Abstract: P1235

Phasic right atrial function in systemic sclerosis patients without pulmonary hypertension. A 2D speckle-tracking echocardiographic study.

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Background
In systemic sclerosis (SSc), a chronic systemic inflammatory tissue disease, cardiac involvement is highly associated with disease morbidity and mortality. Dilatation of the right atrium (RA) is an established sign of advanced disease stages characterized by increased pulmonary artery pressure. In contrast, data investigating alterations of RA mechanics are scarce.

Purpose
The aim of this study was to assess phasic RA mechanics in SSc patients without pulmonary hypertension compared to healthy controls using 2D speckle tracking echocardiography (STE).

Methods
In this ongoing study, standard transthoracic echocardiography (Vivid E9, GE), including estimation of systolic pulmonary arterial pressure (PAP), was conducted in 30 SSc patients and 24 healthy controls. Standard apical 4-chamber views were recorded for offline analysis. Phasic RA strain comprising RA reservoir, conduit, and contraction strain was analyzed using 2D STE (EchoPAC PC, GE Vingmed). Differences of phasic strain values between SSc patients and healthy controls were calculated using the non-parametric Mann-Whitney-U-Test.

Results
Left ventricular ejection fraction (LVEF 60.38 ± 1.3% in controls vs. 60.43 ± 6.9% in SSc patients) and estimated systolic PAP (19.0±4.3 mmHg in controls vs. 28.0±9.1 mmHg + RA pressure in SSc patients) as well as RA area (12.7 ± 3.2 vs. 16.1 ± 4.8 cm²) were within the normal range in both groups. RA reservoir and conduit strain was significantly decreased in SSc patients compared to controls (27.2 ± 12% vs. 40.6 ± 3.8% for RA reservoir strain; 13.9 ± 6.8% vs. 25.6 ± 5.6% for conduit strain, respectively; p< 0.0001). RA contraction strain, in contrast, was not significantly different (15.9 ± 4.4 and 16.1 ± 8.7%).

Conclusion
Alterations of phasic RA strain precede RA dilatation and pulmonary hypertension in SSc patients. Assessing RA function using the sensitive tool of 2D STE might enable early detection of impaired RA function in SSc patients.