

## P803

## Myocardial work in acutely decompensated heart failure patients differs between HFrEF and HFpEF

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**OnBehalf:** AHF Registry

**Background & Aim** A novel echocardiographic method to non-invasively determine left ventricular (LV) myocardial work (MyW) based on speckle-tracking derived longitudinal strain and blood pressure has recently been validated against invasive reference measurements. MyW is considered less load-dependent than LV ejection fraction (EF) and LV longitudinal strain. We investigated MyW indices in patients with reduced ejection fraction (LVEF <40%; HFrEF) and patients with preserved ejection fraction (LVEF ≥50%, HFpEF) admitted for acutely decompensated heart failure (AHF).

**Methods** The AHF registry is a monocentric prospective follow-up study that comprehensively phenotypes consecutive patients hospitalized for AHF. Echocardiography was performed on the day of admission. MyW assessment was performed off-line using EchoPAC (GE, version 202). Here we present MyW indices and performed two-sided t-tests to analyze differences in numerical baseline covariates.

**Results** We analyzed the echocardiograms of 94 AHF patients (72 ± 10 years; 36% female). 46 patients (49%) had an LVEF <40%, while 48 patients (51%) presented with LVEF ≥50%. HFrEF patients were younger, less often female, and had lower blood pressure (table). Consistent with lower LVEF, HFrEF patients had less negative global longitudinal strain and lower global constructive work, when compared to HFpEF patients. Since HFrEF patients also had higher global wasted work, this yielded a lower myocardial work efficiency compared to HFpEF patients (table).

**Conclusions** This analysis in patients with AHF exhibited marked differences in MyW indices according to subgroups with HFrEF and HFpEF, thus adding information to the classical measures of LV function. Future research has to determine whether constructive and/or wasted MyW are valuable diagnostic or therapeutic targets in patients with AHF.

Abstract P803 Figure.

	HFpEF (EF≥50%) n=48	HFrEF (EF<40%) n=46	p
Age (years), mean (SD)	76.9 (7.8)	66.9 (12.7)	
Sex (female), n(%)	21 (44%)	13 (28%)	
NYHA at admission			
III, n(%)	18 (37.5)	18 (39.1)	
IV, n(%)	27 (56.2)	24 (52.2)	
Systolic blood pressure (mmHg), mean (SD)	132.0 (19.2)	119.8 (17.3)	<0.001
Ejection Fraction Biplane (%), mean(SD)	61.9 (8.4)	30.4 (6.1)	<0.001
GLPS (%), mean (SD)	17.0 (3.6)	6.5 (2.2)	<0.001
GWE (%), mean (SD)	92.7 (4.5)	77.4 (9.9)	<0.001
GWl (mmHg%), mean (SD)	1843.2 (546.8)	609.6 (228.8)	<0.001
GCW (mmHg%), mean (SD)	2050.5 (544.3)	760.2 (256.3)	<0.001
GWw (mmHg%), mean (SD)	124.0 (93.8)	162.8 (107.0)	0.06

Table: Baseline characteristics of AHF patients at admission. GLPS: Global Longitudinal Peak Systolic Strain, GWE: Global Work Efficiency, GWl: Global Work Index, GCW: Global Constructive Work, GWw: Global Wasted Work.