

SUPPLEMENTAL MATERIAL

Table S1. Assessments Completed by Patients at Baseline.

Measure	Description of Measure
Self-report Measures	
EQ-5D-3L ¹⁹	<p>Generic Overall Health-related Quality of Life (HRQOL) and dimensions:</p> <ul style="list-style-type: none"> • Single item rating current health status uses a vertical graduated (0-100) 20cm visual analog scale (VAS). Mean VAS scores are calculated. • 5 dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/ depression with 3 levels of response (no problems, some/moderate problems, and extreme problems).
Kansas City Cardiomyopathy Questionnaire (KCCQ-12) ²⁰	<p>Heart failure-specific Overall HRQOL and domains:</p> <ul style="list-style-type: none"> • 12-item disease specific questionnaire that measures HRQOL in patients with heart failure. • Four domains: physical limitations, symptom frequency, social limitations, and quality of life, and an overall summary score, combining the domains. Responses are set up as Likert scales. Scale scores are transformed to 0-100; higher scores = better health-related quality of life.
Personal Health Questionnaire (PHQ-8) ²²	<p>Mental HRQOL domain:</p> <ul style="list-style-type: none"> • 8-item screen for depression, based on the first eight criteria on which the diagnosis of DSM-IV depressive disorder is based. • Subjects indicate how often they have been bothered by depressive symptoms over the previous two weeks on a scale of 0=not at all to 3=nearly every day. • A summary score is calculated, with possible scores ranging from 0 to 24. Higher scores indicate higher levels of depressive symptoms. Scores ≥ 10 indicate the need for clinical assessment and management.
State-Trait Anxiety Inventory -State form (STAI-State) ²³	<p>Mental HRQOL domain:</p> <ul style="list-style-type: none"> • 20 self-report items assessing current levels of anxiety. • Subjects use a four-point Likert scale ranging from (1) not at all to (4) very much so. Higher scores = greater state anxiety.
Performance-based Measures	
Six minute walk test (6MWT) ²⁵	<p>Physical domain:</p> <ul style="list-style-type: none"> • Measure of physical functional capacity, consists of having a patient walk for 6 minutes in an enclosed hallway, free of traffic and distractions, with distance measured in meters.

	<ul style="list-style-type: none"> Patients are instructed to walk steadily to cover as much distance as possible during the 6 minutes. At the end of the walk, the total time (if less than 6 minutes) and distance covered is recorded. If a patient is bed-bound, a score of "0" may be assigned.³⁶
5-meter gait speed²⁶	Frailty: <ul style="list-style-type: none"> Clinical marker of frailty, used in an elderly cardiac surgical population.²⁶ Conducted in a well-lit, unobstructed hallway with markings at 0 and 5 meters. Patients are instructed to walk at a comfortable pace; canes and walkers are allowed. If a patient cannot walk, data are considered missing. This test is performed three times and averaged. Slower gait speed = longer walk time over 5 meters (m/sec).
Interview Administered Measure	
Montreal Cognitive Assessment (MoCA)²⁴	Cognitive dysfunction: <ul style="list-style-type: none"> 10-minute screening instrument (worst-to-best total score range=0-30), includes 7 cognitive domains. Cognitive dysfunction: (MoCA total score less than 26).

Table S2. Completion of Assessments at Baseline.

Patient Baseline Forms	HT* Candidates (with and without MCS) Completed/Expected (%)	Long-term MCS† Candidates Completed/Expected (%)	Total Completed/Expected (%)
Self-report Assessments			
EQ-5D-3L‡	237/239 (99%)	142/154 (92%)	379/393 (96%)
KCCQ-12§	237/239 (99%)	143/154 (93%)	380/393 (97%)
PHQ-8¶	235/239 (98%)	147/154 (95%)	382/393 (97%)
STAI-state#	235/239 (98%)	147/154 (95%)	382/393 (97%)
Interviewer-administered Assessment			
MoCA**	218/239 (91%)	141/154 (92%)	359/393 (91%)
Performance-based Assessments			
Five Meter Gait Speed	146/239 (61%)	37/154 (24%)	183/393 (47%)
Six Minute Walk Test	158/239 (66%)	51/154 (33%)	209/393 (53%)

* HT = heart transplantation

† MCS = mechanical circulatory support

‡ EQ-5D-3L = EuroQol-5 dimension-3L

§ KCCQ-12 = Kansas City Cardiomyopathy Questionnaire-12

¶ PHQ-8 = Personal Health Questionnaire

STAI-state = State-Trait Anxiety Inventory-state form

** MoCA = Montreal Cognitive Assessment.

Table S3. Patient Baseline Reasons for Missing Data for Performance-based Measures.

