

## P1353

## Left ventricular performance patterns in patients with dilated cardiomyopathy and advanced heart failure

Kinova E.; Somleva D.; Spasova N.; Borizanova A.; Goudev A.

University Hospital Tsaritsa Yoanna - ISUL, Sofia, Bulgaria

**Background:** Left ventricular (LV) global longitudinal strain (GLS) is a more sensitive parameter than ejection fraction in the assessment of LV function. It has been established as a predictor of cardiac death and adverse events. In patients with dilated cardiomyopathy (DCM) LV deformation and twist mechanics are reduced in varying degrees.

**Purpose:** The aim of the study was to determine different LV performance patterns in patients with DCM and advanced heart failure (HF).

**Methods:** In 52 patients with DCM with HF NYHA class III-IV ( $62 \pm 13$  years, 36 males) LV function had been assessed by conventional, Tissue Doppler and 2D-speckle tracking echocardiography (2D-STE) with measurement of GLS, circumferential strain (CS) and twist mechanics. Patients were divided into two groups: with  $GLS \geq -7\%$ , and  $GLS < -7\%$ .

**Results:** In a group with more reduced  $GLS \geq -7\%$  systolic parameters were worse, Table. Systolic velocities of medial and lateral mitral annulus (S'lat), and CS at the LV basal and mid levels (CSmid) were significantly more altered. Rotational parameters did not differ between the groups. In a multivariate regression model CSmid ( $p < 0.0001$ ;  $B = 0.66$ , 95%CI [ $0.37 \div 0.95$ ]), S'lat ( $p = 0.001$ ;  $B = -0.34$ , 95%CI [ $-1.5 \div -0.46$ ]) and VCW ( $p = 0.002$ ;  $B = 0.31$ , 95%CI [ $0.15 \div 0.66$ ]) were independent predictors of GLS. ROC curves identified CSmid (AUC 0.91,  $p < 0.0001$ ) and VCW (AUC 0.69,  $p = 0.02$ ) as the best discriminators of patients with severely reduced  $GLS \geq -7\%$ .

**Conclusions:** Patients with DCM and HF with severely depressed LV function assessed by GLS were characterized with more altered CS and more pronounced MR. Rotational parameters failed to be significant determinants of LV performance.

### Echocardiographic parameters

	GLS $\geq$ -7% N = 24	GLS<-7% N = 28	p
End diastolic volume index(ml/m <sup>2</sup> ;	113.55 $\pm$ 41.64	87.98 $\pm$ 26.98	0.01
End systolic volume index(ml/m <sup>2</sup> ;	84.50 $\pm$ 39.05	55.51 $\pm$ 21.93	0.001
Ejection fraction (%)	28 $\pm$ 8	35 $\pm$ 7	0.001
Systolic velocity of medial mitral annulus (cm/sec)	3.57 $\pm$ 0.81	4.88 $\pm$ 1.52	0.001
Systolic velocity of lateral mitral annulus (cm/sec)	4.38 $\pm$ 1.09	5.38 $\pm$ 1.42	0.014
Circumferential strain at basal level (%)	-5.92 $\pm$ 3.15	55.52 $\pm$ 21.93	0.014
Circumferential strain at mid-level (%)	-5.11 $\pm$ 1.77	-8.71 $\pm$ 2.34	<0.0001
Epicardial Torsion (°/cm)	0.31 $\pm$ 0.18	0.47 $\pm$ 0.35	0.05
Vena contracta width of mitral regurgitation (mm)	7.34 $\pm$ 2.23	5.58 $\pm$ 2.82	0.017

GLS - global longitudinal strain.