

## The Role of Cystatin C in Pulmonary Hypertensive Children

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### Background and Objective:

Cystatin C has been shown to be an important indicator of left heart failure and cardiovascular mortality in adults, and it has been strongly correlated with right ventricular ejection fraction. However, there is not enough data in childhood age group.

The aim of this study was to investigate the serum cystatin C levels of pediatric patients with pulmonary hypertension and to evaluate its relation with echocardiographic findings and to find out whether it may be used as a biomarker in the diagnosis and prognosis of pulmonary hypertension.

### Materials and Methods:

Twenty-two patients with pulmonary hypertension (10 patients with primary pulmonary hypertension and 12 patients with Eisenmenger syndrome) were included in the patient group. 19 patients who admitted with different complaints but had normal physical examination electrocardiography and echocardiographic findings were included in control group.

Serum Cystatin C and proBNP levels of the participants were studied. Right ventricular ejection fraction, right ventricular end-diastolic volume, right ventricular end-systolic volume, right ventricular TEI index, TAPSE, and left ventricular eccentricity were measured by transthoracic echocardiography.

### Results:

The mean age of the patient and control group was 14.7, 15 years respectively. Cystatin C level was significantly higher in patients with pulmonary hypertension compared to the control group. When the patient group was sub-grouped as idiopathic pulmonary hypertension and Eisenmenger syndrome; Cystatin C level was significantly higher in patients with idiopathic pulmonary hypertension than Eisenmenger syndrome and control group.

In patients with pulmonary hypertension, right ventricular ejection fraction, TAPSE and left ventricular eccentricity measurements were found to be statistically significantly lower than control group. A statistically significant positive correlation was found between cystatin C and right ventricular TEI index.

### Conclusion:

Cystatin C levels are not affected by muscle mass, age and sex, they may be a superior biomarker than proBNP in pulmonary hypertension. Cystatin C levels were high and GFR was normal in patients with pulmonary hypertension. Despite our patient group is small, Cystatin C accurately correlates with RV pressure, function and morphology. Therefore, cystatin C may represent a novel biomarker in pulmonary hypertensive children.