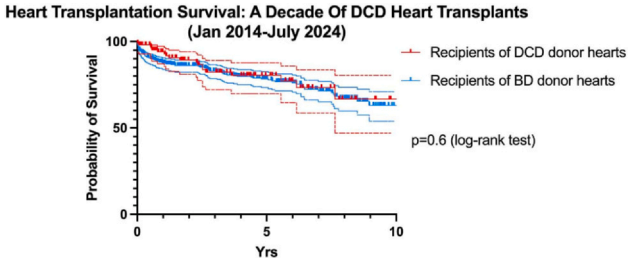
difference in the incidence of grade severe primary graft dysfunction (sPGD) comparing DCD-HT to BD-HT (13% vs 18% respectively, p=0.2). There was no significant difference in sPGD when comparing preservation type (NMP vs SCS vs HMP, p=0.9). Multiple logistic regression reveals asystolic warm ischaemic time as the only retrieval specific independent risk factor for sPGD in DCD heart transplantation (OR 1.54, CI 1.1-2.1, p=0.002).

Conclusion: In this first study to look at decade long outcomes from DCD heart transplantation, there are no differences in survival, incidence of sPGD or incidence of CAV in DCD-HT compared to BD-HT. Long term outcomes demonstrate DCD heart transplantation should remain a permanent fixture in heart transplantation going forward.



(198)

Beating Heart Transplant Technique in Donation After Circulatory Death (DCD) Heart Transplantation: A Propensity Matched Analysis of the National Transplant Registry

A.Y. Choi,[1] N. Kapula,[1] H. He,[1] A. Krishnan,[1] C. Ruaengsri,[1] E. Henricksen,[2] S. Elde,[1] M. Fawad,[1] J. Teuteberg,[3] K. Khush,[3] H. Luikart,[3] Y. Shudo,[1] J.W. MacArthur,[1] W. Hiesinger,[1] J. Woo,[1] and B.A. Guenthart.[1] [1]Cardiothoracic Surgery, Stanford University Medical Center, Stanford, CA; [2]Stanford Healthcare, Stanford, CA; [3]Cardiovascular Medicine, Stanford University Medical Center, Stanford, CA

Purpose: Beating heart transplantation (BHT) was first performed at our center to avoid an additional period of cardiac arrest and reperfusion and to reduce allograft ischemia-reperfusion injury. Since the first reported case in 2022, BHT has been adopted at > 10 centers across the US. This study aims to establish a direct comparison of outcomes between BHT and standard DCD recipients.

Methods: The UNOS registry was queried to identify standard DCD recipients among adult patients who underwent first-time isolated DCD HT between 12/2019-12/2023, before the first BHT was performed at a center outside of our own (the registry does not identify BHT). All adult patients who underwent first-time isolated DCD BHT between 10/2022-9/2024 at our center were also included. Nearest-neighbor propensity-score matching (1:4 ratio) was performed based on pretransplant variables. The primary endpoint of 30-day survival was estimated with the Kaplan-Meier method. Patients were also assessed for posttransplant MCS, ICU length of stay, major complications (stroke, renal failure), 1-year survival and graft function.

Results: A total of 1,083 patients were identified in the standard DCD group and 31 patients in the BHT group. Before matching, **significantly more BHT recipients required pretransplant IABP** (29% vs 9.8%, p=0.003) **and ECMO** (6.5% vs 0.7%, p=0.029), were placed **higher on the waitlist** (Status 1-3; 97.5 vs. 62%, p < 0.001), and spent fewer days on the waitlist [7(5,14) vs 30(9,149) days, p < 0.001) (**Figure 1A**). **After matching** for recipient age, sex, pretransplant IABP/ECMO, and waitlist status, the **BHT group demonstrated similar 30-day survival** (100% vs 98%, p=0.18, **Figure 1B**) **and significantly higher graft survival at 1 year** (97% vs 84%, p < 0.001).

Conclusion: Despite the BHT recipients being sicker than their standard DCD counterparts pretransplant, they benefit from similar survival at 30 days and better graft survival at 1 year.

