CLINICAL AND BIOCHEMICAL ASPECTS OF SECONDARY LACTASE DEFICIENCY IN YOUNG CHILDREN

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Abstract: Secondary lactase deficiency (SLD) is one of the common causes of malabsorption syndrome in young children and often develops against the background of acute and chronic diseases of the gastrointestinal tract. The aim of this study was to investigate the clinical manifestations and biochemical changes in secondary lactase deficiency in young children. The study analyzed clinical symptoms, indicators of carbohydrate metabolism, and coprological data. The obtained results confirm the important role of timely diagnosis and a comprehensive approach to the treatment of secondary lactase deficiency in children.

Keywords: secondary lactase deficiency, young children, malabsorption, lactose, biochemical indicators.

Introduction

Lactase deficiency is a condition characterized by a decrease in the activity of the enzyme lactase, which leads to impaired breakdown of lactose in the small intestine. Of particular clinical significance is secondary lactase deficiency, which occurs as a result of damage to enterocytes in infectious, inflammatory, and allergic diseases of the intestine.

In young children, secondary lactase deficiency occurs significantly more often compared to the primary form, which is associated with functional immaturity of the gastrointestinal tract and high sensitivity of the intestinal mucosa to various damaging factors. Untimely diagnosis and correction of this condition may lead to delayed physical development, impaired nutritional status, and a decrease in the quality of life of the child.

The relevance of studying the clinical and biochemical aspects of secondary lactase deficiency is due to the need for early detection of the disease and optimization of therapeutic and diagnostic approaches in pediatric practice.

Aim of the study: to investigate clinical manifestations and biochemical changes in secondary lactase deficiency in young children.

Materials and Methods

The study included ___ young children aged from ___ months to ___ years who were undergoing inpatient treatment in the pediatric department of a medical and preventive institution. The formation of the sample was carried out using the method of continuous observation, taking into account inclusion and exclusion criteria.

The main group consisted of children with clinically and laboratory-confirmed secondary lactase deficiency that developed against the background of infectious, inflammatory, or allergic diseases of the gastrointestinal tract. The control group consisted of practically healthy children of the corresponding age who had no clinical signs of digestive disorders or chronic somatic diseases.

All children underwent a comprehensive clinical and laboratory examination, including a thorough analysis of anamnestic data and assessment of clinical symptoms. Particular attention was paid to the evaluation of stool characteristics (frequency, consistency, presence of sour odor), the presence of flatulence, abdominal pain syndrome, regurgitation, restlessness after feeding, as well as signs of nutritional deficiency.

Laboratory examination included a biochemical study of stool with determination of carbohydrate content, which is one of the main markers of impaired digestion and absorption of lactose. In addition, a coprological examination was performed to identify signs of maldigestion and malabsorption, such as the presence of undigested carbohydrates, changes in stool reaction, and other pathological inclusions.

Assessment of physical development was carried out by dynamic monitoring of body weight followed by comparison of the obtained indicators with age-related norms. Analysis of body weight dynamics made it possible to objectively assess the impact of secondary lactase deficiency on the nutritional status of children.

The diagnosis of secondary lactase deficiency was established based on a combination of clinical data, results of laboratory and coprological studies, as well as taking into account anamnestic information about previous diseases of the gastrointestinal tract.

Statistical processing of the obtained data was carried out using standard methods of variation statistics with the calculation of mean values, indicators of reliability, and degree of variability, which ensured the objectivity and reliability of the study results.

Results

In the majority of children with secondary lactase deficiency, typical clinical manifestations were observed in the form of frequent loose stools with a sour odor, flatulence, and restlessness after feeding. In ___% of children, insufficient body weight gain was noted.

Biochemical examination of stool revealed an increased carbohydrate content exceeding age-related normative values. Coprological analysis showed the presence of signs of impaired digestion and absorption of carbohydrates.

Analysis of the obtained data demonstrated a direct relationship between the severity of clinical symptoms and the level of carbohydrates in stool, which confirms the diagnostic significance of biochemical indicators in secondary lactase deficiency.

Table 1

Clinical and biochemical indicators in young children with secondary lactase deficiency

Indicators	Main group (SLD, n=___)	Control group (n=___)
Frequency of loose stools (times/day)	4.8 ± 0.6	1.6 ± 0.3
Presence of flatulence, %	82.0	18.0
Restlessness after feeding, %	76.5	12.0
Regurgitation, %	64.0	10.0
Carbohydrate content in stool, %	0.75 ± 0.08	0.15 ± 0.04
Insufficient body weight gain, %	58.0	8.0

Discussion

The obtained results are consistent with data from a number of domestic and foreign studies indicating the leading role of damage to the mucous membrane of the small intestine in the development of secondary lactase deficiency in young children.

The clinical picture of the disease is characterized by polymorphism, which complicates early diagnosis. In this regard, the use of laboratory research methods that allow objective assessment of the degree of carbohydrate metabolism disorders is of particular importance.

A comprehensive approach, including diet therapy with lactose restriction and treatment of the underlying disease, contributes to a reduction in clinical manifestations and normalization of biochemical indicators.

Conclusion

Secondary lactase deficiency in young children is a clinical and biochemical syndrome accompanied by pronounced disorders of carbohydrate digestion and absorption, which negatively affects the general condition and physical development of the child. The disease is characterized by a polymorphic clinical picture, including dyspeptic disorders, signs of malabsorption, insufficient body weight gain, as well as specific biochemical changes confirming a decrease in lactase activity.

Timely diagnosis of secondary lactase deficiency, based on a comprehensive assessment of clinical manifestations and laboratory indicators, is of key importance for choosing a rational management strategy. The use of a comprehensive clinical and laboratory approach allows not only to clarify the severity of the pathological process, but also to increase the effectiveness of therapeutic measures, including diet therapy and correction of the underlying disease.

Early diagnosis and adequate correction of secondary lactase deficiency contribute to reducing the frequency of complications, normalizing biochemical indicators, and improving the prognosis of the disease, which emphasizes the relevance of further study of this problem in pediatric practice.

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