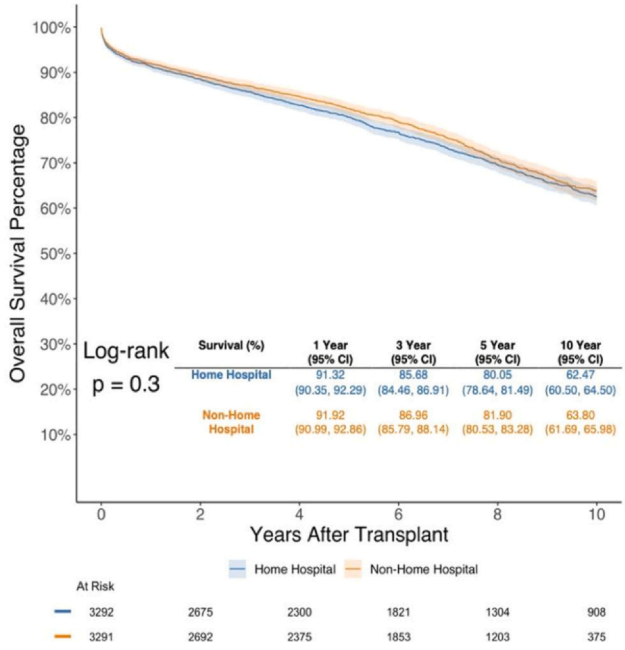

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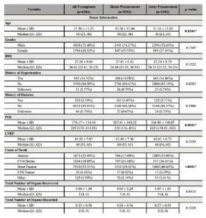

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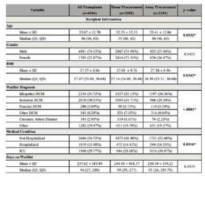

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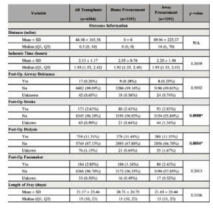


(1078)

Primary Graft Dysfunction in Heart Transplantation - A UNOS Registry Analysis

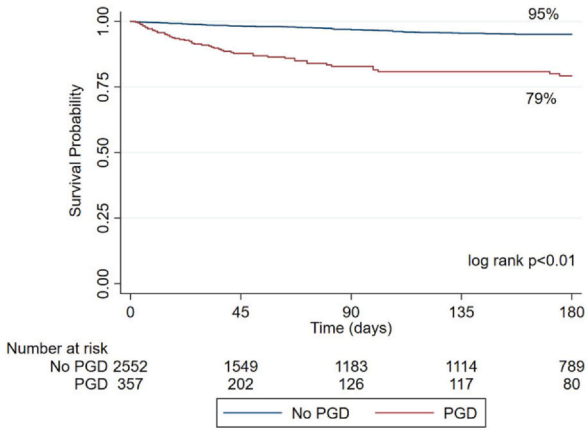
V. Lenkov,[1] A. Kristo,[1] M. Frenkel,[1] P. Tessmann,[1] J. Hermsen,[1] P. Marogil,[1] V. Topkara,[2] and Y. Xia.[3] [1]University of Wisconsin, Madison, WI; [2]University of Wisconsin - Madison, Madison, WI; [3]University of WIsconsin, Madison, WI

Purpose: Primary graft dysfunction (PGD) after heart transplantation is associated with significant morbidity and mortality. The purpose of this study was to examine incidence, predictors, and outcomes of primary graft dysfunction 24 hours after heart transplantation.

Methods: The UNOS database was queried for first-time adult (age ≥18) heart transplants performed after 9/14/2023, when PGD fields were added. Patients were identified as experiencing PGD at 24 hours vs not. Baseline characteristics were compared. Predictors of PGD at 24 hours were determined by multivariable logistic regression. In-hospital outcomes and 6-month survival were also examined.

Results: Of 3010 heart transplants with complete data, 378(13%) had PGD at 24 hours: 26(7%) were isolated left, 154(41%) isolated right, 130(34%) biventricular, and the remainder unspecified. Of those with PGD, 142(38%) were supported with ECMO, 54(14%) with IABP, and 55(15%) with both. Donors in the PGD group were older (35.3 ± 10.6 vs 34.1 ± 10.2 yrs,p=0.03), more likely to be DCD (27%vs16%, p < 0.01), and had longer ischemic times (4.6 ± 2.0 vs 4.0 ± 1.5hrs, p < 0.01). Recipients were more likely diabetic(35%vs30%, p=0.05), have prior cardiac surgery(53% vs39%, p < 0.01), and less likely status 2 at transplant(47% vs57%, p < 0.01). Multivariable predictors of PGD at 24 hours included ischemic time(OR 1.13, p < 0.01), prior cardiac surgery(OR 1.60, p < 0.01), pre-transplant dialysis(OR 2.06, p=0.03), and DCD donation(OR1.58, p < 0.01). Patients with PGD at 24 hours had longer length of stay[25(17-39)vs16(12-23) days, p < 0.01] and more post-transplant dialysis(43% vs14%, p < 0.01). At six months, post-transplant survival was significantly worse in the PGD group(95%vs79%, log-rank p < 0.01, Fig)

Conclusion: Primary graft dysfunction in the current era of heart transplantation is associated with significant morbidity and mortality. Careful donor/recipient selection and minimizing ischemia time remain important.