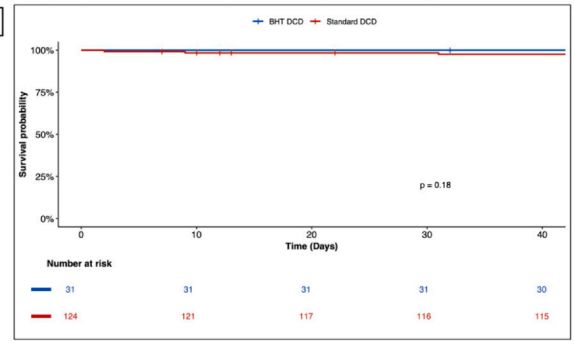
Figure 1: (A) Pre-transplant characteristics stratified by beating heart transplantation (BHT) DCD vs standard DCD implantation; (B) Comparison of 30-day survival between matched BHT DCD and Standard DCD groups

A

	Unmatched DCD cohort			Matched DCD cohort*		
Candidate variables	BHT DCD (n = 31)	Standard DCD (n = 1,083)	P-value	BHT DCD (n = 31)	Standard DCD (n = 124)	P-value
Age, median (IQR), y	54 (45, 64)	57 (46, 64)	0.9	54 (45, 64)	55 (43, 64)	0.6
Male, N (%)	24 (77%)	867 (80%)	0.7	24 (77%)	95 (77%)	>0.9
Race/ethnicity, N (%)			<0.001			<0.001
White/Caucasian	15 (48%)	735 (68%)		15 (48%)	82 (66%)	
Black/African American	2 (7%)	219 (20%)		2 (6.5%)	28 (23%)	
Hispanic	6 (19%)	100 (9.2%)		6 (19%)	11 (8.9%)	
Other	8 (26%)	29 (3%)		8 (26%)	3 (2.4%)	
Blood group, N (%)			0.5			0.9
A	8 (29%)	384 (35%)		9 (29%)	34 (27%)	
B	3 (10%)	127 (12%)		2 (6.5%)	5 (4.0%)	
AB	2 (7%)	30 (2.8%)		3 (9.7%)	15 (12%)	
O	17 (55%)	542 (50%)		17 (55%)	70 (56%)	
History of insulin dependent diabetes, N (%)			0.029			0.063
Type II	16 (52%)	757 (70%)		16 (52%)	86 (69%)	
Other	15 (48%)	326 (30%)		15 (48%)	38 (31%)	
Creatinine, median (IQR), mg/dL	1.03 (0.91, 1.45)	1.13 (0.93, 1.37)	0.5	1.03 (0.91, 1.45)	1.10 (0.90, 1.37)	>0.9
Bilirubin, median (IQR), mg/dL	0.80 (0.48, 1.03)	0.70 (0.49, 1.00)	0.5	0.80 (0.48, 1.03)	0.70 (0.48, 1.20)	>0.9
Ischemic cardiomyopathy, N (%)	7 (23%)	329 (30%)	0.4	7 (23%)	32 (26%)	0.7
Previous cardiac surgery at time of listing, N (%)	10 (32%)	409 (38%)	0.8	10 (32%)	45 (36%)	0.8
Pre-transplant IABP, N (%)	9 (29%)	106 (10%)	0.003	9 (29%)	34 (27%)	0.9
Pre-transplant ECMO, N (%)	2 (7%)	8 (<1%)	0.029	2 (6.5%)	8 (6.5%)	>0.9
Pre-transplant inotropes, N (%)	6 (24%)	325 (31%)	0.5	6 (22%)	41 (33%)	0.3
Days on waitlist, median (IQR) days	7 (5,14)	30 (9, 150)	<0.001	7 (5, 14)	21 (6, 71)	0.005
Waitlist status, N (%)			<0.001			0.5
1	2 (6.5%)	28 (3%)		2 (6.5%)	11 (8.9%)	
2	16 (52%)	411 (38%)		16 (52%)	71 (57%)	
3	12 (39%)	233 (21%)		12 (39%)	31 (25%)	
4	0 (0%)	255 (24%)		0 (0%)	7 (5.6%)	
5	0 (0%)	3 (0.3%)		0 (0%)	0 (0%)	
6	1 (3.2%)	153 (14%)		1 (3.2%)	4 (3.2%)	

*BHT DCD patients propensity score matched with standard DCD patients (1:4 ratio) based on candidate age, candidate sex, pre-transplant ECMO, pre-transplant IABP and waitlist status.

