

## Supplementary material

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**Table S1.** The baseline characteristics of the Hybrid Comprehensive TeleRehabilitation Group (HCTR) and Usual Care (UC) group, and candidate predictor variables for event (cardiovascular death or heart failure hospitalization).

<b>Baseline</b>	HCTR group (n=384)	UC group (n=381)	P-value
Male, n (%)	344 (89.6)	342 (89.8)	0.93
Age (years), mean (SD)	62.0 (10.8)	61.8 (10.4)	0.84
BMI (kg/m <sup>2</sup> ), mean (SD)	28.8 (5.1)	29.1 (4.7)	0.52
LVEF (%), mean (SD)	31.0 (6.9)	30.4 (7.0)	0.23
Duration of heart failure (years), median (Q1-Q3)	5.7 (2.0 – 10.9)	6.2 (1.8 – 11.6)	0.54
<b>Etiology of Heart Failure, n (%)</b>			
Ischemic, n (%)	251 (65.4)	242 (63.5)	0.59
Non ischemic, n (%)	133 (34.6)	139 (36.5)	
<b>Past medical history, n (%)</b>			
Atrial fibrillation or atrial flutter, n (%)	73 (19.0)	70 (18.4)	0.82
Hypertension, n (%)	228 (59.4)	243 (63.8)	0.21
Stroke, n (%)	23 (6.0)	27 (7.1)	0.54
Diabetes mellitus, n (%)	130 (33.8)	130 (34.1)	0.94
Chronic kidney disease, n (%)	70 (18.2)	60 (15.7)	0.36
Hyperlipidemia, n (%)	190 (49.5)	165 (43.3)	0.09
<b>Implantable devices, n (%)</b>			

Cardiovascular implantable electronic device, n (%)	305 (79.4)	306 (80.3)	0.76
Implantable cardioverter-defibrillator, n (%)	190 (62.3)	197 (64.4)	0.81
Cardiac resynchronization therapy (CRT-P/ CRT-D), n (%)	112 (36.7)	108 (35.3)	
<b>Lab parameters</b>			
NT-proBNP, median (Q1-Q3)	845 (348-1943)	875 (380-1997)	0.87
Creatinine (mg/dl), median (Q1-Q3)	1.10 (0.97-1.32)	1.09 (0.92-1.27)	0.10
hs-CRP (mg/dl), median (Q1-Q3)	2.00 (1.01-4.27)	1.88 (0.90-3.50)	0.09
<b>Cardiopulmonary exercise test</b>			
pVO <sub>2</sub> (ml/kg/min), mean (SD)	17.1 (5.5)	16.9 (6.0)	0.69
Minute ventilation at peak effort (l/min), mean (SD)	49.4 (18.2)	49.7 (18.0)	0.85
Breathing frequency at peak effort, (/min), mean (SD)	29.3 (6.3)	29.5 (6.4)	0.73
<b>Pharmacotherapy, n (%)</b>			
β-blocker, n (%)	369 (96.1)	373 (97.9)	0.14
ACEIs/ARBs, n (%)	358 (93.2)	358 (94.0)	0.68
<b>After 9 weeks of HCTR</b>			
<b>Functional status by NYHA class, n (%)</b>			
I	98 (25.5)	59 (15,5)	<b>0.001</b>
II	234 (60.9)	245 (64.3)	
III	52 (13.5)	76 (19.9)	
IV	0 (0)	1 (0.3)	
<b>Clinical finding, n (%)</b>			
Lower limb swelling, n (%)	30 (7.8)	52 (13.6)	<b>0.009</b>
<b>Anamnesis, n (%)</b>			
Smoking, n (%)	24 (6.2)	27 (7.1)	0.64
Alcohol abuse, n (%)	11 (2.9)	7 (1.8)	0.35
<b>Laboratory tests</b>			
Sodium (mmol/l), mean (SD)	140.6 (2.7)	140.6 (2.8)	0.94
Potassium (mmol/l), mean (SD)	4.5 (0.4)	4.5 (0.4)	0.85
Hemoglobin (g/dl), mean (SD)	14.2 (1.4)	14.3 (1.5)	0.24

