

evaluated. We sought to describe according to LV-longitudinal strain (LS), both the phenotype with and without LV-systolic dysfunction and to assess its prognostic value in the multicentric prospective cohort KaRen.

**Method** LS was assessed by 2-dimensional speckle-tracking echocardiography at baseline in 348 patients with HFpEF enrolled in KaRen (prospective international multicenter registry on HFpEF). At a median follow-up of 1.5 years (interquartile range, 0.8–2.7 years), 43% of the patients experienced the primary composite outcome of cardiovascular death, HF hospitalization. Impaired LS, defined as an absolute LS < 16%, was present in 40.5% of patients but was not a predictor of the composite outcome. The phenotype with impaired LS was characterized by some key feature detailed [Figure 1](#).

**Results** Main echocardiographic results are in [Figure 1](#).

**Conclusion** Impaired LV- systolic function is not systematic in HFpEF. The fact that LS is < 16% is not associated with an increased risk of death or HF-hospitalisation. ([Figure 1](#)).

	817	No, N = 141 % (n)	Yes, N = 207 % (n)	p-value*
Cardiac Index		2.72 ± 0.80	2.48 ± 0.68	0.0130
LV mass indexed, g/m <sup>2</sup>		124 ± 34	127 ± 37	0.4372
RV diameter, mm		30.7 ± 7.93	31.6 ± 5.76	0.2504
LV EF, %		65.6 ± 5.93	60.1 ± 6.69	<.0001
Stroke volume, mL/m <sup>2</sup>		31.7 ± 8.71	30.5 ± 8.46	0.2446
LV end diastolic diameter, mm		46.8 ± 6.23	47.6 ± 6.10	0.2482
LV end systolic diameter, mm		30.5 ± 5.97	33.2 ± 6.68	0.0003
LV fractional shortening, %		35.4 ± 6.96	30.7 ± 7.63	<.0001
e', cm/s		7.96 ± 2.50	7.90 ± 2.66	0.8469
Tricuspid regurgitation, m/s		2.87 ± 0.71	2.87 ± 0.59	0.9926
LA volume indexed, mL/m <sup>2</sup>		48.1 ± 18.6	50.6 ± 17.5	0.2593
E-wave deceleration time, ms		207 ± 84	185 ± 68	0.0072
E/A ratio		1.53 ± 1.09	2.08 ± 1.44	0.0006
E/e'		12.39 ± 5.04	13.25 ± 6.56	0.2016
TAPSE, mm		18.8 ± 4.38	16.0 ± 4.58	<.0001
RV shortening		0.44 ± 0.09	0.43 ± 0.09	0.2087

**Figure 1** Results according to GLS.

**Disclosure of interest** The authors declare that they have no competing interest.

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**Poster n°49**

### The effect of systemic hypertension on right ventricular function: An echocardiographic study

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**Introduction** Left ventricular structural and functional changes in patients with arterial hypertension are well established. However, the influence of arterial hypertension on right ventricular (rV) remodeling is still being investigated. The aim of the current study was to determinate the rV systolic and diastolic function in uncontrolled hypertensive patients and compare these echocardiographic findings to the results of control subjects.

**Method** We included 40 patients with uncontrolled hypertension without any associated pathology (group A) and 40 healthy subjects control (group B). Subjects included in both groups were free from

diabetes, valvular disease and ischemic heart disease. The 2 groups have a comparable average age and sex-ratio.

**Results** There was a significant increase in parietal thickness, left atrium diameter, left ventricular mass index in group A. The left ejection fraction was comparable between two groups. The diastolic diameter of the RV, the ejection fraction of the RV, the tricuspid annular plane systolic excursion (TAPSE) and the fractional area change were comparable between the 2 groups. The systolic velocity S' measured at the level of the annulus tricuspid and the global longitudinal strain rate were significantly lower in hypertensive patients (7 ± 2 cm versus 13 ± 2 cm/s, P < 0.01) and (-13.1 ± 2.6% versus -19.1 ± 2% P < 0.01) reflecting subclinical RD systolic dysfunction. In addition, the early (Ea) peak velocity at the tricuspid annulus was significantly lower in group A (6.8 ± 1.9 cm/s versus 12.1 ± 4.1), P < 0.01 with a consequence lower Ea/Aa suggestion a RV relaxation disorder.

**Conclusion** Our study revealed a RV dysfunction in uncontrolled hypertension patients, Doppler tissue and 2D strain were very powerful in detection of RV abnormalities at an early subclinical stage.

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**Poster n°50**

### Prognostic value of longitudinal strain compared to conventional parameters of right ventricular function in heart failure with reduced ejection fraction

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**Introduction** Right ventricular (RV) systolic dysfunction is an important predictor of poor outcomes in heart failure (HF) with reduced ejection fraction (EF), usually evaluated by conventional parameters. RV longitudinal strain (RVLS) is recently proposed to be more sensitive tool to evaluate RV function. The purpose of this study was to compare the prognostic value of strain and conventional parameters of RV function in HF with reduced EF.

