

The relationship between intima media thickness of pulmonary artery and biochemical parameters in children with Eisenmenger syndrome

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Introduction (or Basis or Objectives):

Eisenmenger Syndrome is defined as irreversible pulmonary hypertension, resulting from inversion of the left to right shunt at aorta-pulmonary, ventricular or atrial level. This study was aimed to determine the relation of intima media thickness of pulmonary artery with N-Terminal pro-brain natriuretic peptide (NTpBNP), uric acid, endothelial micro-particle levels, atherosclerotic risk factors. Also echocardiographic risk factors and hemodynamic data in children with Eisenmenger syndrome were studied according to emphasize their importance for prognosis of disease.

Methods:

16 patients (10 male and 6 female) aged 3-18 years with Eisenmenger syndrome were included in this study. Thickness of pulmonary artery intima was measured ultrasonographically in order to detect vascular changes. Levels of NTpBNP, uric acid, endothelial micro-particles (CD144, CD146) and atherosclerotic risk factors were studied biochemically. Echocardiography was performed for the assessment of ventricular functions. Hemodynamic evaluation was done in patients with right atrial catheterisation. The data gathered except those obtained through hemodynamic assessment; was compared with 37 healthy children.

Results:

Significant increase in NTpBNP, uric acid, CD144 and CD146 levels in addition to significant decrease in HDL cholesterol, total cholesterol and fasting blood glucose levels were observed. Echocardiographic examination of intima media thickness of pulmonary artery was found significantly high. Also body surface area, body mass index, systolic blood pressure and mean blood pressure were found significantly low.

Conclusion:

Even processes starting the pathological differentiation in pulmonary arterial hypertension are still not known however it is accepted that multiple factors including various biochemical pathways, cell types take role in pathogenesis. The mechanisms take part in pulmonary vascular resistance are vasoconstriction, obstructive remodelling, inflammation and thrombosis. Effect of NTpBNP, uric acid, endothelial microparticles and atherosclerotic risk factors on intima media thickness of pulmonary artery and interrelationships with each other were aimed to be discussed in this study.