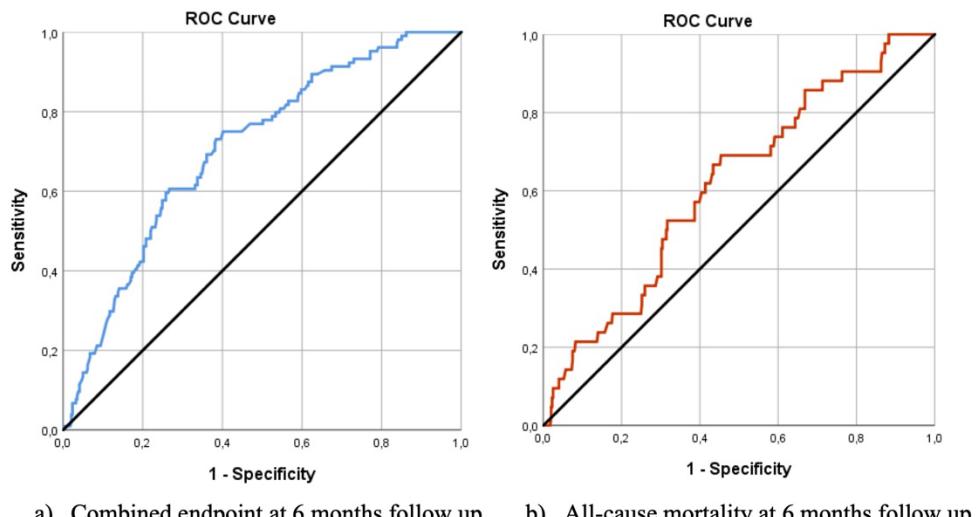


Supplementary Material

Aortic Pulsatility Index: A New Hemodynamic Measure with Prognostic Value in Advanced Heart Failure

Supplementary figure



Supplementary Table 1 - Patients' Characteristics Stratified According to NYHA Class

	NYHA I or II	NYHA III or IV	p-Value
	n = 177	n = 247	
Age	49 ± 13	54 ± 12	<0.001a
Sex (male)	137 (77.4%)	188 (76.1%)	0.757b
BMI (kg/m2)	25.7 ± 4.9	26.9 ± 6.4	0.043a
Risk factors			
Smoking*	113 (63.8%)	169 (69.0%)	0.262b
HF etiology			
Ischaemic	44 (24.9%)	91 (36.8%)	0.009b
Non-ischemic			
DCM (not further specified)	83 (46.9%)	105 (42.5%)	0.370b
Hypertension	9 (5.1%)	3 (1.2%)	0.018b
Valvular heart disease	5 (2.8%)	8 (3.2%)	0.807b
Tachycardia-induced	2 (1.1%)	4 (1.6%)	0.674b
Peri- or postpartum			
Cardiomyopathy	4 (3.2%)	2 (0.8%)	0.212b
Toxin-induced	6 (3.4%)	17 (6.9%)	0.117b
Other	19 (10.7%)	15 (6.1%)	0.081b

Unknown or not reported	5 (2.8%)	2 (0.8%)	0.108b
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Comorbidities

Atrial fibrillation	56 (31.6%)	99 (40.7%)	0.056b
COPD	8 (4.5%)	22 (8.9%)	0.213b
Diabetes mellitus**	25 (14.2%)	52 (21.1%)	0.069b

Clinical signs

JVD	21 (11.9%)	57 (23.2%)	0.012b
S3 gallops	16 (9.0%)	40 (16.2%)	0.100b
Pulmonary rales	12 (7.4%)	48 (19.4%)	0.002b
Ascites	12 (6.8%)	30 (12.2%)	0.157b
Hepatomegaly	10 (5.6%)	32 (13.0%)	0.034b
Peripheral oedema	24 (13.6%)	72 (29.1%)	0.001b

Laboratory analysis

eGFR (ml/min/1.73 m ²)	79 ± 27	66 ± 24	<0.001a
NT-proBNP (ng/l)	229 (120-465)	328 (121-634)	0.337c

1937 (1015-3932) 2774 (1023-5362)

