



IRRITABLE BOWEL SYNDROME IN CHILDREN

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Resume

Irritable bowel syndrome (IBS) is the most common functional bowel disease in adults and represents a significant social problem affecting quality of life. The development of IBS is based on the interaction of two main pathogenetic mechanisms: psychosocial impact and impaired motor function of the colon, which is manifested by an increase in visceral sensitivity and a change in the motor activity of the intestine.

In the development of the disease, personal and psychological aspects, genetic predisposition, nutritional factors, changes in visceral hypersensitivity, disturbances in motor activity and the neuroendocrine system (brain-gut axis), increased intestinal permeability, and disruption of the composition of the intestinal microbiota are important. Qualitative and quantitative changes in the microflora affect the function of the intestine, acting as a cause of violations of its motor activity, sensitivity and neuroimmune relationships, including impaired expression of mucosal receptors and changes in the function of the hypothalamic-pituitary-adrenal system. In pediatric practice, the possibilities of using medications are significantly limited by the age of patients. In therapy, preference should be given to selective drugs that affect visceral sensitivity and probiotics with proven efficacy and safety of strains.

Keywords: children, irritable bowel syndrome, prokinetics, trimebutin, neobutin, probiotics, maxilac.

Irritable bowel syndrome (IBS) is the most common functional bowel disease in adults, representing a significant social problem with a negative impact on quality of life. In most countries of the world, the incidence of IBS is on average about 20%, varying from 9 to 48%. There is little information on the prevalence of IBS in children, for example, in the United States, according to various authors, the frequency ranges from 1.2 to 2.9% [1]. It is difficult to estimate the prevalence of IBS in a population, because the statistics vary significantly even in different regions of the same country. Epidemiological indicators, summarized according to questionnaires in different countries of the world, show that the numbers range from 10 to 25%. Based on a meta-analysis, the overall prevalence of the disease was about 11.2% (95% CI, 9.8-12.8) with a difference in regions of the globe, from the lowest in South Asia (7%) to the highest in South America (21%). It is shown that the first few months after the diagnosis of IBS, patients endure up to 4 attacks with severe abdominal pain. In the future, in 30–





40%, the light intervals between exacerbations increase. Approximately half of patients with IBS (45%) develop chronic diseases of the upper gastrointestinal tract (dyspepsia, chronic gastritis, GERD, etc.) after several years of IBS.

The criteria of Rome III emphasized that in order to establish functional disorders, organic disease must be excluded. In the Rome Criteria IV Revision, the phrase "there is no evidence to support an inflammatory, anatomical, metabolic, or neoplastic process to explain the subject's symptoms" was removed from the diagnostic criteria [2]. Instead, it added "after an appropriate medical examination, the symptoms cannot be attributed to another disease." This change allows selective testing to confirm a positive diagnosis of FDDS. It has also been noted that FDDS can coexist with other organic and chronic inflammatory diseases [3].

Similarly, the same patient may have different FDDSs.

In the development of FDDS in children at an early age, an important role is played by such factors as morphofunctional immaturity, insufficient activity of pancreatic and gastrointestinal enzymes, impaired microbiocenosis, and insufficient mucosal immunity. At an older age, visceral hypersensitivity is due to a combination of factors: social relationships, stress, overwork, disruption of the daily routine, rest.

The development of IBS is based on the interaction of two main pathogenetic mechanisms: psychosocial impact and impaired motor function of the colon, which is manifested by an increase in visceral sensitivity and impaired motor function of the intestine (Table 1).

Table 1. Diagnostic criteria for IBS in children (signs must be present for at least 2 months) [1].

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| The following symptoms should be present: | |
| 1. Abdominal pain at least 4 days per month associated with 1 or more of the following symptoms: | a. associated with defecation; b. associated with a change in voiding frequency; c. associated with a change in the shape (appearance) of the stool. |
| 2. In IBS with constipation, the pain does not go away after a bowel movement (if the pain goes away after a bowel movement, then the child has functional constipation, not IBS). | |
| 3. After an appropriate assessment, the symptoms cannot be attributed to another disease. | |

The pain can be of varying intensity, localized, as a rule, in the lower abdomen, although it can also be noted in other parts of it. It often increases with errors in diet, psycho-emotional stress, experiences, and also during physical activity. It is important to note that abdominal pain disappears at night when the child is sleeping. If the pain resolves after a bowel movement, then the child is more likely to have functional constipation rather than IBS with constipation.



It has been found that 75% of children with constipation have abdominal pain, which falls under the criteria for IBS. But patients with IBS are observed for a long time with a diagnosis of functional constipation without receiving effective medical care. The Committee recommends that patients with constipation and abdominal pain be initially treated for constipation alone. If the abdominal pain resolves after constipation is treated, then the patient has functional constipation. If the pain persists, the child probably has IBS with constipation. Similarly, in the case of possible IBS with diarrhea. At the first stage, it is necessary to exclude intestinal infection with a recurrent, chronic course, celiac disease, carbohydrate malabsorption, and less often inflammatory bowel disease. It is important to pay attention to alarm signals (“anxiety symptoms”, “red flags”), in the presence of which it is necessary to exclude the organic pathology of the gastrointestinal tract. It is indicated that the more alarming symptoms present, the higher the likelihood of organic disease (Table 2). The determination of fecal calprotectin is increasingly being used as a non-invasive screening tool to rule out inflammatory bowel disease (IBD) [6].

Table 2. Symptoms of anxiety in patients with FDDS.

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| Family history of inflammatory bowel disease, celiac disease, or peptic ulcer |
| Persistent pain in the right upper or right lower quadrant |
| Dysphagia, odynophagia |
| recurrent vomiting |
| Bleeding from the organs of the gastrointestinal tract |
| nocturnal diarrhea |
| Arthritis |
| perirectal lesions |
| Unmotivated weight loss, weight loss, malnutrition |
| Delayed puberty |
| unexplained fever |



The complexity of the etiopathogenesis of the disease in children is explained by a combination of factors: personal psychological aspects, genetic predisposition, nutritional factors, the development of visceral hypersensitivity, impaired motor activity, changes in the neuroendocrine system (brain-intestine axis), increased intestinal permeability, impaired composition of the intestinal microbiota.

Scientific studies have shown that visceral hypersensitivity may be associated with childhood psychological stress (anxiety, depression, impulsivity, anger) [8].

Children with IBS may experience increased levels of stress, anxiety, depression, and self-reported emotional problems [9]. Severe illness requiring medical intervention at an early age (eg, surgery) is associated with a higher risk of developing FDDS in children, including IBS [10].

The pathophysiology of IBS includes exposure to external stimuli (stress, high emotional stress, lack of sleep, etc.), which excites the central nervous system, autonomic response, with effects on the neuroendocrine system of the intestine, including the hypothalamic-pituitary-adrenal (cortisol) system. This disrupts the motor activity of the intestine, increases the spasm of smooth muscles, disrupts the passage of intestinal contents. Thus, the use of synbiotic complexes containing a multi-strain composition of probiotic strains of lacto- and bifidobacteria, which have a positive effect on the qualitative and quantitative composition of the microflora of the gastrointestinal tract, and trimebutine maleate, which can have a direct normalizing effect on the motor function of the gastrointestinal tract, has reason to be included in complex therapy of irritable bowel syndrome in children.

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