Variable	Available sample total (by group)	Total sample (n=393)	Long-term MCS* candidates (n=154)	HT† candidates with MCS (n=118)	HT candidates without MCS (n=121)	p-value
<u>Six Minute Walk Missing Status, No. (%)</u>	184(103,29,52)					0.67
. Form Incomplete/Reason Not Provided		1 (1%)	1 (1%)	0 (0%)	0 (0%)	
. Test Not Done (Reason Provided)		183 (99%)	102 (99%)	29 (100%)	52 (100%)	
<u>Reason Six Minute Walk Not Done, No. (%)</u>	183(102,29,52)					0.030
. Patient Refused, Unable to Walk		30 (16%)	22 (22%)	3 (10%)	5 (10%)	
. Patient Refused, Too Tired/Sick		89 (49%)	50 (49%)	13 (45%)	26 (50%)	
. Patient Refused, No Time/Too Busy		6 (3%)	1 (1%)	1 (3%)	4 (8%)	
. Patient Refused, No Reason Given		1 (1%)	1 (1%)	0 (0%)	0 (0%)	
. Did Not Approach Due to Patient Health Status		26 (14%)	17 (17%)	2 (7%)	7 (13%)	
. Coordinator Forgot/No Time		2 (1%)	1 (1%)	0 (0%)	1 (2%)	
. Collected For INTERMACS‡ Within Visit Window		5 (3%)	4 (4%)	1 (3%)	0 (0%)	
. Other		24 (13%)	6 (6%)	9 (31%)	9 (17%)	
<u>Five Meter Gait Speed Missing Status, No. (%)</u>	210(117,40,53)					0.67
. Form Incomplete/Reason Not Provided		1 (0%)	1 (1%)	0 (0%)	0 (0%)	
. Test Not Done (Reason Provided)		209 (100%)	116 (99%)	40 (100%)	53 (100%)	
<u>Reason Five Meter Gait Speed Not Done, No. (%)</u>	209(116,40,53)					0.002
. Patient Refused, Unable to Walk		32 (15%)	25 (22%)	3 (8%)	4 (8%)	
. Patient Refused, Too Tired/Sick		101 (48%)	59 (51%)	16 (40%)	26 (49%)	
. Patient Refused, No Time/Too Busy		8 (4%)	1 (1%)	3 (8%)	4 (8%)	
. Patient Refused, No Reason Given		2 (1%)	2 (2%)	0 (0%)	0 (0%)	
. Did Not Approach Due to Patient Health Status		31 (15%)	20 (17%)	4 (10%)	7 (13%)	
. Coordinator Forgot/No Time		5 (2%)	2 (2%)	2 (5%)	1 (2%)	
. Other		30 (14%)	7 (6%)	12 (30%)	11 (21%)	

* MCS = mechanical circulatory support

† HT = heart transplantation

‡ INTERMACS = Interagency Registry for Mechanically Assisted Circulatory Support

Table S4. Patient Baseline EQ-5D-3L Dimension Scores by 3 Levels of Problems.

Variable	Available sample total (by group)	Total sample (n=393)	Long-term MCS* candidates (n=154)	HT [†] candidates with MCS (n=118)	HT candidates without MCS (n=121)	p-value
EQ-5D-3L [‡] Mobility, No. (%)	380(143,118,119)					<0.001
. No Problems in Walking About		170 (45%)	51 (36%)	64 (54%)	55 (46%)	
. Some Problems in Walking About		179 (47%)	68 (48%)	54 (46%)	57 (48%)	
. Confined to Bed		31 (8%)	24 (17%)	0 (0%)	7 (6%)	
EQ-5D-3L Self-Care, No. (%)	380(143,118,119)					<0.001
. No Problems with Self-Care		256 (67%)	76 (53%)	86 (73%)	94 (79%)	
. Some Problems Washing or Dressing Myself		101 (27%)	46 (32%)	32 (27%)	23 (19%)	
. Unable to Wash or Dress Myself		23 (6%)	21 (15%)	0 (0%)	2 (2%)	
EQ-5D-3L Usual Activities, No. (%)	381(143,118,120)					<0.001
. No Problems with Performing My Usual Activities		119 (31%)	30 (21%)	47 (40%)	42 (35%)	
. Some Problems with Performing My Usual Activities		193 (51%)	65 (45%)	66 (56%)	62 (52%)	
. Unable to Perform My Usual Activities		69 (18%)	48 (34%)	5 (4%)	16 (13%)	
EQ-5D-3L Pain/Discomfort, No. (%)	380(143,118,119)					0.23
. No Pain or Discomfort		186 (49%)	69 (48%)	64 (54%)	53 (45%)	
. Moderate Pain or Discomfort		183 (48%)	67 (47%)	52 (44%)	64 (54%)	
. Extreme Pain or Discomfort		11 (3%)	7 (5%)	2 (2%)	2 (2%)	
EQ-5D-3L Anxiety/Depression, No. (%)	380(143,118,119)					0.08
. Not Anxious or Depressed		245 (64%)	81 (57%)	77 (65%)	87 (73%)	
. Moderately Anxious or Depressed		126 (33%)	57 (40%)	38 (32%)	31 (26%)	
. Extremely Anxious or Depressed		9 (2%)	5 (3%)	3 (3%)	1 (1%)	