(1079)

Primary Graft Dysfunction in DCD Heart Transplantation - A UNOS Registry Analysis

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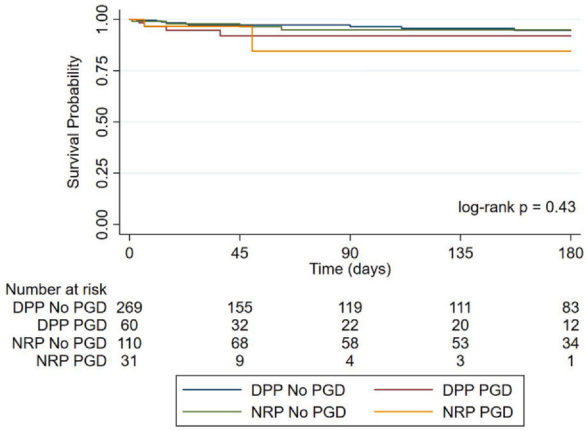
Purpose: Primary graft dysfunction (PGD) is a feared complication of heart transplantation and is associated with significant morbidity and mortality. The purpose of this study is to investigate incidence and outcomes of primary graft dysfunction 24 hours after DCD heart transplantation.

Methods: The UNOS database was queried for first-time adult (age ≥18) DCD heart transplants performed after 9/14/2023, when new variables for PGD were initiated. The time between death declaration and cross-clamp in donors were calculated. Cases were identified as direct procurement and perfusion (DPP) if this time was ≤30 minutes and NRP otherwise. Baseline characteristics and incidence of primary graft dysfunction at 24 hours were compared. Six-month survival was examined in patients experiencing PGD or not.

Results: Of 492 DCD heart transplants meeting study criteria, 148 (30%) were recovered by NRP and 344 (70%) by DPP. Recipients in the NRP group were more likely to be on inotropes at time of transplant (47% vs 36%, p=0.02). The NRP group had a shorter wait list duration [22(7-60) vs 27(9-114) days, p=0.01], ischemic time (4.1 ± 1.4 vs 5.9 ± 1.9 hrs, p < 0.01) and travel distance [263 (108-454) vs 350 (164-533) nautical miles, p=0.02]. PGD at 24 hours was reported in 32 (22%) NRP and 66 (19%) DPP recipients (p=0.54). Those experiencing PGD were more likely to require dialysis (41% vs 14%, p < 0.01) and had longer post-transplant length of stay [23(16-34) vs 15(12-22) days, p < 0.01]. Six-month survival, however, was not significantly different among DCD heart transplant recipients who experienced PGD at 24 hours or not (log-rank p = 0.43, Figure).

Conclusion: Despite longer travel and ischemic times, hearts recovered by DPP have similar PGD rates as those by NRP in the recent era. While PGD at 24 hours is associated with worse in-hospital outcomes, it has not had an significant impact on early survival. As DCD heart transplantation continues to rise in the United States, continued monitoring of short-term outcomes and long-term survival is warranted.



(1080)

Superior Preservation at 10°C: Liberating Cardiac Allografts from the Perils of Cold Ischemic Time (CIT)

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Purpose: Cold ischemic time (CIT) has traditionally been associated with short and long-term outcomes of heart transplantation. Preservation with conventional cold static storage may mediate these outcomes. In our experience, heart preservation with 10°C liberates allografts from the effects of CIT. We sought to evaluate the impact of CIT on postoperative heart transplant outcomes using 10°C preservation.

Methods: Adult heart transplant patients at a single center from 7/2023 to 6/2024 who received allografts recovered with 10°C preservation. Both brain dead (DBD) and circulatory death (DCD) donors were included. Univariate regression analysis was used to evaluate the independent effect of CIT on postoperative outcomes. Multivariate analysis was used to adjust for characteristics that may influence the effect of cold ischemic time on postoperative outcomes.

