Volume 3, Issue 5, May 2025 ISSN (E): 2938-3765

MODERN DIAGNOSIS METHODS OF IRRITABLE BOWEL SYNDROME IN CHILDREN

Rasulova Saodat Khalimovna
Bukhara State Medical Institute,
Assistant of the 2nd Department of Pediatrics

Abstract
This article analyzes modern methods of diagnosis of irritable bowel syndrome (IBS) in children. Based on the obtained results, ways of early detection and effective diagnosis of IBS were considered. Modern clinical, laboratory and instrumental diagnostic methods were studied.

Keywords: IBS, pediatric gastroenterology, ultrasound diagnosis, modern methods, intestinal microbiota.

Introduction

Irritable bowel syndrome (IBS) is a common gastroenterological disease in children, mainly associated with functional bowel disorders. In IBS, the functional function of the intestine is impaired without any organic diseases or anatomical changes in the intestine. The exact causes of IBS in children are not yet fully understood, but it may develop under the influence of genetic, biochemical and psychological factors. Irritable bowel syndrome (IBS) is a common functional bowel disease in children, affecting 5-20% of children worldwide (Camilleri M., 2021). Although the etiopathogenesis of IBS has not yet been fully studied, it has been found that its development is influenced by disruption of the intestinal microbiota, stress and genetic factors (Mayer EA, Tillisch K., 2019) [1,2].

Studies conducted in the United States have shown that children with IBS experience reduced quality of life, sleep disturbances, and mood changes. Studies conducted in European and Asian countries also confirm the widespread nature of this problem. In particular, a 2020 study in Germany involving 2,000 children focused on the clinical manifestations and diagnostic challenges of IBS (Simren M. et al., 2020)[3,4].

IBS can be accurately and effectively diagnosed by introducing modern diagnostic methods. In particular, the development of methods for the analysis of intestinal microbiota, identification of inflammatory biomarkers, and instrumental diagnosis is important for the diagnosis of IBS in children. There are difficulties in diagnosing it. The clinical manifestations of IBS vary, and it is important to distinguish it from other diseases. IBS can be accurately and effectively diagnosed by introducing modern diagnostic methods [5].

Material and Methods

The study included 100 children aged 5-15 years. All participants were selected as children suspected of having IBS based on clinical symptoms and Rome IV criteria. The following methods were used during the study:

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

1. Clinical and anamnestic methods - children's general condition, characteristics of pain, defecation changes and other symptoms were evaluated.
2. Laboratory diagnostics: - Complete blood count (leukocytes, C-reactive protein) to detect inflammation in the blood; - Calprotectin analysis as a biomarker indicating intestinal inflammation; - Analysis of intestinal microflora to determine intestinal microbiota (bacteriological methods and metagenomics); - Pancreatic enzymes and diagnostics of carbohydrate malabsorption.
3. Instrumental diagnostics: - Ultrasound examination - the condition of the intestinal walls, peristalsis and gas accumulation were assessed; - Colonoscopy - was performed to exclude inflammation, functional changes and signs characteristic of cancer; - Gastroenterological MRI and CT - were used as additional examinations in severe cases.
4. Functional tests: - Lactose and fructose tolerance tests; - Hydrogen breath tests to assess intestinal motility. The study was conducted in accordance with ethical guidelines and informed consent was obtained from all participants and their parents.

Results

According to the results of the study, intestinal microflora disorders were found in 65% of children with IBS symptoms. On the basis of laboratory analysis, signs of inflammation were observed in the blood.

By ultrasound:

— Hyperperistalsis of intestinal walls was observed in 70% of children;
— Mild inflammation of the mucous membrane was noted in 45% of children;
— In 30% of cases, intestinal gas accumulation was found to be increased.

