

Giardiasis in Children

Ibatova Sh.M.¹, Mamatkulova F.Kh.², Mamatkulova D.Kh.³

^{1,2,3} Samarkand State Medical Institute, Republic of Uzbekistan

ABSTRACT

Giardiasis is a widespread invasion by protozoa, mainly affecting children, especially young children. We have studied patients with latent, subclinical and clinical forms of giardiasis. Timely diagnosis and targeted treatment can prevent severe forms of giardiasis. We have divided the latent, subclinical and clinical forms of giardiasis. In subclinical and clinical forms of giardiasis, pain in the abdomen, a syndrome of intestinal and gastric dyspepsia were observed. With giardiasis, children are prescribed dietary and drug therapy.

KEY WORDS: giardiasis, patients, research, clinical forms. coprogram.

ARTICLE DETAILS

Published On:
31/03/2022

Available on:
<https://ijmscr.org>

INTRODUCTION

Giardiasis is a widespread invasion by protozoa, mainly affecting children, especially young children. For a long time in our country, the pathogenicity of Giardia was subject to discussion. However, in recent years it has been shown that in targeted biopsy specimens of the duodenal mucosa in the proximal parts of the small intestine, Giardia, attaching to the microvilli of the brush border of the epithelium, have a certain effect on the function of the microvilli, which is manifested by a significant change in the activity of enzymes, especially disaccharidases.

It is known that Giardia invades the upper parts of the small intestine, i.e. those areas where the most intensive membrane digestion of the main nutrients contained in the chyme occurs. In the same parts of the small intestine, their absorption occurs. It can be assumed that the prevalence of Giardia colonization of the mucous membrane and the intensity of invasion by these protozoa of the small intestine will have a direct impact on the efficiency of membrane (parietal)

digestion and absorption of nutrients, which may also determine the clinical manifestations of Giardiasis.

Timely diagnosis and targeted treatment of nutrient resorption disorders can prevent severe forms, often accompanied by malnutrition, growth retardation and development of children.

It is known that giardiasis, especially in children, is clinically manifested by diversity - from pure giardia carriers to severe forms in the form of chronic diarrhea, which is the cause of weight loss and delayed physical development.

PURPOSE OF THE STUDY

Study and detection of clinical forms of giardiasis in children.

MATERIAL AND RESEARCH METHODS

Under our supervision on the basis of the regional multidisciplinary children's hospital in Samarkand and the Institute of Medical Parasitology named after. L.M. Isaev, there were 176 children aged 3 to 5 years with giardiasis (Table I).

Table I. Distribution of observed children with giardiasis by sex and age

Name diseases	Age of children in years					
	3-6 years old		7-11 years old		12-15 years old	
	B	D	B	D	B	D
Giardiasis	8	11	72	64	11	10
Total:	19		136		21	
Total:	176					

Giardiasis in Children

As can be seen from Table. I. Giardiasis is most common in children of primary school age (in 136 out of 176 - 77.2%), and it was more often observed in boys. Less commonly, giardiasis was observed in children of preschool age (in 19 out of 176 - 10.7%), and in children of senior school age (in 21 out of 176 - 11.9%).

Giardia cysts were found in all children in a laboratory study of feces. It is known that the life expectancy of Giardia in the human body ranges from 3 to 40 days, averaging 4 weeks, in the absence of reinvasion. However, in collectives and families there is a constant reinfection, since the transmission factors are contaminated with feces containing Giardia cysts, hands, water, food and household items. In the conditions of the hot, continental climate of Uzbekistan, this happens especially easily. Therefore, it is difficult to determine the duration of the disease with giardiasis, also taking into account the variety of its clinical manifestations (from carriage to clinically pronounced forms).

Therefore, we were able to establish this only in a group of children who had clinical manifestations (the presence of diarrhea and the appearance of abdominal pain). In 102 children out of 140 (72.5%), the diagnosis of giardiasis was established 3 months after the onset of the first signs of the disease.

Of the 176 children observed by us, in whom Giardia cysts were found in the feces, in 140 we revealed clinical manifestations of varying severity.

