



METABOLIC DISORDERS IN CHILDREN WITH GASTROENTEROLOGICAL DISEASES AND FOOD ALLERGIES

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Abstract

The prevalence of chronic non-infectious diseases of the gastrointestinal tract in children is constantly increasing and is, according to various authors, 300.0 to 663.1%, with the peak incidence occurring at the age of 6-7, 9-10 and 12 years with a maximum increase at 6 years. It has been proven that the formation of chronic pathology of the digestive organs begins in preschool age. Food allergy is present in the majority (70% and above) of children of younger age groups. It largely determines the background against which functional disorders and organic diseases of the digestive organs are formed. The presence of food sensitization in a child with a gastroenterological disease can be masked by the symptoms of the latter, which makes therapeutic and preventive measures in the patient less effective. The socio-economic conditions of life in our country that have changed significantly in the last 15-20 years, the deterioration of public health, including children's health, indicate the need for epidemiological studies of the prevalence and structure of gastroenterological diseases and food allergies in children, studying the features of changes in metabolic and immunological homeostasis, which will clarify their role and the allergic factor in the formation and development of this pathology, improve diagnostic and treatment methods. The solution to these issues is undoubtedly relevant and socially significant for pediatrics and medicine in general.

Introduction

It is known that there is a relationship between the immune system and metabolic processes, in particular, the allergen of chicken egg white can activate the monooxygenase system, as shown in the experiment. In the clinic, the presence of reciprocal relationships between food sensitization and various aspects of metabolism has been proven: an increase in the severity of endogenous



intoxication, activation of components of the monooxygenase system, lipid peroxidation processes, a decrease in antioxidant protection and allergization of the body. There is evidence that common mechanisms are involved in the pathogenesis of inflammation and atherosclerosis, since both syndromes are formed by the same connective tissue cells (endothelial, fibroblasts, monocytes and macrophages, neutrophils, T- and B-lymphocytes), in both situations the formation of superoxide radicals increases in the "respiratory burst" reaction and lipid peroxidation is activated, polyunsaturated fatty acids in the composition of cholesterol esters of low-density lipoproteins (LDL) are also subject to oxidation, antioxidant protection decreases, synthesis and secretion of acute inflammation proteins into the blood increases. Of great interest are the recently appeared data on the presence of an atherogenic shift in the lipid spectrum in allergy, especially its gastrointestinal form. Until now, the features of lipid metabolism in children with diseases of the digestive organs at an early stage of their formation and in the presence of such a background as food allergy have not been established. Considering that the cornerstone of therapy for dyslipidemia and food allergies in childhood is rational nutrition, the problem of early detection of food allergies and dyslipidemia and correction of treatment measures in children with gastroenterological pathology should be recognized as urgent.

Taking into account the above, it can be assumed that the improvement of diagnostics and prognosis of the course of food allergy, especially its gastrointestinal form in children with digestive system pathology, is possible based on the identification of certain metabolic markers and their comprehensive assessment. One of the ways of early detection of dyslipidemia in children should be recognized as the identification of those gastroenterological diseases in the genesis of which the allergic factor is often encountered. Of great importance in childhood when building therapy for gastroenterological pathology is the correction of the diet using therapeutic nutrition products with specified properties, this applies to both food allergies and dyslipidemias. Consequently, in connection with the early onset of the formation of digestive system pathology against the background of food allergies in childhood, studies that allow improving the diagnostics and treatment of this combined pathology are of particular importance, based on the identification of pathogenesis features, namely systemic immunity and metabolism with an emphasis on the lipid factor, as the least studied.



Objective of the study: Improving the diagnosis and treatment of gastrointestinal diseases associated with food allergies in young and preschool children.

