The importance of right ventricular myocardial performance index in children with Eisenmenger syndrome


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Background and Aim: The purpose of this study is to evaluate potential use of echocardiography with functional echocardiographic right ventricular variables besides right ventricle myocardial performance index (RVMPI) for assessing disease severity of Eisenmenger Syndrome (ES) and to determine new follow-up parameters for the disease.

Material-Methods: This study consisted of 24 normal controls (the control group) and 19 patients with ES. The echocardiographic practice consisting RVMPI, tricuspid annular plane systolic excursion (TAPSE), diameter of right atrium, vena cava inferior and pulmonary artery; right ventricle catheterization and six-minute walk distance (6MWD) test were performed to the patients with ES. NT-ProBNP was measured in both control and study groups. Study group was divided into two functional PHT stage according to WHO classification.

Results: In the study group TAPSE was found lower than the control group, besides the other echocardiographic variables were high. There was positive correlation between RVMPI and NT-ProBNP (p=0.001; r: 0.716), between RVMPI and functional stage (p=0.001; r: 0.725) and between RVMPI and pulmonary vascular resistance (p=0.045; r: 0.491) in the study group. The patients with ES were divided into two stages as class 2 (n: 9) and class 3 (n: 10) according to WHO. RVMPI was high in stage 3 patients (p=0.001). There was not statistically significant correlation between the functional stage and other echocardiographic parameters.

Conclusion: RVMPI which is one of the quantitative echocardiographic parameters can be used to evaluate the disease severity of ES in follow-up of outpatients.

<table>
<thead>
<tr>
<th>Variables</th>
<th>RVMPI</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>0.079</td>
<td>0.755</td>
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<tr>
<td>BMI</td>
<td>-0.553</td>
<td>0.017</td>
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<tr>
<td>SBP</td>
<td>-0.120</td>
<td>0.636</td>
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<tr>
<td>Sa02</td>
<td>0.362</td>
<td>0.140</td>
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<tr>
<td>6-MWD</td>
<td>-0.400</td>
<td>0.100</td>
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<tr>
<td>Hemoglobin</td>
<td>-0.448</td>
<td>0.062</td>
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<tr>
<td>Uric acid</td>
<td>-0.389</td>
<td>0.110</td>
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<tr>
<td>NT-ProBNP</td>
<td>0.716</td>
<td>0.001</td>
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<tr>
<td>PA diameter</td>
<td>0.048</td>
<td>0.855</td>
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<tr>
<td>RA axial diam.</td>
<td>-0.419</td>
<td>0.094</td>
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<tr>
<td>VCI diameter</td>
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<td>0.524</td>
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<tr>
<td>TAPSE</td>
<td>0.050</td>
<td>0.845</td>
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<tr>
<td>RVWT</td>
<td>-0.165</td>
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<tr>
<td>Pp/Ps</td>
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<td>0.405</td>
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<tr>
<td>PVR</td>
<td>0.491</td>
<td>0.045</td>
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<tr>
<td>PVR/SVR</td>
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<td>0.336</td>
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