Among them, pain on palpation was most often found in 87% of the syndrome of "intestinal" dyspepsia in 76.4% in the form of an unstable stool in 66.4% of flatulence and rumbling and less often "gastric" dyspepsia (nausea, belching, less often vomiting and heartburn - in 10-15%).

Since Giardia vegetates in the duodenum and proximal small intestine, pain during palpation of the abdomen was most often localized in the pyloroduodenal and epigastric zone, which is characteristic of duodenitis.

According to the severity of "intestinal" and "gastric" dyspepsia, as well as delays in the physical development of the observed patients, we identified subclinical and clinical forms of giardiasis. With the first of them, there was no pronounced delay in physical development, and with the latter, it was more often detected as well as enteral syndrome. In the clinical form of giardiasis, anemia was often found in 66%, hypoproteinemia due to a decrease in albumin, hypocholesterolemia. In the subclinical form, these indicators were less frequent and changed less, for example, anemia in 1.3% of patients.

In the latent form of giardiasis, clinical manifestations and laboratory changes were not observed.

The state of the fat resorption process was assessed according to the results of a coprological study and using the iodolipol test. In children with giardiasis, there is a violation of fat resorption, which is confirmed by the presence of steatorrhea and a decrease in the iodolipol test. The degree of violation of fat resorption is not the same in various clinical forms of

giardiasis. It is less pronounced in latent and progresses in subclinical and especially in clinical forms of giardiasis. The level of cyst secretion of protozoa has a direct impact on the degree of impairment of fat resorption. The lowest urinary iodine excretion was observed in children with a high degree of cystic excretion.

The observed steatorrhea and a decrease in iodine excretion in the urine during the iodolipol test indicate a violation of fat resorption. This is confirmed by the relatively low content of cholesterol in the blood of children suffering from giardiasis. Since stools are most commonly elevated in fatty acids compared to the frequency of detection of neutral fat, it can be assumed that the lipolytic function of the pancreas is less altered. At the same time, the absorption of fatty acids and pinocytosis of fat by the microvilli of the brush border of the mucosal epithelium are probably more affected due to Giardia invasion. This reduces the absorption surface of the small intestine, and the mucous membrane of the distal sections not invaded by Giardia cannot compensate for disorders localized in its proximal sections.

The localization of disaccharidases on the microvilli of the brush border is most intense in the proximal parts of the small intestine, i.e. where the most favorite place of Giardia vegetation is observed. Therefore, it can be assumed that violations of the absorption of disaccharides in giardiasis will be observed more often and they are essentially the main cause of the formation of enteral syndrome.

The presence of extra- and intracellular starch in the faeces in 60.7% of children with giardiasis roughly indicates a decrease in amylolytic function and, probably, absorption.

This is especially often revealed by a decrease in the activity of disaccharidases (lactase, sucrase), which is confirmed by a decrease in the increase in glycemia after loading with sucrose and lactose. We have found that with giardiasis, as a rule, lactase and sucrase deficiency are simultaneously detected in the same patient.

In contrast to the results of the study of glycemia during a load of disaccharides, the increase in glycemia after a load of glucose approached the figures characteristic of healthy children. This indicates that the transport of glucose through the epithelial cell of the intestinal mucosa is not impaired in giardiasis.

The degree of carbohydrate malabsorption turned out to be different depending on the degree of clinical manifestations of giardiasis: it is observed to a weak degree in latent and progresses in subclinical, especially in the clinical form of giardiasis. Since we have identified disaccharide absorption disorders even in the absence of clinical manifestations, we believe that the common term giardia carrier does not reflect the essence and we proposed this condition as a latent form that requires appropriate treatment.

This is also confirmed by the level of cystic excretion of protozoa, which has a direct effect on the degree of disaccharidase deficiency - the higher the cystic excretion, the

Giardiasis in Children

more pronounced violations of the increase in glycemia after loading with lactose, sucrose.