eGFR (ml/min/1.73m <sup>2</sup> ), mean (SD)	67.9 (21.2)	69.4 (20.4)	0.32
NT-proBNP (pg/ml), median (Q1-Q3)	909 (362 – 1752)	848 (348 – 1901)	0.89
Creatinine (mg/dl), median (Q1-Q3)	1.11 (0.93 – 1.36)	1.09 (0.92 – 1.30)	0.23
hs-CRP (mg/dl), median (Q1-Q3)	1.78 (1.00 – 3.43)	1.90 (0.91 – 3.70)	0.59
SBP (mmHg), mean (SD)	121.2 (17.6)	120.3 (17.1)	0.47
DBP (mmHg), mean (SD)	74.6 (10.7)	75.0 (10.6)	0.62
<b>Six-minute walk test</b>			
Distance (m), mean (SD)	460 (102)	438 (104)	<b>0.003</b>
<b>Cardiopulmonary test</b>			
Exercise time (s), mean (SD)	441 (185)	401 (182)	<b>0.003</b>
HR peak effort (bpm), mean (SD)	122 (22)	119 (23)	0.049
Peak VO <sub>2</sub> (ml/kg/min) , mean (SD)	18.2 (5.8)	17.0 (5.9)	<b>0.003</b>
Percentage of expected peak VO <sub>2</sub> (%), mean (SD)	59.3 (20.9)	54.4 (21.4)	<b>0.001</b>
VCO <sub>2</sub> at peak effort (ml/kg/min), mean (SD)	1.59 (0.68)	1.47 (0.65)	<b>0.01</b>
Minute ventilation at rest (at 9 week) (l/min), mean (SD)	13.4 (5.3)	13.0 (4.3)	0.23
Minute ventilation at peak effort (at 9 week) (l/min), mean (SD)	52.7 (19.0)	49.7 (18.0)	<b>0.03</b>
Breathing frequency at rest (at 9 week) (/min), mean (SD)	19.2 (4.8)	18.9 (4.8)	0.53
Breathing frequency at peak effort (at 9 week) (/min), mean (SD)	30.3 (6.3)	29.3 (5.8)	<b>0.02</b>
RER 9 week, mean (SD)	0.99 (0.12)	0.97 (0.13)	0.07
VE/ VO <sub>2</sub> slope, mean (SD)	30.6 (10.4)	30.7 (13.4)	0.97
VE/VCO <sub>2</sub> slope, mean (SD)	30.5 (9.8)	30.8 (11.1)	0.65
<b>Echocardiography</b>			
LVsD (mm), mean (SD)	53.9 (10.0)	54.6 (10.4)	0.33
LVdD (mm), mean (SD)	63.4 (8.7)	64.5 (9.1)	0.09
LVsV (ml), mean (SD)	144.7 (69.8)	153.1 (81.0)	0.13
LVdV (ml), mean (SD)	205.9 (83.9)	212.3 (90.2)	0.31
LVEF (%),mean (SD)	32.9 (7.7)	31.7 (7.8)	<b>0.03</b>
Mitral regurgitation – moderate or severe n, (%)	88 (22.9)	76 (19.9)	0.32
<b>24h Holter ECG</b>			

Average heart rate (bpm), mean (SD)	68.7 (8.2)	68.3 (8.8)	0.49
Maximal heart rate (bpm), mean (SD)	103.3 (16.5)	101.6 (16.5)	0.17
Minimal heart rate (bpm), mean (SD)	57.6 (9.2)	56.9 (9.7)	0.25
nsVT (present), n (%)	52 (49.1)	100 (36.9)	<b>0.03</b>
<b>Quality of life</b>			
SF-36 (score), mean (SD)	91.8 (12.6)	89.4 (14.1)	<b>0.014</b>
BDI-II (score), mean (SD)	9.1 (6.4)	9.8 (7.0)	0.15

Abbreviations: **ACEs**, angiotensin-converting enzyme inhibitors; **ARBs**, angiotensin receptor blockers; **BDI-II**, Beck Depression Inventory; **BF**, breathing frequency; **BMI**, body mass index; **CPET**, cardiopulmonary exercise test; **CRT-D**, cardiac resynchronization therapy-defibrillator; **CRT-P**, cardiac resynchronization therapy with pacemaker function; **DBP**, diastolic blood pressure; **eGFR**, estimated glomerular filtration rate; **HCTR**, hybrid comprehensive telerehabilitation; **HM**, 24-h ECG Holter monitoring; **HR**, heart rate; **hs-CRP**, high sensitivity C-reactive protein; **LVdD**, left ventricular diastolic diameter; **LVEF**, left ventricular ejection Fraction; **LVSD**, left ventricular systolic diameter; **LVdV**, left ventricular diastolic volume; **LVsV**, left ventricular systolic volume; **nsVT**, nonsustained ventricular tachycardia; **NT-proBNT**, N-terminal fragments of B-type natriuretic peptide; **NYHA** New York Heart Association; **pVCO<sub>2</sub>**, carbon dioxide output at peak exercise; **pVO<sub>2</sub>**, oxygen uptake at peak exercise; **pVO<sub>2</sub>% pred**, percentage of predicted peak oxygen uptake; **RER**, respiratory exchange ratio; **SBP**, systolic blood pressure; **SF-36**, Short Form 36 Health Survey Questionnaire; **VE/VCO<sub>2</sub> - slope**, slope of the relationship between minute ventilation and carbon dioxide output; **VE/VO<sub>2</sub>-slope**, slope of the relationship between minute ventilation and oxygen uptake; **VE**, minute ventilation at peak exercise;