B



(199)

Comparative Outcomes in Donation-After-Circulatory-Death Heart Transplantation with Direct Procurement and Perfusion vs Normothermic Regional Perfusion

A. Ayer, A. Birs, E. Adler, M. Urey, V. Pretorius, and M. Kearns. University of California San Diego, San Diego, CA

Purpose: The influence of organ procurement technique on outcomes in donation-after-circulatory-death (DCD) heart transplantation is not well understood. We report transplant outcomes following DCD heart procurement via direct procurement and perfusion (DPP) compared with normothermic regional perfusion (NRP).

Methods: Consecutive adult DCD heart transplants at our institution between January 2020 and April 2024 were retrospectively reviewed. DPP hearts were immediately perfused post-explant on the Organ Care System (OCS; TransMedics, Andover, Mass.). NRP hearts were perfused *in situ* using cardiopulmonary bypass, followed by explant and cold static storage. DPP transplants not using OCS and multi-organ transplants were excluded. Primary graft dysfunction (PGD) was diagnosed based on post-operative echocardiography according to modified ISHLT criteria.

Results: One hundred seven qualifying transplants occurred during the study period, of which 27 (25.2%) utilized DPP and 80 (74.8%) utilized NRP. Baseline donor and recipient characteristics including age, sex, co-morbidities, pre-operative inotropic or mechanical circulatory support, UNOS status, and functional warm ischemic time were similar between DPP and NRP. Donor hospital distance was greater in DPP compared to NRP (506 vs. 392 miles, p = 0.023). Severe PGD was more common in DPP compared to NRP (18.5% vs. 5.0%, p = 0.043), as was total PGD (44.4% vs. 21.3%, p = 0.019) (**Table**). No between-group differences were observed in ICU or hospital length of stay, post-operative renal replacement therapy, cellular or antibody-mediated rejection, and 30-day or six-month mortality.

Conclusion: Among DCD heart transplant recipients, severe PGD and total PGD were more common following DPP compared with NRP procurement, though mortality did not differ between groups. This finding may inform efforts to optimize procurement technique and improve outcomes in DCD heart transplantation.

Table. Outcomes in donation-after-circulatory-death heart transplantation following direct procurement and perfusion compared with normothermic regional perfusion

Outcome*	DPP (N = 27)	NRP (N = 80)	Total (N = 107)	*p*-value
Primary graft dysfunction				
Moderate	7 (25.9%)	13 (16.3%)	20 (18.7%)	0.26
Severe	5 (18.5%)	4 (5.0%)	9 (8.4%)	0.04
Total	12 (44.4%)	17 (21.3%)	29 (27.1%)	0.02
ICU length of stay, days	7 [4, 8]	6 [4, 8]	6 [4, 8]	0.56
Hospital length of stay, days	15 [12, 22]	15 [12, 20]	15 [12, 20]	0.51
Days on inotrope	6 [5, 7]	6 [5, 9]	6 [5, 9]	0.84
Renal replacement therapy requirement	4 (14.8%)	4 (5.0%)	8 (7.5%)	0.11
PCWP†, mmHg	12.0 [8.8, 14.3]	13.0 [9.0, 16.0]	12.5 [9.0, 16.0]	0.20
Cardiac index†, L/min/m^2	3.26 [2.97, 3.93]	3.22 [2.78, 3.69]	3.23 [2.79, 3.72]	0.45
Antibody-mediated rejection leading to treatment	2 (7.4%)	9 (11.3%)	11 (10.3%)	0.73
Cellular rejection (≥ grade 2r)	4 (14.8%)	16 (20.0%)	20 (18.7%)	0.78
30-day mortality	0 (0%)	1 (1.3%)	1 (0.9%)	0.99
Six-month mortality	1 (3.7%)	1 (1.3%)	2 (1.9%)	0.44

Abbreviations: DPP, direct procurement and perfusion; ICU, intensive care unit; NRP, normothermic regional perfusion; PCWP, pulmonary capillary wedge pressure.

*Categorical data are presented as frequency (%) and continuous data as median [Q1, Q3]

†Assessed at cardiac catheterization closest to 14 days post-transplant