- * MCS = mechanical circulatory support
- † HT = heart transplantation
- ‡ EQ-5D-3L = EuroQol -5D-3L Questionnaire

Table S5. Factors Associated with Health-related Quality of Life in Patients Awaiting Heart Transplantation and Long-term Mechanical Circulatory Support using Univariable Linear Regression Models.

Effect	n Available	Effect Size	95% Confidence Interval		p-value
Outcome: EQ-5D* VAS Score					
Sample (Reference = HT ⁺ candidates without MCS)					
• Long-term MCS ⁺ candidates	382	-8.5	-13.8	-3.3	0.001
• HT candidates with MCS		13.7	8.2	19.1	<0.001
Age, years	382	-0.6	-1.2	-0.1	0.014
Male	382	-4.0	-9.8	1.9	0.18
Race (White)	380	-4.9	-11.2	1.3	0.12
Education > High School	357	-2.9	-8.0	2.2	0.27
History of Smoking	379	4.1	-1.0	9.2	0.11
Arrhythmia	382	-5.3	-10.0	-0.5	0.030
Kidney Disease	382	-5.4	-10.2	-0.5	0.030
Diabetes	382	-5.5	-10.2	-0.8	0.021
Hypertension	382	-3.7	-8.5	1.1	0.12
NYHA Class at Enrollment (Reference = 1)					
• 2	371	-8.3	-19.9	3.2	0.16
• 3		-21.4	-32.2	-10.6	<0.001
• 4		-28.7	-39.3	-18.2	<0.001
Patient Six Minute Walk (meters) (Reference is >378)					

• 0	381	-23.1	-30.0	-16.4	<0.001
• 1 - 183		-18.6	-26.0	-11.3	<0.001
• 184 - 300		-9.6	-17.4	-1.8	0.016
• 301 - 378		-2.5	-10.0	4.9	0.50
PHQ-8 [§] Total Score	378	-2.0	-2.4	-1.5	<0.001
STAI Total Score	378	-0.6	-0.8	-0.4	<0.001
MoCA [#] Total Score	351	0.9	0.1	1.6	0.022
Outcome: KCCQ-12** Overall Summary Score					
Sample (Reference = HT candidates without MCS)					
• Long-term MCS candidates	383	-13.6	-18.7	-8.5	<0.001
• HT candidates with MCS		11.0	5.6	16.4	<0.001
Age, years	383	-1.0	-1.5	-0.4	<0.001
Education > High School	358	-3.4	-8.5	1.8	0.20
Insurance Type: Private Insurance vs Medicare/Medicaid	383	5.6	0.8	10.4	0.021
Currently Working	359	8.4	1.9	14.8	0.011
History of Smoking	380	5.1	-0.01	10.2	0.050
Diabetes	383	-5.7	-10.3	-1.0	0.018
NYHA Class at Enrollment (Reference = 1)					
• 2	372	-11.1	-21.9	-0.3	0.043
• 3		-25.2	-35.2	-15.1	<0.001
• 4		-38.3	-48.2	-28.5	<0.001
Patient Six Minute Walk (meters) (Reference is >378)					
• 0	382	2.8	-2.8	8.3	0.32
• 1 - 183		17.6	11.6	23.6	<0.001

