

Metabolic phenotyping: is it so important?

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Abstract

Type 2 diabetes is one of the most pressing problems not only for endocrinologists and their patients, but also for the whole society. The relationship between the stage of obesity, the risk of cardiovascular diseases and mortality from them has been established. Throughout our life we realize natural instincts - food, reproduction, self-preservation. All factors that influence them can cause pathological changes in carbohydrate and lipid metabolism. Those features are mainly determined by phenotypic characters. The negative consequences of the established phenotype are manifested in elderly and old age. This is the time when the embodiment of the basic natural instincts is completed, and the adaptive - compensatory processes are inhibited. Metabolic disorders, as for example T2DM, are based on metabolic syndrome in the presence of permissive conditions; include impaired carbohydrate tolerance, dyslipidemia, decreased overall metabolism, hyperproduction of uric acid and others. Hormonal imbalance includes inadequate secretion and peripheral reception of insulin, steroid hormones (sex steroids and their precursors, as well as corticosteroids), incretins, changes in the concentration of biologically active regulatory molecules (cytokines, growth factors, leptin, adiponectin, tumor necrosis factor 1) The criteria of metabolic syndrome (MS) have been repeatedly revised, the list and threshold values of the main anthropometric, clinical, laboratory indicators have changed. However, the principle of clustering several disorders as risk factors for the development of "dysmetabolic" diseases - T2DM, gout, dyslipidemia, cardiovascular diseases etc. is unchanged. In our opinion, such "instability" in the definition of metabolic

Syndrome is associated with the heterogeneity of phenotypes in different populations, because the individual manifestations of main signs of this complex may depend on genetic, constitutional, psychosocial characteristics, lifestyle, and others. The metabolic phenotype plays an important role in the development of cardiovascular catastrophes and metabolic disorders, such as T2DM, hypertension, atherosclerosis, and coronary artery disease. Due to the concept developed by the Department of Clinical Pharmacology of the State Institution "V.P. Komisarenko Institute of Endocrinology and Metabolism of the National Academy of Medical Sciences of Ukraine", the metabolic phenotype consists of three different phenotypes that have different mechanisms of formation and manifestation. The development of each phenotype occurs in violation of various types of hormonal-metabolic mechanisms. The formation of an alimentary phenotype occurs when there is an imbalance between the intake and the expenditure of energy.

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