Supplementary Online Content

Goldstein DJ, Naka Y, Horstmanshof D, et al. Association of clinical outcomes with left ventricular assist device use by bridge to transplant or destination therapy intent: the Multicenter Study of MagLev Technology in Patients Undergoing Mechanical Circulatory Support Therapy With HeartMate 3 (MOMENTUM 3) randomized clinical trial. *JAMA Cardiol.* Published online January 15, 2020. doi:10.1001/jamacardio.2019.5323

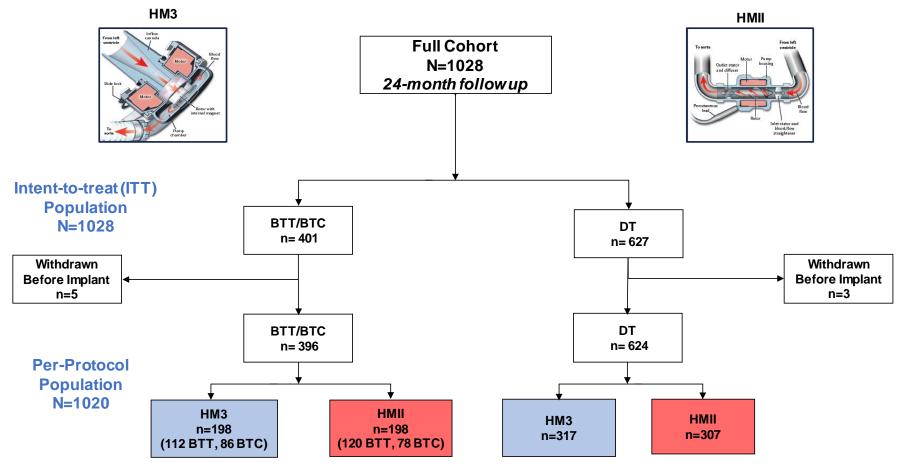
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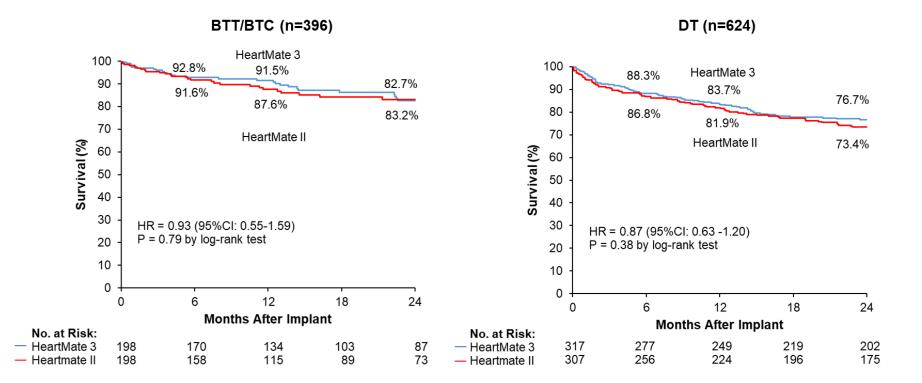
This supplementary material has been provided by the authors to give readers additional information about their work.

SUPPLEMENTARY FIGURES

eFigure 1. CONSORT diagram

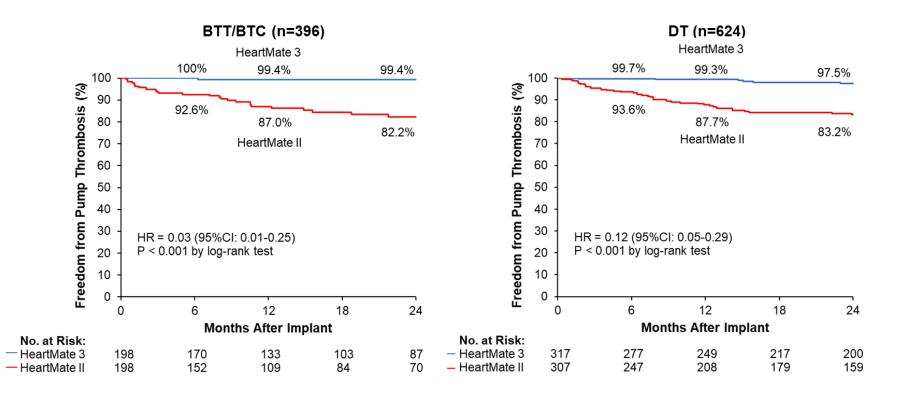


The CONSORT diagram shows the number of randomized patients (intent-to-treat population) and patients that underwent implant with HeartMate 3 or HeartMate II (per-protocol population) stratified by their intended goal of therapy. Eight patients were excluded from the per-protocol analysis due to death prior to implant (n=3), withdrawal of consent (n=1), transplantation (n=1), no LVAD implant (n=2) or implantation with a non-study LVAD (n=1). BTC, bridge to candidacy; BTT, bridge to transplantation; DT, destination therapy; HeartMate 3, HM3; HeartMate II, HMII.



