graft and patient survival at short- and medium-terms, rates of rejection and post-operative complications, as well as at analyzing the potential risk factors for DGF at our institute.

Patients et Methods

This single-center retrospective study recruited 80 controlled DCD kidney grafts performed at the University Hospital of Liège, from Jan 2005 to Dec 2011. Mean patient follow-up was 28.5 months.

Acceptance criteria for DCD kidneys:

-donor age <65 years

-no history of renal disease, uncontrolled hypertension, complicated diabetes mellitus, systemic sepsis or malignancy

-total warm ischemia time (WIT) <60 minutes

-terminal serum creatinine < 20 mg/L

Allocation policy: EuroTransplant rules

DCD category: 96.2%Maastricht category III
3.8% euthanasia donors

Four patients were excluded from the analysis of DGF rates because of early death post-transplant, renal vein thrombosis, and acute vascular rejection.

Results

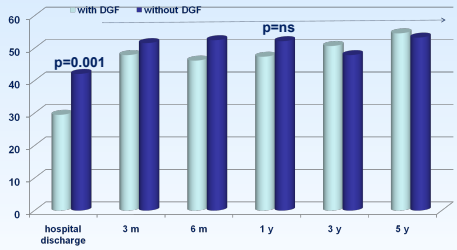

Figure 1: Kidney graft function over time.

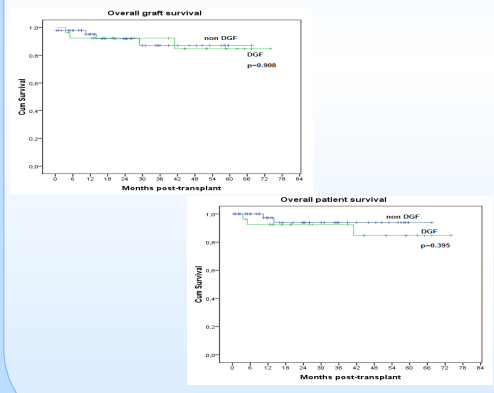

Figure 2: Kidney graft and patient survival.

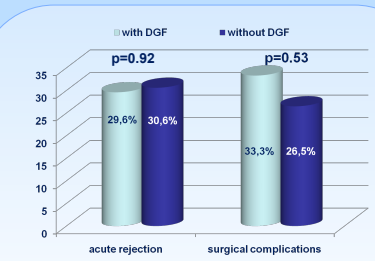

Figure 3: Acute rejection at 3 months and early surgical complications (<1 month post-transplant).

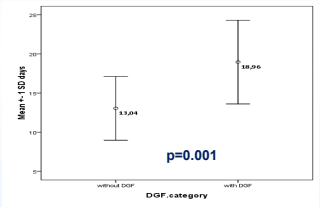

Figure 4. Length of hospital stay.

Conclusion

Apart from longer hospital stay, DGF had no deleterious impact on the future of controlled DCD kidney grafts.

Table 1: Donor, recipient and transplantation characteristics

Variables		Total DCD-KT n=76	DCD-KT with DGF n= 27	DCD-KT without DGF n=49	p value
Donor					
Age (years)		45.8±13	46.6±7.7	45.3±15.2	0.642
Gender M/F (%)		49/27(65/35)	20/7(74/26)	29/20(59/41)	0.194
BMI (kg/m²)		25.1±3.7	26.4±3.7	24.4±3.6	0.027
Length of ICU stay (days)		7.3±6.3	6.7±6.3	7.5±6.4	0.626
Terminal serum creatinine (mg/L)		7.3±2.8	7.4±2.7	7.2±2.9	0.798
Preservation technique	SCS	65	24	41	0.737
	HMP	11	3	8	
WIT (min)	Withdrawal phase	10.5 ± 6.5	10.9±7.2	10.3±6.2	0.696
	Acirculatory phase	10.1 ± 4.5	10.4±4.5	9.8±4.5	0.575
	Total WIT	20.7 ± 7.6	21.4±8	20.3±7.4	0.549
CIT (min)		712 ± 275	766±286	683±268	0.212
Suture time (min)		34.9 ± 9.4	35.8±10.1	34.3±9.1	0.504
Recipient					
Age (years)		54.1±14.4	58.9±10.4	51.7±15.7	0.018
Gender M/F (%)		48/28(63/37)	19/8(70/30)	29/20(59/41)	0.333
BMI (kg/m²)		26.1±5.1	28.7±4.6	24.7±4.8	0.001
Dialysis duration (days)		888±599	1155±590	740±556	0.003
Previous KT	First transplant	69	25	44	1
	Re-transplant	7	2	5	
PRA at transplant (%)		4.4±13.7	4.2±10.4	4.5±15.2	0.915
Total HLA mismatches		2.7±1.1	2.8±0.9	2.6±1.1	0.401
Type of KT	Kidney alone	74	27	48	1
	Combined	2	0	1	

Table 2. Multivariate logistic regression analysis of DGF risk

Factors	Odds ratio	95% CI	p value
Donor age (≥50 years)	0.459	0.101-2.082	0.313
Donor gender (female)	0.707	0.135-3.699	0.681
Donor BMI (≥30)	8.609	1.131-65.532	0.038
Donor serum creatinine (≥15 mg/L)	0.000	0.000	1.000
Recipient age (≥60 years)	2.278	0.581-8.926	0.238
Recipient gender (female)	0.414	0.098-1.746	0.230
Recipient BMI (≥30)	6.840	1.319-35.485	0.022
Pre-transplant dialysis (months)	1.063	1.021-1.107	0.003
Number of HLA mismatches (≥4)	0.308	0.061-1.567	0.156
CMV mismatch (high risk: D+/R-)	1.480	0.319-6.871	0.617
Kidney allocation policy (national or international sharing)	1.671	0.412-6.779	0.472
WIT (≥30 min)	1.723	0.270-10.985	0.565
Suture time (≥45 min)	0.841	0.126-5.627	0.858
CIT (≥18 h)	4.389	0.267-72.250	0.301
Preservation solution (UW)	0.093	0.003-2.587	0.161
Preservation method (HMP)	0.935	0.145-6.030	0.943