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ANALYSIS OF THE RELATIONSHIP OF LIPID PROFILE AND CARBOHYDRATE METABOLISM IN OBESE CHILDREN

Introduction: according to the World Health Organization, 68% of the causes of global mortality are due to non-communicable diseases, among which the cardiovascular pathology associated with obesity, atherosclerosis, and diabetes mellitus occupies a leading position. Atherosclerosis begins in childhood, and one of the main factors in its development is dyslipidemia and obesity, which is often associated with insulin resistance. So, the study of the relationship of lipid and parametrs of carbohydrate metabolism in children with obesity is diagnostically important.

Aim: analyze associations between lipids and parameters of glucose metabolism in obese adolescents.

Materials and methods: 215 obese adolescents (mean age is $14,03 \pm 2,21$ y.o) were examined. The diagnosis was established according to percentile body mass index values followed by examination according to national standards. Lipids assessment included measurement of total cholesterol (TC), triglycerides (TG), low density lipoproteins (LDL), high density lipoproteins (HDL). Lipid parameters were distributed on acceptable, borderline and abnormal (high) according to Guideline on the management of high blood cholesterol (ACC, 2018). Parameters of glucose metabolism were analyzed by HbA1C level, C-peptide, fasting glucose (FG) and fasting insulin (FI) measurement followed by HOMA-IR calculation. Standard statistics (SPSS soft) used for the data analysis.

Results: After statistical analysis, the following relationships were identified. Increasing of TC is associated with FG ($p=0,003$), FI ($p=0,02$) and HOMA-IR ($p=0,003$), HbA1C($p<0,05$). Increased TG are associated with HOMA-IR ($p=0,02$) and C-peptide ($p<0,01$), HbA1C ($p< 0,05$). Increasing of LDL is associated with HOMA-IR ($p<0,01$), FI ($p = 0,01$). Decreasing HDL is associated with HOMA-IR ($p=0,003$).

Conclusion: Statistical analysis data confirm the relationship between parameters of glucose metabolism and lipid metabolism. The relationship between glucose and insulin (according to HOMA-IR) is crucial for all changes in lipid parameters in obese adolescents. Measures to correct dyslipidemia should primarily begin with the correction of glucose metabolism, weight loss of patients with a further solution to the issue of medical correction of hyperlipidemia.