In addition to the emerging disaccharidase deficiency, with giardiasis in children, there is also a decrease in D-xylose excretion in the urine in the first 2 hours after oral loading, which indicates a greater degree of change in the proximal small intestine.

The excretion of D-xylose changes less in 5 hours. This indicates that in giardiasis, the distal small intestine suffer less and, as it were, compensate for proximal insufficiency, although it is limited especially in children with a high degree of cystic discharge.

RESULTS AND DISCUSSION. Studies show that when *Giardia* invades, the membrane (parietal) digestion of carbohydrates is disturbed, which forms the syndrome of disaccharidase deficiency, which is the cause of "intestinal" dyspepsia, manifested by unstable (often liquid) stools. Violation of the absorption of carbohydrates and fat leads to their deficiency, which is the main reason for the delay in the physical development of children with giardiasis, especially with a significant degree of invasion. Therefore, in subclinical and especially clinical forms of giardiasis, food should be limited, and in some patients excluded, foods containing lactose and sucrose, and the need for fat must be covered by vegetable oil, which is more easily digested.

It is clinically expedient to single out latent, subclinical and clinical forms of giardiasis, since along with a single anti-giardia drug therapy, dietary therapy is required.

With giardiasis in children, there is a malabsorption syndrome due to a decrease in the activity of lactase and sucrase, which causes a narrowing of the surface of the membrane (parietal) digestion due to dysfunction of the microvilli of the brush border of the epithelium of the proximal duodenum and jejunum when exposed to protozoa. The degree of malabsorption is not the same in various clinical forms of giardiasis: it is observed to a weak degree in latent and progresses in sub- and especially in clinical forms of giardiasis.

With sub- and especially clinical form of giardiasis, foods containing lactose and sucrose should be limited in food, up to their exclusion, and the need for fat should be covered with easily digestible fats (vegetable oil).

Considering that *Giardia* infection occurs mainly by the fecal-oral route, strict adherence to the sanitary and hygienic regime in the family and children's groups is necessary. Therefore, in early childhood, special attention should be paid to hardening procedures, to treat colds in a timely manner. In the diet of a child, regardless of the time of year, fresh vegetables, fruits and herbs should be present. The lack of substances should be replenished with multivitamin complexes, selected taking into account his age and lifestyle.

CONCLUSIONS. It is clinically expedient to distinguish latent, subclinical and clinical forms of giardiasis in children. Which is manifested by a variety of symptoms: from giardia

carriers to severe clinical forms. Along with a single anti-giardia drug therapy, diet therapy is required.

REFERENCES

- I. Ibatova Sh.M., Abdurasulov FP, Ruzikulov NY. Features of clinical manifestations of lambliosis in children. *EPRA International Journal of Research and Development (IJRD)*. Volume: 7 | Issue: 1 | January 2022. P. 38-41.
- II. Ibatova Sh. M., Mamatkulova F. Kh., Ruzikulov N.Y. The Clinical Picture of Acute Obstructive Bronchitis in Children and the Rationale for Immunomodulatory Therapy. *International Journal of Current Research and Review*. Vol 12 Issue 17. September 2020. P.152-155.
- III. Ibatova Sh. M., F. Kh. Mamatkulova, N. B. Abdukadirova, Yu. A. Rakhmonov, M. M. Kodirova. Risk Factors for Development of Broncho-Ostructive Syndrome in Children. *International Journal of Current Research and Review*. Vol 12. Issue 23 December 2020. P. 3-6.
- IV. Ibatova Sh.M., Mamatkulova F.Kh ., Rakhmonov Y.A., Shukurova D.B., Kodirova M.M. Assessment of the Effectiveness of Treatment of Rachit in Children by Gas-Liquid Chromatography. *International Journal of Current Research and Review*. Vol 13, Issue 06, 20 March 2021. P.64-66.
- V. Ramazanova A.B., Ibatova Sh.M., Abdukadirova N.B. Variants of clinical manifestations of giardiasis in children. *International scientific journal "Problems of Biology and Medicine"*. Samarkand, 2021, no. 1.1 (126), R.342-344.