Objectives of the study : To study the prevalence and structure of gastrointestinal diseases associated with food allergies in young and preschool children. To determine the characteristics of clinical and metabolic changes in this group of patients. To develop diagnostic criteria for non-manifest forms of food allergy in pathologies of the digestive organs. To determine the characteristics of systemic immunity in functional disorders and chronic gastrointestinal diseases associated with food allergies. To identify the nature of the relationships between systemic immunity indicators and metabolic disorders, in particular dyslipidemia, in young and preschool patients with the above diseases. To substantiate the methods of pathogenetic correction of therapy for gastrointestinal diseases associated with food allergies and dyslipidemias, and to evaluate their effectiveness.

Results of the study. The prevalence and age-sex structure of functional disorders and chronic diseases of the digestive system against the background of food allergy in children of early and preschool age were established for the first time. It was revealed that the first peak of gastroenterological diseases occurs at 2-3 years of age and is represented by functional disorders of the digestive system and intestinal dysbacteriosis, the second peak, at 5-6 years, is associated with an increase in the proportion of inflammatory diseases, mainly of the gastroduodenal system. New data were obtained that cutaneous and gastrointestinal forms of food allergy are associated with the predominant localization of the pathological process in the gastroduodenal system or small intestine and do not differ from each other in their effect on the severity of damage to the gastroduodenal mucosa, the activity of the pathological process in it and the frequency of functional disorders of the digestive system. For the first time, the possibility of identifying and predicting the risk of food allergy manifestation in children of early and preschool age with functional and chronic pathology of the digestive organs has been proven using a screening model that includes biochemical test parameters — alkaline phosphatase, total cholesterol, SH-groups, α -2- and γ -globulins in the blood serum. For the first time, it has been established that dyslipidemia in children of early and preschool age with chronic diseases and functional disorders of the digestive organs against the background of food allergy can have a non-atherogenic and atherogenic orientation, which is associated with the predominant localization of the



pathological process in the gastrointestinal tract, the form of food allergy, systemic immunity disorders, and the state of antioxidant protection. Priority data were obtained that atherogenic changes in preschool children with gastrointestinal diseases against the background of food allergies are caused by hypercholesterolemia, an increase in the content of very low density lipoproteins (VLDL), pre-P-lipoproteins, lipoprotein (a), a decrease in atherogenic protection with a relative decrease in the level of high density lipoproteins (HDL), most often observed in inflammatory and functional bowel diseases (chronic enteritis, colon dyskinesia), and the gastrointestinal form of allergy. It has been established that patients with chronic diseases of the digestive system against the background of food allergies are characterized by combined disturbances of metabolic homeostasis: along with dyslipidemia, the content of coarsely dispersed proteins increases, the non-enzymatic link of antioxidant protection is weakened with a decrease in the content of SH-groups, incompleteness of glycolysis processes with the accumulation of pyruvate and the development of ketosis, especially pronounced during exacerbation of the inflammatory pathological process.

For the first time in combined gastroenterological pathology and food allergy in young children, the association of changes in systemic immunity and local defense parameters (reduced T-lymphocyte content in blood serum, as well as IgA, SIgA and lysozyme concentrations in biological environments), humoral activation (increased IgG, IgE, CIC concentrations in blood serum) with hypercholesterolemia and accumulation of atherogenic fractions has been proven. The volumes of diagnostic and therapeutic and preventive measures in children suffering from chronic diseases of the digestive system and food allergy have been developed and determined. For the first time in diseases of the digestive system against the background of food allergy, the prescription of plant-based therapeutic nutrition products with hypoallergenic and hypocholesterolemic action has been pathogenetically substantiated in the system of therapeutic and preventive measures; high clinical and laboratory efficiency in children of early and preschool age has been proven.

Conclusions

The proposed diagnostic algorithm for food allergy in the examination of children of early and preschool age with chronic and functional pathology of the digestive



organs is aimed at its early detection. The developed computer program for predicting the risk of food allergy manifestation in children with chronic gastroenterological pathology allows automating and accelerating the diagnostic system by 5 biochemical indicators - alkaline phosphatase, total cholesterol, The presence of atherogenic and non-atherogenic dyslipidemia determines the necessary volume of therapeutic measures in children with chronic pathology of the digestive organs against the background of food allergy.

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