

Hyperhomocysteinemia has been considered an independent cardiovascular risk factor due to increased oxidative stress, promotion of inflammation, proliferation of smooth muscle cells, and injury to vascular endothelium. The results of recent studies also confirm the role of hyperhomocysteinemia in the development of autonomic dysfunction. The last one plays an important role in the syncope development. Moreover, supplementation of Vitamin B12 in patients presenting with vasovagal syncope resulted in reduced homocysteine levels and significant improvement in symptoms.

Aim: to evaluate hyperhomocysteinemia in pediatric patients with different types of syncope. Such findings can be useful for searching a new management strategy for children with the diagnosis of syncope.

Materials and methods. We studied 78 children, ages 8 to 17 years with a history of syncope. There were 38 children with vasovagal syncope, 22 children with syncope due to orthostatic hypotension, and 18 children with cardiac syncope in this study. For the diagnosis of syncope were used diagnostic criteria of European Society of Cardiology (2018). The control group included 23 healthy children. This study was approved by the Ethics Committee of the IvanHorobachevskyTernopil National Medical University, and all participants gave their written informed consent before participation. For the determination of serum homocysteine was performed a colorimetric enzyme-linked immunosorbent assay. Hyperhomocysteinemia was defined as a serum homocysteine level above the 95th percentile for the respective age. Heart rhythm recordings were conducted for 24-hour both in the patient and control groups using a 3-channel rhythm Holtermonitorization device (SDM3, Ukraine). At the same day was conducted 24-hour ambulatory blood pressure monitoring. Studies were performed with a BAT41-2 device (Ukraine) using a protocol of European Society of Hypertension (2014). Values are presented as mean±standart deviation. Mann-Whitney U test was used for variables. Relationships between variables were examined using Spearman linear correlation analysis.

Results. Serum homocysteine levels were considerably increased in children with vasovagal syncope ($13.55 \pm 5.03 \mu\text{mol/L}$), syncope due to orthostatic hypotension ($14.13 \pm 4.32 \mu\text{mol/L}$), and cardiac syncope ($15.30 \pm 5.24 \mu\text{mol/L}$) in comparison with control group ($7.81 \pm 1.72 \mu\text{mol/L}$; $p < 0.05$). Hyperhomocysteinemia was estimated in 52.5% of patients with vasovagal syncope, 54.5% of patients with syncope due to orthostatic hypotension, 72.2% of patients with cardiac syncope, and 4.3% of healthy

children. In children with syncope serum homocysteine levels were positively correlated with sex ($r = -0.28$; $p = 0.01$), age of the first syncope ($r = 0.23$; $p = 0.04$), serum vitamin B6 levels ($r = -0.55$; $p = 0.000000$), serum vitamin B12 levels ($r = -0.28$; $p = 0.01$), average heart rate during 24 hours Holter monitoring ($r = -0.23$; $p = 0.04$); average QTc interval during 24 hours Holter monitoring ($r = -0.38$; $p = 0.0007$); heart rate variability RMSD parameter ($r = 0.24$; $p = 0.03$); systolic ($r = 0.27$; $p = 0.02$) and diastolic blood pressure variability at night ($r = 0.24$; $p = 0.04$) by the results of 24-hour ambulatory blood pressure monitoring.

This is the first study of serum homocysteine assessment in pediatric patients with different types of syncope. Received results can be useful for further understanding of pathogenesis of syncope. Many studies have shown that vitamin B6, vitamin B12 and folic acid supplementation can reduce the risk of cardiovascular diseases by reducing homocysteine levels. Dietary habits change also may be a therapeutic target in lowering homocysteine in children and adolescents. Such data provide a new approach for treatment of syncope and require further study.

Conclusions. Hyperhomocysteinemia is observed in 60% of children and adolescents with syncope. The results suggested that homocysteine might be involved in the mechanism of syncope development. Finally, this might provide a new approach for effective treatment of pediatric syncope, requiring further study.

OVERCOMING THERAPEUTIC RESISTANCE IN PATIENTS WITH DEPRESSIVE DISORDERS

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Introduction. Depressive disorders currently occupy the fourth line among all causes of morbidity and mortality in the world population, and by 2025, if the current growth rate is maintained, they will reach the 2nd place. Approximately 1/3 of patients do not respond to treatment with the first prescribed antidepressant (AD), regardless of the selected class of drug. Up to 15-33% of depressed patients remain resistant to two or more treatment strategies, including non-drug treatment methods.

Aim: in the structure of depressive disorder, therapeutic resistance consists in studying the symptoms of depression (TRD) and determining the effectiveness of therapeutic resistance coping tactics.

Materials and methods. The object of the study was to obtain patients with depressive disorder (55 women, 30 male patients) aged between 85 and