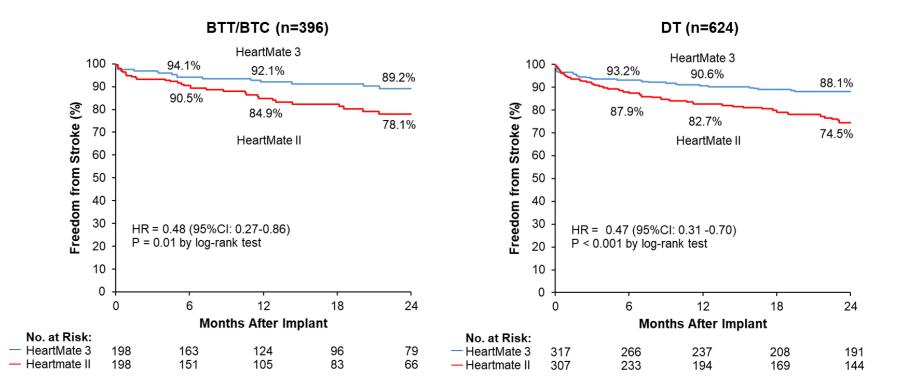
eFigure 2. Overall survival for patients receiving the HeartMate 3 and HeartMate II, stratified by intended use

BTC, bridge to candidacy; BTT, bridge to transplantation; DT, destination therapy; HeartMate 3, HM3; HeartMate II, HMII.



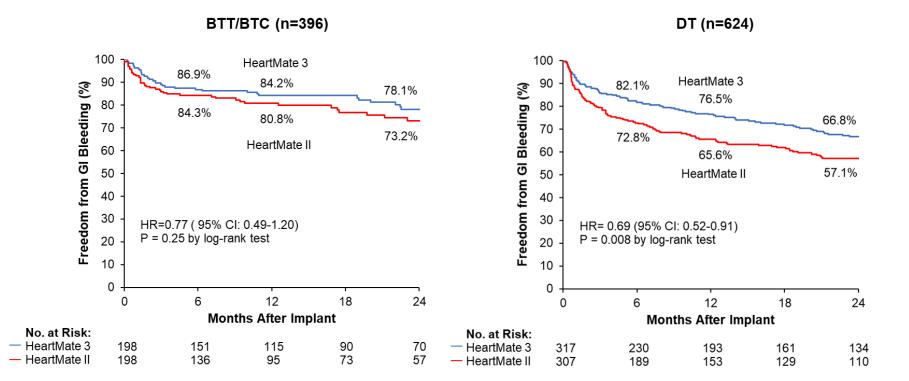
eFigure 3. Freedom from pump thrombosis in BTT/BTC and DT patients

BTC, bridge to candidacy; BTT, bridge to transplantation; DT, destination therapy; HeartMate 3, HM3; HeartMate II, HMII.



eFigure 4. Freedom from any stroke in BTT/BTC and DT patients

BTC, bridge to candidacy; BTT, bridge to transplantation; DT, destination therapy; HeartMate 3, HM3; HeartMate II, HMII.



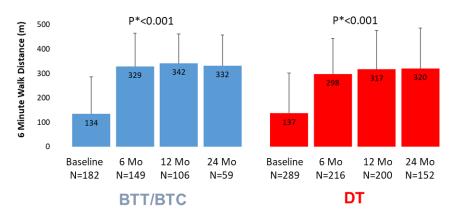
eFigure 5. Freedom from gastrointestinal bleeding in BTT/BTC and DT patients

BTC, bridge to candidacy; BTT, bridge to transplantation; DT, destination therapy; HeartMate 3, HM3; HeartMate II, HMII.

