**Background:** To assess cardiac involvement in SSc patients and to explore the relationship between interleukin (IL)-6 levels and echocardiographic abnormalities, and NT-proBNP levels in SSc patients and to correlate tested parameters with disease activity (EUSTAR) score.

**Methods:** This case-control study included 31 SSc patients with preserved left ventricular ejection fraction (LVEF) and no concomitant disease, and 32 matched healthy controls. Serum IL-6 and NT-proBNP levels were measured and subjects were evaluated by conventional and pulsed-wave tissue Doppler echocardiography.

**Results:** SSc patients had significantly lower values of LV systolic (7.7 vs 9.25 cm/s, P<0.001) and early diastolic (8.7 vs 10.3 cm/s, P=0.014) myocardial velocities and higher E/e' ratio (9.04 vs 7.37, P=0.001), although there was no between-group difference according to LVEF (68 vs 65%, P=0.248) and E/A ratio (1 vs 1.11, P=0.312). 18 SSc patients had LV systolic dysfunction (septal s’ <7.5 cm/s) versus 5 control subjects (P=0.010). According to the ASE recommendations, 18 SSc patients and 9 controls had LV diastolic dysfunction (P=0.032). IL-6 level showed correlation with LV mean e’ (r=0.57, P=0.001) and E/e’ ratio (r=0.55, P=0.001). Also, IL-6 level significantly correlated with the presence (r=0.46, P=0.010) and severity (r=0.54, P=0.002) of LVDD and NT-proBNP level (r=0.52, P=0.003) in the SSc group, whereas no correlation was observed in control group. EUSTAR score correlated with LV E/e’ (r=0.48, P=0.006), mean e’ (r=0.67, P<0.001), mean s’ (r=0.51, P=0.004), NT-proBNP (r=0.60, P<0.001) and IL-6 (r=0.79, P<0.001), and with LVSD presence (r=0.363, P=0.044), and LVDD presence (r=0.58, P=0.001) and severity (r=0.621, P<0.001). Correlation was also found between IL-6 level and EUSTAR-score (r=0.79, P<0.001)

**Conclusions:** We showed that subclinical LV impairment is common in patients with SSc who have not already demonstrated cardiac involvement. Positive correlation between IL-6 and EUSTAR score and their association with the echocardiographic abnormalities and NT-proBNP may open up new possibilities for the treatment of SSc cardiomyopathy.

**KEYWORDS:** systemic sclerosis, cardiac involvement, tissue Doppler echocardiography, interleukin-6.

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**Literature**