Abstract: P1372

Evaluation of right atrial and ventricular function with 3D echocardiography in acute pulmonary thromboembolism and its 6-month prognosis

Authors:
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Topic(s):
3D Echocardiography

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Introduction: Acute pulmonary embolism (PE) is a serious condition. Tridimensional Ecocardiography (3D ECHO) is an accessible, novel and accurate method for determination of right ventricular and atrial function. To date there are insufficient studies to assess their role in this entity.

Objective: Determine the usefulness of ECO-3D in evaluating right atrial and ventricular function, and the risk of cardiovascular complications in patients with acute PE.

Material and methods: 50 patients were admitted to the HC CMN SXXI with PE by CT angiogram, we analized 2D and 3D parameters by Philips iE33, right atrial and ventricular function (TomTec and QLAB 10). Hospital cardiovascular complications were evaluated in hospital and 6 months later

Results: The relative risk of major combined cardiovascular events for 3D ECHO was: right atrial sphericity index > 1.32; RR 20.3 95% CI 2.9-13.8; p = 0.0001, RVEF <38%; RR 7.3 95% CI 2.5-20.9; p = 0.0001, RVEDV > 77 mL; RR 2.56 95% CI 7.3-20.9, p = 0.0001. Multivariate analysis showed 4 independent risk predictors: right atrial sphericity index > 1.32, RVEF < 38% massive PE and mean arterial pressure. At 6 months RVEF < 38% and RAEI > 1.2 was are a independent risk for MACE and hospitalization.

Conclusions: The combined assessment by 3D echocardiography right ventricular and atrial function allow a quantitative assessment, risk prediction for cardiovascular complications and presentation of time-hospital stay in patients with acute PE.

<table>
<thead>
<tr>
<th></th>
<th>(n = 23) MACE</th>
<th>(n = 27) No MACE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ( years)</td>
<td>55 (47-48)</td>
<td>50 (39-56)</td>
<td>0.38</td>
</tr>
<tr>
<td>Female (%)</td>
<td>13</td>
<td>5</td>
<td>0.01</td>
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<tr>
<td>Mean BP (mmHg)</td>
<td>55.5 ± 8</td>
<td>85.4 ± 8</td>
<td>0.0001</td>
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<tr>
<td>Respiratory Rate (BPM)</td>
<td>31 ± 4</td>
<td>25 ± 3</td>
<td>0.001</td>
</tr>
<tr>
<td>Low risk</td>
<td>---</td>
<td>20</td>
<td>0.001</td>
</tr>
<tr>
<td>High Risk</td>
<td>21</td>
<td>--</td>
<td>0.0001</td>
</tr>
<tr>
<td>ST segment deviation ECG (%)</td>
<td>12</td>
<td>--</td>
<td>0.001</td>
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<tr>
<td>thrombolysis</td>
<td>23</td>
<td>5</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

MACE: major cardiovascular event
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