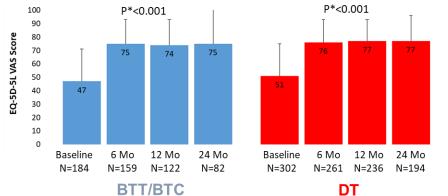
Adverse event	HM3 patients with	HMII events (%)	HM3 events p	HMII ber patient-yr		Relative Risk (95% CI)		Interaction P-Value
Major Infection								
BTT/BTC DT		104 (52.5) 181 (59.0)	0.79 0.84	0.78 0.85			1.01 (0.83 - 1.23) 0.99 (0.86 - 1.14)	0.85
Sepsis								
BTT/BTC DT	30 (15.2) 48 (15.1)		0.14 0.13	0.11 0.14			1.20 (0.73 - 1.96) 0.90 (0.64 - 1.27)	0.34
LVAS Driveline Infection							· · · · · ·	
BTT/BTC DT	46 (23.2) 74 (23.3)		0.24 0.23	0.21 0.22		•	1.10 (0.76 - 1.58) 1.04 (0.79 - 1.36)	0.82
Local non-LVAS Infection							,	
BTT/BTC DT		66 (33.3) 120 (39.1)	0.41 0.48	0.44 0.48		<u> </u>	0.92 (0.71 - 1.20) 1.00 (0.83 - 1.20)	0.63
Right Heart Failure								
BTT/BTC DT	80 (40.4) 96 (30.3)	46 (23.2) 97 (31.6)	0.35 0.22	0.22 0.24		-	1.58 (1.14 - 2.21) 0.93 (0.71 - 1.21)	0.01
Managed with RVAS							,	
BTT/BTC DT	8 (4.0) 13 (4.1)	4 (2.0) 17 (5.5)	0.03 0.03	0.02 0.04 —	_	•	1.82 (0.55 - 6.03)	0.17
Cardiac Arrhythmias	10(11)	17 (0.0)	0.05	0.04	•		0.70 (0.34 - 1.44)	
BTT/BTC DT	68 (34.3) 117 (36.9)	86 (43.4) 121 (39.4)	0.39 0.36	0.53 0.40		_	0.73 (0.56 - 0.94) 0.89 (0.72 - 1.10)	0.23
Ventricular	. ,	()					0.00 (0.72 1.10)	
BTT/BTC DT	42 (21.2) 65 (20.5)	60 (30.3) 68 (22.1)	0.24 0.18	0.35 0.22		_	0.69 (0.50 - 0.95) 0.83 (0.62 - 1.10)	0.39
Supraventricular								
BTT/BTC DT		37 (18.7) 61 (19.9)	0.13 0.16	0.16 0.15	-	 •	0.82 (0.52 - 1.28) 1.08 (0.78 - 1.49)	0.33
				0		2	3	
				.		2	5	
								
				HM3	Better	HMII Better		

eFigure 6. Comparison of non-hemocompatibility related adverse events in BTT/BTC and DT patients

BTC, bridge to candidacy; BTT, bridge to transplantation; CI, confidence interval; DT, destination therapy; HeartMate 3, HM3; HeartMate II, HMII; RVAS, right ventricular assist system



eFigure 7. Functional status and quality of life for BTT/BTC and DT patients implanted with HeartMate 3

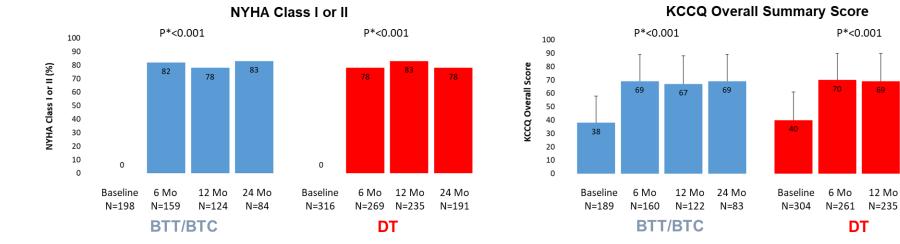


EQ-5D-5L Visual Analogue Scale

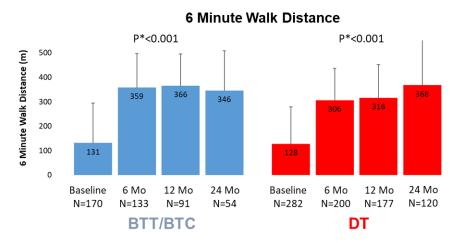
24 Mo

N=194

6 Minute Walk Distance

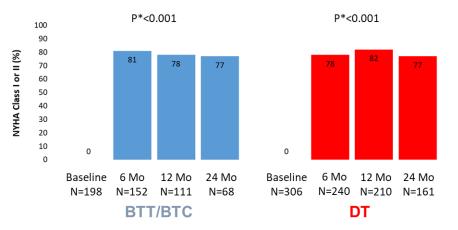


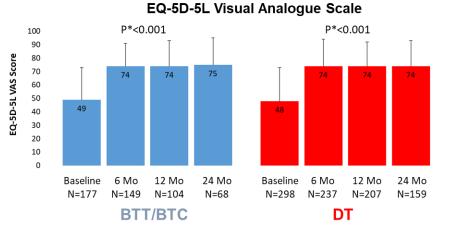
* p-values for treatment over time. Longitudinal changes were analyzed with linear mixed-effects modeling using data from baseline, 3, 6, 18 and 24 month visits. HeartMate 3 vs. HeartMate II from mixed modeling over all time points were not significant for any assessment.



