

# Echocardiographic findings in systemic lupus erythematosus patients

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## OBJECTIVE

We aimed to compare the echocardiographic findings in patients with SLE and controls.

## METHODS

This was a cross-sectional study. We recruited 57 SLE patients aged  $\geq 18$  years and 57 matched controls by age ( $\pm 5$  years) and gender. A transthoracic echocardiogram was performed by two certified echocardiographers blinded to clinical information. Distribution was evaluated with Kolmogorov-Smirnov test. Comparisons were done with Chi-square test for qualitative variables and Student's T-test or Mann-Whitney's U-test for quantitative variables. A  $p$ -value  $< 0.05$  was considered significant.

## RESULTS

Demographic characteristics in Table 1. We found significant difference in the left ventricular ejection fraction (LVEF) (56.50% vs 58.00%,  $p = 0.049$ ), in the global longitudinal strain (GLS) (-19.05% vs -21.00%,  $p = 0.028$ ), in the tricuspid annular plane systolic excursion (TAPSE) (22.10 mm vs 23.56 mm,  $p = 0.015$ ), in the presence of diastolic dysfunction (21.1% vs 7.0%,  $p = 0.031$ ) and in the presence of mitral regurgitation (24.6% vs 10.5%,  $p = 0.049$ ).

Table 1. Demographic characteristics.

	SLE patients (n=57)	Controls (n=57)	<i>p</i> -value
Age years, mean $\pm$ SD	35.31 $\pm$ 12.04	35.82 $\pm$ 10.46	0.810
Women, n (%)	51 (89.5)	51 (89.5)	1.000
HTN, n (%)	12 (21.1)	4 (7.0)	0.031
T2DM, n (%)	2 (3.5)	4 (7.0)	0.679
Dyslipidemia, n (%)	4 (7.0)	6 (10.5)	0.508
Obesity, n (%)	3 (5.3)	8 (14.0)	0.113
Active smoking, n (%)	8 (14.0)	3 (5.3)	0.113

SLE, systemic lupus erythematosus; T2DM, type 2 diabetes mellitus; HTN, hypertension.

Table 2. Echocardiographic findings.

	SLE patients (n=57)	Controls (n=57)	<i>p</i> -value
Left ventricle indexed mass, g/m <sup>2</sup> , median (IQR)	60.25 (48.94-77.13)	61.22 (51.80-75.84)	0.791
RWT, median (IQR)	0.35 (0.29-0.43)	0.36 (0.30-0.43)	0.986
LVEF, %, median (IQR)	56.50 (52.25-63.00)	58.00 (56.00-62.75)	0.049
GLS, %, median (IQR)	-19.05 (-22.00 - -16.00)	-21.00 (-22.00 - -19.00)	0.028
Left atrium indexed volume, ml/m <sup>2</sup> , median (IQR)	26.27 (20.30-31.63)	24.86 (20.59-28.98)	0.288
TAPSE, mm, mean $\pm$ SD	22.10 $\pm$ 3.08	23.56 $\pm$ 3.00	0.015
Diastolic dysfunction, n (%)	12 (21.1)	4 (7.0)	0.031
Valvular abnormalities			
Aortic regurgitation, n (%)	3 (5.3)	0 (0.0)	0.243
Mitral regurgitation, n (%)	14 (24.6)	6 (10.5)	0.049
Tricuspid regurgitation, n (%)	27 (47.4)	18 (31.6)	0.085

SLE, systemic lupus erythematosus; RWT, relative wall thickness; LVEF, left ventricular ejection fraction; GLS, global circumferential strain; TAPSE, tricuspid annular plane systolic excursion.

## CONCLUSION

Patients with SLE had a worse left ventricular function, evaluated by LVEF and GLS, a worse right ventricular systolic function, evaluated by TAPSE, and a higher prevalence of diastolic dysfunction and mitral regurgitation, which are associated with increased risk of cardiovascular death. It is important to consider including an echocardiogram as part of the cardiovascular evaluation in patients with SLE, which may result in early detection of cardiovascular abnormalities.