• 184 - 300		26.1	20.5	31.8	<0.001
• 301 - 378		35.2	29.2	41.2	<0.001
PHQ-8 Total Score	379	-2.9	-3.3	-2.6	<0.001
STAI Total Score	379	-0.8	-1.0	-0.7	<0.001
MoCA Total Score	352	1.77	1.0	2.4	<0.001

* EQ-5D VAS = EuroQol visual analog scale

† HT = heart transplantation

‡ MCS = mechanical circulatory support

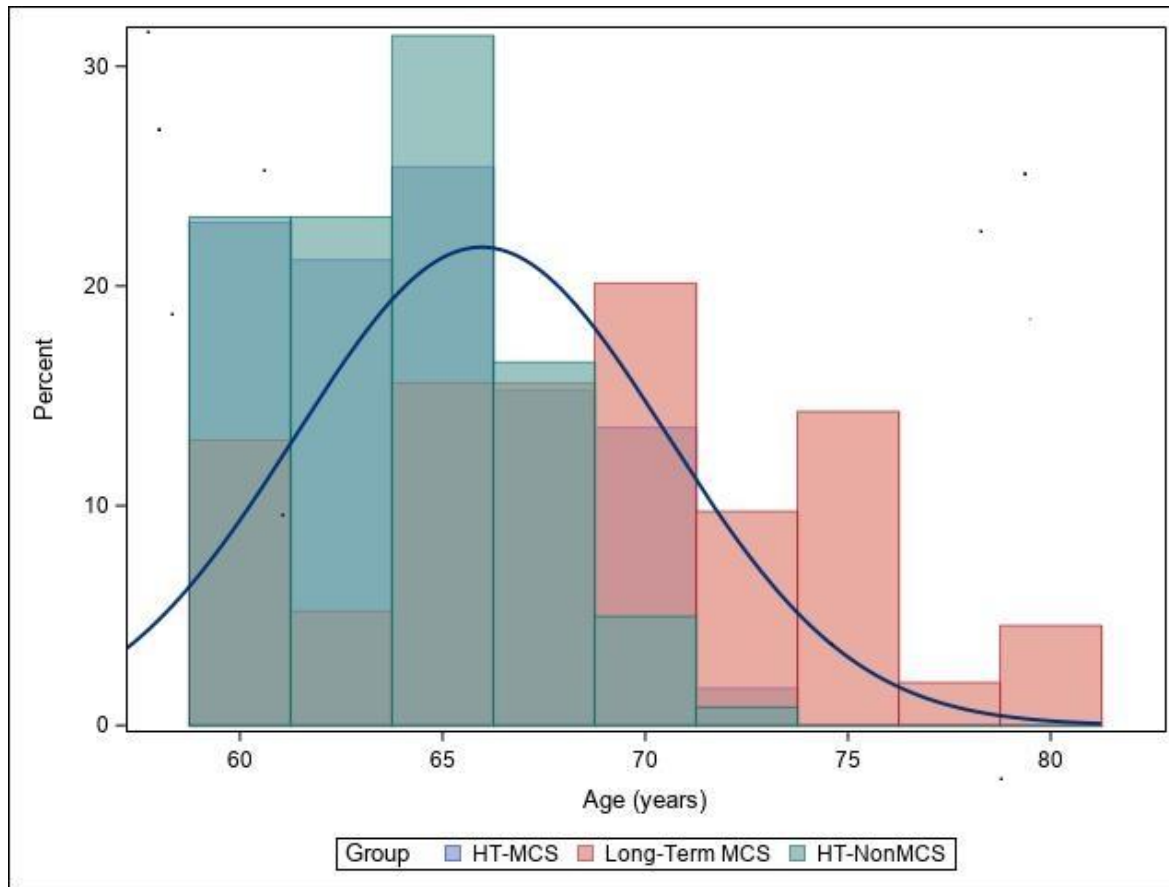
§ PHQ-8 = Personal Health Questionnaire-8

|| STAI-state = State-Trait Anxiety Inventory-state form

MoCA = Montreal Cognitive Assessment

** KCCQ-12 = Kansas City Cardiomyopathy Questionnaire

Figure S1. Histogram for the three groups of candidates as individual overlays, with a density curve that represents the entire cohort.



HT-MCS = heart transplant candidate with mechanical circulatory support prior to transplantation, Long-term MCS = advanced heart failure patient prior to long-term mechanical circulatory support, and HT-NonMCS = heart transplant candidate without mechanical circulatory support prior to transplantation.