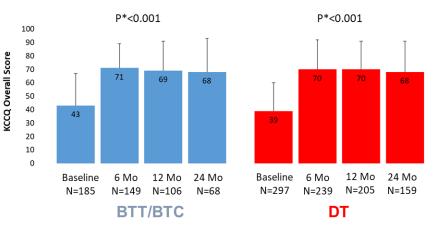
eFigure 8. Functional Status and quality of life for BTT/BTC and DT patients implanted with HeartMate II







KCCQ Overall Summary Score



* p-values for treatment over time. Longitudinal changes were analyzed with linear mixed-effects modeling using data from baseline, 3, 6, 18 and 24 month visits. Comparisons of HeartMate 3 vs. HeartMate II from mixed modeling over all time points were not significant for any assessment.

SUPPLEMENTARY TABLES

eTable 1. Components of the primary endpoint

	HeartMate 3 BTT/BTC (n=198)	HeartMate II BTT/BTC (n=198)	HeartMate 3 DT (n=317)	HeartMate II DT (n=307)
Patients failing the primary endpoint ^a	36 (18.2%)	53 (26.8%)	82 (25.9%)	120 (39.1%)
Withdrawal post-implant	1 (0.5%)	0 (0%)	3 (0.9%)	3 (1.0%)
Reoperation ^b	6 (3.0%)	29 (14.6%)	8 (2.5%)	44 (14.3%)
Disabling stroke	7 (3.5%)	10 (5.1%)	13 (4.1%)	20 (6.5%)
Death	22 (11.1%)	14 (7.1%)	58 (18.3%)	53 (17.3%)

BTC, bridge to candidacy; BTT, bridge to transplantation; DT, destination therapy.

^a The event that occurred first was noted as the failure event.

^b Includes pump replacement, urgent heart transplantation for device malfunction, or explantation or permanent deactivation of the device for a reason other than myocardial recovery.

Final Model Parameters	Hazard	95% Confidence	P-value
	Ratio	Interval	
HeartMate 3 vs. HeartMate II	0.644	(0.509 - 0.815)	<0.001
eGFR (per increase of 1 ml/min/1.73 m ²)	0.992	(0.986 - 0.998)	0.01
Non-Caucasian vs. Caucasian	0.726	(0.546 - 0.966)	0.03
BTT/BTC vs. DT	0.833	(0.639 - 1.085)	0.18
Ischemic vs. non-ischemic etiology	1.378	(0.994 - 1.912)	0.05
PCWP (per increase of 1 mmHg)	0.989	(0.976 – 1.002)	0.10
Age (per increase of 1 year)	0.997	(0.985 – 1.009)	0.62
Prior cardiac surgery vs. no prior cardiac surgery	0.928	(0.665 – 1.294)	0.66

eTable 2. Cox proportional hazards model for the primary endpoint

BTC, bridge to candidacy; BTT, bridge to transplantation; DT, destination therapy; eGFR, estimated glomerular filtration rate; PCWP, pulmonary capillary wedge pressure.

Patients discharged from implant hospitalization on LVAD support	HeartMate 3	HeartMate II	Difference or HR (95%Cl)	Р
BTT/BTC	n=191	n=188		
Median duration of rehospitalization	12	14	- 2	0.90 ^a
[interquartile range] – days	[3-32]	[3-32]		
Median duration on LVAD support outside of hospital	507	450	+ 57	0.23 ^a
[interquartile range] – days	[263-685]	[206-678]		
Rate of rehospitalization for any cause – EPPY	2.52	2.53	1.01 (0.91-1.14)	0.83 ^b
DT	n=294	n=283		
Median duration of rehospitalization	15	22	- 7	0.005ª
[interquartile range] – days	[4-43]	[7-49]		
Median duration on LVAD support outside of hospital	668	644	+ 24	0.01ª
[interquartile range] – days	[438-700]	[342-693]		
Rate of rehospitalization for any cause - EPPY	2.12	2.43	0.88 (0.81-0.96)	0.003 ^b

eTable 3. Days out of the hospital and rehospitalizations

CI, confidence interval; EPPY, events per patient year; HR, hazard ratio.

^a P values for differences in duration are from Wilcoxon Rank Sum test. ^b HR and associated P values were calculated from the Andersen-Gill model.