S76 Abstracts

Right ventricular hypertrophy and diastolic dysfunction in patients with systemic sclerosis: an isolated phenomenon.

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Purpose: In patients with systemic sclerosis (SSc) cardiac involvement carries bad prognosis. Little is known about right ventricular (RV) function, in particular diastolic function. The aim of the present study was to assess RV systolic and diastolic function in patients with SSc and to relate the finding to the clinical features of the disease.

Methods: Eighteen consecutive patients (15 females & 3 males) with SSc (mean age 57 years) according to the American Rheumatology Association Criteria and 22 (18 females & 4 males) age and sex matched controls (mean age 56 years) were studied. Doppler/echocardiography and Doppler tissue imaging was used to evaluate cardiac function.

Results: In patients, RV free wall thickness (p < 0.01) and right atrial systolic area (p < 0.05) were increased. Furthermore, RV late atrial filling velocity was increased (36±13 vs. 25±7 cm/s, p<0.001) and Doppler E/A ratio was reduced (p<0.001). The global isovolumic relaxation time was prolonged (p<0.001). In spite of these diastolic disturbances RV systolic function was found to be normal, RV to right atrial retrograde peak gradient was not different but pulmonary acceleration time was shortened (114±34 versus 140±26 ms, p<0.01) among patients. LV systolic, diastolic function and stroke volume did not differ between patients and controls. Neither age nor heart rate was related to the RV diastolic disturbances.

Conclusion: Right ventricular diastolic function was impaired in presence of signs of RV hypertrophy and right atrial dilatation without influence of age and heart rate. It seems that the observed right ventricular diastolic abnormality is an isolated phenomenon since left ventricular function was found to be normal. To our knowledge, these results were not previously reported.

Heart chamber measurements in patients with congestive heart failure in the detection of impaired exercise capacity.

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Aim of the study was to analyze possible relations between heart chamber dimensions and results of six minute walk test (6MWT) in patients with congestive heart failure (CHF).

Methods: The study group consisted of 51 pts (37 men, mean age 64±9 years) with diagnosed CHF. At the time of 6MWT (performed at the day of discharge from the hospital) the studied subjects were in a stable state - NYHA functional class II to III (II - 29, III - 22 pts). 6MWT was performed in all pts according to the standardized protocol. Based on the median value of distance walked in six minutes (six minutes walked distance; 6MWD) pts were divided into two groups: group I included pts with 6MWD < 230 m (n=28), group II included pts with 6MWD > 230 m (n=23). Echocardiographic examination was performed at the same day before the 6MWT. Following echocardiographic measurements were analyzed: left ventricular end-diastolic diameter (LVDd), left atrial size (LA), right ventricular end-diastolic diameter (RVd) and left ventricular ejection fraction (LVEF). Statistical analysis was made using t-test.

Results: Results of analyzed variables are presented in the table.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Group I (6MWD &lt; 230 m)</th>
<th>Group II (6MWD &gt; 230 m)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>6MWT (m)</td>
<td>158.6±48.1</td>
<td>296.3±40.5</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>LVDd (cm)</td>
<td>6.3±1.2</td>
<td>6.3±1.0</td>
<td>NS</td>
</tr>
<tr>
<td>LA (cm)</td>
<td>4.3±0.7</td>
<td>4.4±0.6</td>
<td>NS</td>
</tr>
<tr>
<td>RVd (cm)</td>
<td>4.0±0.8</td>
<td>3.5±0.6</td>
<td>0.028</td>
</tr>
<tr>
<td>LVEF (%)</td>
<td>37±17</td>
<td>46±18</td>
<td>NS</td>
</tr>
</tbody>
</table>

Conclusion: In patients with congestive heart failure and decreased exercise capacity the diameter of the right ventricle is significantly increased. The measurement of right ventricle could be of value in the diagnosis of patients with congestive heart failure connected with impaired exercise performance.