Echocardiography

LVEF (%)	20 ± 9	18 ± 8	0.003a
TAPSE (cm)	1.8 ± 0.5	1.6 ± 0.6	0.025a

Medications

ACE-inhibitors, ARB or ARNI	154 (87%)	187 (77.6%)	0.014b
BB	129 (72.9%)	161 (66.8%)	0.183b
ARA	100 (58.1%)	144 (61.3%)	0.523b
Loop diuretics	152 (85.9%)	226 (94.6%)	0.002b
SGLT2 inhibitors	0	3 (5.4%)	0.137b
Inotropy	2 (1.1%)	21 (8.5%)	0.002b

Devices

Pacemaker	6 (3.4%)	4 (1.6%)	0.232b
ICD	24 (13.6%)	42 (17.0%)	0.359b
CRT-P	1 (0.6%)	12 (4.9%)	0.012b
CRT-D	15 (8.5%)	45 (18.2%)	0.005b

Resting hemodynamic parameters

HR (b.p.m)	74 ± 18	81 ± 20	0.107a
SBP (mmHg)	108 ± 18	102 ± 17	<0.001a
DBP (mmHg)	67 ± 12	64 ± 11	0.027a
MAP (mmHg)	81 ± 13	77 ± 11	0.002a
CO (l/min)	5.0 ± 1.5	4.7 ± 1.5	0.027a
CI (l/m/m ²)	2.5 ± 0.7	2.3 ± 0.7	0.002a
PCWP (mmHg)	18.3 ± 7.8	20.6 ± 7.8	0.002a

MPAP (mmHg)	27.0 ± 10.4	29.7 ± 10.4	0.010a
CVP (mmHg)	8.9 ± 5.1	11.5 ± 5.7	<0.001a
SVi (ml/m ²)	39.5 ± 12.6	31.8 ± 11.6	0.009a
PAPi	2.9 ± 1.8	2.4 ± 1.7	0.004a
API (IQR)	2.2 (1.4-3.8)	1.8 (1.1-2.7)	<0.001c

N defines the number of patients with obtained information in the category. Values are given as numbers and valid percent (n (%)), means with SD or as median or IQR.

aStudent's t-test; ^bχ² analysis, ^cMann–Whitney U-test.

BMI: Body Mass Index, DCM: dilated cardiomyopathy, COPD: Chronic Obstructive Pulmonary Disease, NYHA: New York Heart Association, eGFR: estimated glomerular filtration rate, NT-proBNP: N-terminal pro-B-type Natriuretic Peptide, LVEF: left ventricular ejection fraction, TAPSE: tricuspid Annular Plane Systolic Excursion, ACE: angiotensin-converting Enzyme, ARB: angiotensin II receptor blockers, ARNI: angiotensin receptor neprilysin inhibitor, BB: beta blockers, ARA: aldosterone receptor antagonists, SGLT-2: sodium–glucose cotransporter 2, CRT,

Heart rate: HR, b.p.m = Beats/min, SBP: systolic Blood Pressure, DBP: diastolic blood pressure, MAP: mean arterial Blood Pressure, CO: cardiac Output, CI: Cardiac Index, PCWP: MPAP: mean Pulmonary Artery Pressure, CVP: central venous pressure, SVi, PAPi: Pulmonary Artery Pulsatility Index, API

*Current or former; ** non-insulin or insulin-dependent diabetes mellitus

Patients defined as NYHA II-III class is categorised as NYHA I or II

Supplementary table 2: Cox Models for the Combined Endpoint Stratified According to HF Etiology

Non-Ischemic Etiology	HR (95% CI)	p-Value
<i>Univariable model</i>		
Log(API)	0.42 (0.26-0.67)	<0.001
<i>Multivariable model</i>		
Log(API) corrected for age, male sex, NYHA class III or IV	0.51 (0.27-0.96)	0.036
and eGFR		
Ischaemic etiology	HR (95% CI)	p-value
<i>Univariable model</i>		
Log(API)	0.13 (0.06-0.30)	<0.001
<i>Multivariable model</i>		
Log(API) corrected for age, male sex, NYHA class III or IV	0.09 (0.03-0.26)	<0.001
and eGFR		

API = Aortic Pulsatility Index; eGFR = estimated Glomerular Filtration Rate; NT-proBNP = N-terminal pro-B-type Natriuretic Peptide; NYHA = New York Heart Association.

API = Aortic Pulsatility Index; eGFR = estimated Glomerular Filtration Rate; NYHA = New York Heart Association.