**Method** Echocardiography was performed in all patients discharged after decompensated HF with EF < 40% between January and June 2017. We measured TAPSE, S velocity, fractional area change (FAC). RVLS was assessed by averaging all segments in apical view. RV dysfunction was defined if at least one of the following parameters was impaired: TAPSE < 17 mm, FAC < 35%, S-velocity < 9.5 cm/s or Strain of free wall RV < 20%. Our patients have been followed for 1 year. The end point was all major cardiac events (mortality, readmission).

**Results** During a mean follow-up of 283 ± 67 days, major cardiac events rate were 28.7% after 3 months and 38.3% in 1 year. RV dysfunction was associated with major cardiac events both in 3 months (P = 0.01) and in 1 year (P = 0.04). In patients with RV dysfunction, the survival rate decreased by 38,4% in 1 year and by 60% when all parameters were impaired. The overall performance for the prediction of cardiac events was greatest for RVLS (area under the curve: 0.76; TAPSE: 0,68; FAC: 0.67). The cut-off value of RVLS was -11,5% to predict cardiac events in 3 months (se = 65%, sP = 80) and in 1 year (se = 68%, sP = 75). In multivariate analyses, RVLS remained an independent predictor of major cardiac events in 3 months (OR = 21,6; 95%CI: 1,5-309; P = 0.02) and in 1 year (OR = 8,4; 95%CI: 1,3-52; P = 0,02).

**Conclusion** In HF with reduced EF, RVLS is a stronger predictor of outcome than RV conventional parameters, providing a stronger prognostic stratification.

**Disclosure of interest** The authors declare that they have no competing interest.

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#### Poster n°51

### Global longitudinal strain as a powerful prognosticator in heart failure with reduced ejection fraction

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**Introduction** Left ventricular (LV) systolic dysfunction is an important predictor of cardiovascular death and readmission, usually evaluated by LV ejection fraction (LVEF). Global longitudinal strain (GLS) obtained by 2D speckle tracking is recently proven to be more powerful than conventional EF in detecting changes in myocardial function. The purpose of this study was to compare the prognostic value of GLS and conventional LVEF in HF with reduced EF.

**Method** In this study, echocardiography was performed in all patients discharged from our center after decompensated systolic HF between January and Jun 2017. The echocardiographic images were analysed to obtain conventional and strain parameters. Our patients have been followed for 1 year. The end point was all cardiac events (mortality, readmission).

**Results** During a mean follow-up of  $283 \pm 67$  days, 14 (17.7%) patients were died, and 22 patients (28.2%) were rehospitalized. Patients who died during follow-up had significantly lower LVEF (20% vs. 26%,  $P=0.05$ ) and mean GLS ( $-6.85\%$  vs.  $-8.9\%$ ,  $P=0.03$ ). Mean GLS was also significantly low in rehospitalized patients ( $-7.4\%$  vs.  $-9.2\%$ ,  $P=0.017$ ), but LVEF was approximately same (24.9% vs. 25.8  $P=0.520$ ). After adjusting for age, gender, BMI, heart rate and conventional echocardiographic parameters, GLS remained an independent predictor of mortality and rehospitalisation (HR: 1.19 95% CI: 1.04–1.37,  $P=0.032$ ) and also had a higher Harrell's C statistics than LVEF (0.65 vs. 0.63).

**Conclusion** In patients with severe systolic HF, GLS is an independent predictor for all cardiac events, and it's proved to be the most powerful when compared to conventional parameters as LVEF.

**Disclosure of interest** The authors declare that they have no competing interest.

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#### Poster n°52

### Fatal scorpionic myocarditis: Interest of circulatory assistance (ECMO)

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**Introduction** Scorpion envenomation represents a real public health problem, especially during the summer period in the countries of North Africa. It is characterized by a large clinical polymorphism ranging from the simple local pain to the point of sting at a cardiovascular collapse resulting. A small number of patients will present with cardiogenic shock unresponsive to standard medical therapy.

**Method** We report 5 patients with scorpion myocarditis, who were hospitalised in Intensive Care Unit and received ECMO adjuvant therapy from February 2014 to August 2018, were analysed.

**Results** The median age was 25 years (range 11–39 years). Common symptoms at diagnosis included local pain (100%), chest pain (60%), shortness of breath (100%). Electrocardiography revealed dysrhythmia in 1 patient (VT), T-wave inversion and ST depression in the inferolateral in 3 patients and in anterior leads in 1 patient. Echocardiography demonstrated in all patients severe global hypokinesia of both right and left ventricles with elevated filling pressures and mid mitral regurgitation and left ventricle ejection fraction less than 35%. The diagnosis of cardiogenic shock with pulmonary edema was made for all patients. Because of severe presentation and worsened hemodynamic status despite raising dobutamine doses (20  $\gamma$ /kg/min) and adrenaline (0,3  $\gamma$ /kg/min) adjunction, we decided to initiate cardiopulmonary support by ECMO. The five patients were successfully weaned from ECMO treatment. The total survival rate was 100%. Although myocardial damage and dysfunction were severe During the follow-up period, cardiac function recovered normally in the 5 surviving patients after a period of 1 month.

**Conclusion** The severity of scorpion envenomation results mainly from left cardiac dysfunction with pulmonary edema and/or shock. Adrenergic myocarditis, toxic myocarditis and myocardial ischemia are the main mechanisms.

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