



**Fund “Nauka” Project № 20020 Resume – Competition-Based Session 2020:**

“Effect of oxidative stress on early vascular damage in children and young adults with Beta-thalassemia major”

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Beta Thalassemia major is an inherited disorder characterized by a genetic deficiency in the synthesis of beta-globin chains and resulting in chronic hemolytic anemia. The treatment involves life-long blood transfusions and chelation therapy to reduce the iron overload. Although the prognosis and survival of thalassemia patients are improving, the prevalence of complications remains high in those affected. Cardiac disease remains the main cause of death in 70% of cases.

The aim of this study is to find the presence of early markers of subclinical vascular damage and the timing of their appearance in children and young adults with Beta thalassemia major.

**Methods:** Doppler ultrasound evaluation of carotid arteries and biochemical markers of oxidative stress: malondialdehyde (MDA), ischemia modified albumin (IMA) and concentration of superoxide dismutase (SOD). The study population consists of patients aged 5-44 years and healthy children and young adults matched for age and gender.

The main **aim** of the study is to evaluate the common carotid artery intima-media thickness and resistive index. The results will be compared with the lipid profile of the patients and with the markers of oxidative stress and iron overload. Correlation will be made also with the transfusion regimens and chelation therapy.

The analysis of the results will provide information for the cardiovascular status of the patients and will be an opportunity to identify predictors of early vascular alteration and to make changes in the algorithm of management of patients with Beta thalassemia major.