Results: 86 cases (40 DCD with TA-NRP; 46 DBD) preserved with 10°C were observed. CIT distribution included < 2 hours (n=5), 2-3 hours (n=41), 3-4 hours (n=22), and 4+ hours (n=18). Using the multivariate analysis model (Table), there was no significant impact of CIT on moderate/severe PGD (p=0.15), postoperative left ventricular ejection fraction (LVEF) (p=0.65), postoperative right ventricular dysfunction (p=0.65), and postoperative MCS (p=0.1). There was also no significant impact of CIT on ventilation time (p=0.11), length of stay (p=0.17), and overall mortality (p=0.52). However, longer CITs did have statistically significant impact leading to higher vasoactive ionotrope scores (VIS) in the ICU (p=0.03) and 72 hours (p=0.008) after heart transplantation. When performing subgroup analyses for recipient outcomes of DBD vs DCD donors using 10°C, there were no differences.

Conclusion: In the largest analysis of 10°C preservation, cardiac allografts appear liberated from the hazards of CIT. This suggests donor heart selection based on anticipated CIT or travel distance may not be as important as historically thought.

	Mean(SD)/Count %	Effect of CIT	P value	Adjusted Effect of CIT	Adjusted P value
Donor					
Sex, female	31(36%)				
Age	32.96 (9.68)				
BMI	29.82(11.39)				
Total Ischemic Time (hours)	4.04(1.21)				
Cold Ischemic Time (hours)	3.24(1.16)				
Donor Distance (nautical miles)	373.98(335.1)				
Recipient					
Sex, female	25 (29.1%)				
Age	53.2(12.85)				
BMI	29.5(5.65)				
PHM Ratio	0.99(0.21)				
Etiology, ischemic	24(27.9%)				
Prior Sternotomy	44 (51.2%)				
Pre-transplant MCS	46 (53.5%)				
IABP	11(12.8%)				
Impella	13 (15.1%)				
LVAD	21 (24.4%)				
VA ECMO	3 (3.5%)				
Bypass Length(minutes)	135.58 (42.8)				
Postoperative Outcomes					
Postop LVEF	54.4(5.6)	-0.16	0.76	-0.25	0.64
Postop RV Depression (Severe/Moderate)	10(11.6)	OR:1.02(0.58-1.79)	0.94	OR:1.16(0.62-2.17)	0.65
PGD (severe/moderate)	14 (14.6%)	OR:1.5(0.89-2.63)	0.12	OR: 1.52(0.86-2.68)	0.15
Post-Op MCS	7 (8.14%)	OR: 1.7(0.99-3)	0.06	OR: 1.8(0.95-3.37)	0.1
CI ICU	2.9 (0.8)	-0.12	0.18	-0.12	0.21
VIS ICU	17.34 (8.5)	1.73	0.03	1.8	0.03
CI 24 hours	3.3 (0.7)	-0.13	0.06	-0.1	0.12
VIS 24 hours	11.8 (5.7)	0.9	0.08	0.9	0.11
CI 72 hours	3.3 (0.7)	-0.14	0.049	-0.13	0.07
VIS 72 hours	7.7 (5)	1.3	0.005	1.26	0.008
CRRT hours	13 (15.1%)	5 (12.5%)	0.03		
Ventilation time (hours)	20 (25.27)	4.1	0.08	3.8	0.11
ICU LOS (days)	9.5(8.9)	0.88	0.29	0.76	0.38
Hospital LOS (days)	20.6 (11.8)	1.8	0.11	1.5	0.17
Mortality (overall)	3 (3.5%)	HR: 1(0.99-1.01)	0.49	HR:1(0.99-1.01)	0.52

(1081)

A New PHM Ratio Threshold to Predict Post-Heart Transplant Mortality: Insights the French Heart Transplant Registry

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Purpose: Predicted heart Mass (PHM) is recommended to assess donor-recipient size match and predicts mortality after heart transplant in the UNOS cohort. French donors and recipients are different from the UNOS cohort. To ensure that PHM accurately predicts mortality after heart transplant in France, we assessed survival according to PHM ratio compared to body surface area (BSA) ratio and weight ratio, in the French cohort

Methods: The study cohort was derived from the Cohorte des Receveurs d'Implants et de Transplantation d'Organes (CRISTAL) from 2000 to 2022 with a total enrolled of 6,405 patients. The cohort was divided into 11 equal parts of PHM ratio. Survival was analyzed using the Kaplan-Meier estimator at 1 month, 1 year and 3 years. Multivariate Cox analyses were used to calculate Hazard ratios at 3 years

Results: Recipient-donor pairs with a PHM ratio < 0.825 showed significantly higher mortality at 1 month, with a Hazard Ratio of 1.45 (95% CI 1.09-2.03; p=0.044). No increased risk was observed at 1 month when the BSA and weight ratios were undersized. At 3 years, a PHM ratio < 0.825 was associated with significantly higher mortality (HR 1.21, 95% CI 1.05-1.39; p=0.008). Long-term mortality was also significantly increased for undersized BSA (HR 1.66, 95% CI 1.15-2.40; p=0.006) and weight ratios (HR 1.36, 95% CI 1.08-1.70; p=0.007)