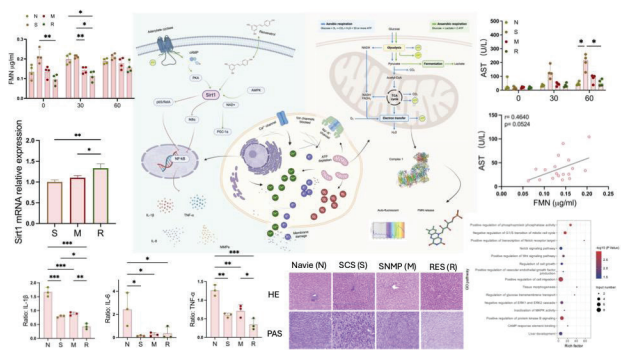


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Abstract# OA43.6
NRP DCD Liver Grafts Yield Equal Outcomes of DBD Liver Grafts: A Single US Center Experience

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Purpose: Donation after circulatory death (DCD) liver transplantation (LT) with normothermic regional perfusion (NRP) is superior to super rapid recovery (SRR) DCD LT with static cold storage (SCS). While early studies of SRR-SCS-DCD LT compared results to donation after brain death (DBD), there are no studies comparing the US outcomes of DCD NRP vs DBD LT. We hypothesized that DCD NRP LT recipients have similar outcomes to DBD LT recipients at our center.

Methods: Retrospective review of all DCD-NRP and DBD adult liver donors and recipients from January 1, 2021 through December 31, 2024 at a single center. Donor and recipient characteristics and recipient outcomes were collected. Bivariate analysis was conducted on continuous and categorical variables, Kaplan-Meier survival curves were used to present patient and graft survival, and log-rank tests compared time to biliary stricture.

Results: During the study period, 152 DBD and 83 DCD-NRP LT were performed. Median donor age was higher in the DCD-NRP cohort (51 versus 41, p<0.001), and median MELD was lower in the DCD-NRP recipient cohort (18 vs. 23, p<0.001). DCD-NRP recipients had shorter median length of stay (6 vs. 8 days, p<0.001). There were no differences in patient and graft survival. (Figures 2 and 3). There was no difference in the development of biliary anastomotic strictures at 90 days. One recipient in the DCD-NRP cohort developed ischemic cholangiopathy (1.2%) versus none in the DBD group.

Conclusions: The outcomes of LT from DCD NRP procured liver grafts are equal to the DBD liver grafts, despite older donor age. Most importantly, DCD NRP grafts allow for LT in lower MELD recipients and show trends of reduced intraoperative and postoperative resource utilization.

Table 1: Donor and Recipient Characteristics			
	DBD (n=152)	DCD-NRP (n=83)	p-value
Donor Characteristics			
Age, median [IQR], yr	41 [28-53]	51 [39-60]	<0.001
Female Sex, n (%)	47 (32%)	33 (42%)	0.14
Cold Ischemia Time, median [IQR], hr	5.07 [4.43-6.34]	4.85 [4.15-5.67]	0.11
Recipient Characteristics			
Age, median [IQR], yr	56 [50-63.5]	59 [53-66]	0.029
Female Sex, n (%)	51 (34%)	33 (40%)	0.34
BMI, median [IQR], kg/m ²	28.53 [25.09-31.69]	28.32 [24.83-32.35]	0.89
Combined Transplant Type			
Liver, n (%)	141 (93%)	82 (99%)	0.061
Liver and Kidney, n (%)	11 (7.2%)	1 (1.2%)	0.061
HCC Diagnosis, n (%)	32 (42%)	24 (29%)	0.35
MELD at Transplant, median [IQR]	23 [17-31]	18 [15-23]	<0.001
Intraoperative Packed RBCs, median [IQR]	5 [3-8]	4 [2-6]	0.002
Intraoperative Platelets, median [IQR]	1 [0-2]	1 [0-2]	0.46
Days on Waiting List, median [IQR], d	24 [7-106]	36 [10-161]	0.12
Length of Stay, median [IQR], d	8 [6-17]	6 [4-9]	<0.001
Initial Days in ICU, median [IQR], d	1 [1-2]	1 [1-2]	0.077
Total Days in ICU, median [IQR], d	2 [1-3]	1 [1-2]	0.034

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Abstract# OA43.7
Economic Assessment of Hypothermic Oxygenated Machine Perfusion in Liver Transplantation

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Purpose: Liver transplantation (LT) has been fundamentally changed by the development of novel machine preservation (MP) technology, although widespread adoption has been limited by financial considerations. Back-to-base hypothermic oxygenated perfusion (HOPE) is a potential solution, as it improves outcomes following LT using both donors after brain death (DBD) and circulatory death (DCD) but requires fewer resources than other MP technologies. This study aimed to assess the financial benefits of HOPE using results from a contemporary randomized controlled trial.

Methods: We examined the financial implications of key post-LT outcomes reported in the Bridge to Life clinical trial comparing HOPE following ex vivo liver preservation with static cold storage (SCS) to SCS alone (clinicaltrials.gov: Nct05045794). Financial analyses were assessed using a Markov model. The cost of key events (LT, re-transplant (re-LT), death, and biliary complications [BC]) requiring invasive intervention were estimated from Medicare payment data. National hospital cost accounting data were used to assess cost per hospital day. Credible Interval (CrI) was determined using robust sensitivity analysis.

Results: Compared to SCS only (N=110), LT using HOPE (N=109) reduced initial post-LT hospital length of stay (10.8 vs. 12.9 days), BCs (20.2% vs. 24.6%), re-LT (1.8% vs. 4.5%), and death (2.8% vs. 3.6%). HOPE reduced 1 year cost of LT by \$28,565 (CrI: \$23,027-\$34,541). Savings were greater for DCD LT (\$64,370: CrI \$52,507 to \$78,761) than DBD organs (\$16,929: CrI \$13,203 to \$19,805).

Conclusions: HOPE for a minimum 1.5 hours at the recipient hospital reduced the cost of LT by shortening the index hospitalization and decreasing late complications (BCs, graft failure and death). Additional financial benefits may include increased organ utilization, reduced staff overtime, and fewer high MELD transplants.

	All Donors	Donation after Brain Death	Donation after Circulatory Death
Cost Reduction per Liver with HOPE vs. SCS			
Total Estimated Cost Reduction	\$28,565 (CrI: \$23,027 - \$34,541)	\$17,064 (CrI: \$13,203-\$19,805)	\$64,370 (CrI: \$52,507-\$78,761)
Patients with Biliary Complications, Graft Loss, Re-LT	\$14,303	\$2,954	\$50,463
Cost Reduction Based on Length of Stay	\$14,481	\$13,975	\$15,171

*Credible Interval (CrI)

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