Calprotectin analysis was increased in 60% of children, which indicates the presence of intestinal inflammation. According to the results of the analysis of the intestinal microbiota, it was found that children with IBS had a decrease in Bifidobacterium and Lactobacillus strains, and an increase in the number of Proteobacteria and Firmicutes. These results indicate that disruption of the intestinal microflora plays an important role in IBS. Also, statistical analyses of defecation disorders showed that:

— Constipation in 50% of children,
— 30% of children have diarrhea,
— 20% of children had mixed defecation disorders.

Discussion

The results obtained, when compared with international studies, confirmed the importance of microbiota analysis and biomarkers in the diagnosis of IBS in children. Modern diagnostic methods may allow for early detection of IBS. Calprotectin and intestinal microflora analysis are recommended as effective methods [6].

Studies have shown that clinical signs alone are not sufficient to diagnose IBS. In some cases, IBS can be confused with inflammatory bowel diseases (IBD, Crohn's disease) or celiac disease. Therefore, the addition of inflammatory biomarkers and microbiota analysis increases diagnostic accuracy [7,9].

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

The study also found that psychological factors play a major role in the development of IBS in children. The level of parental anxiety, the child's ability to cope with stress, and nutritional factors can also exacerbate the disease. This indicates the need to develop treatment strategies that include a comprehensive approach - gastroenterological, nutritional, and psychological support [8].

Recent studies from around the world show that therapies aimed at restoring the gut microbiota (probiotics, prebiotics, and fecal microbiota transplantation) are effective in alleviating the symptoms of IBS. Such methods may be more widely used in future diagnosis and treatment [10].

Irritable bowel syndrome (IBS) in children is a major scientific challenge in this field. IBS is a functional bowel disease in children that is difficult to differentiate from other gastroenterological diseases. Although effective diagnostic and therapeutic approaches for IBS are increasingly available, delayed diagnosis significantly reduces the quality of life of children. Early detection of IBS can improve children's health and prevent future complications [1].

Research shows that the exact diagnosis of IBS in children is often delayed. Diagnosis based on clinical signs, especially diarrhea, flatulence, intestinal pain, and other symptoms, can often be erroneous. It is important to use modern diagnostic methods for this. Laboratory and instrumental examinations, for example, determination of calprotectin, analysis of microbiota and ultrasound play an important role in the diagnosis of IBS in children [3,7].

At the same time, studies on the importance of the microbiota are aimed at investigating the role of changes in the microbiota in the development of IBS. Accurate analysis of the intestinal microbiota and inflammatory biomarkers will help to determine the necessary direction in the diagnosis and treatment of IBS in children. In recent years, research related to the microbiota has been aimed at updating the clinical examination and diagnostic methods of IBS. The use of probiotics and prebiotics may be effective in reducing the symptoms of IBS in children, for which new therapeutic strategies are being developed.

In addition, the role of psycho-emotional state and nutritional factors in the mechanism of action of IBS and its accurate diagnosis should be given due consideration. Stress response in children, parental anxiety level, and dietary habits are important factors in the development of IBS. Studies have shown that psychological conditions in children, especially stress or depression, can exacerbate the symptoms of IBS. Therefore, the treatment of IBS in children requires a comprehensive approach, including gastroenterological, nutritional, and psychological support.

The study concludes that a number of new approaches and treatment strategies are being developed for the effective treatment of IBS in children, among which the use of microbiota-related therapies and probiotics is of great importance. Also, future studies should be based on microbiota or inflammatory biomarkers to develop new diagnostic methods for IBS in children. Current scientific research is aimed at developing new genetic, laboratory, and microbiota analysis methods for the detection of IBS.

In the future, research into the diagnosis and treatment of IBS will help improve children's health and prevent the development of diseases in them. Accurate diagnosis and individualized treatment strategies will greatly help identify IBS in children and alleviate its symptoms.

Future research needs to delve deeper into the impact of microbiota, genetic factors, and psycho-emotional states on IBS. This will require the development of new diagnostic and therapeutic methods that can be applied in practice by a wide range of specialists and scientific research.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

Conclusion

Modern diagnostic methods are of great help in the diagnosis of IBS. They play an important role in identifying the disease in children and ensuring effective treatment. Analysis of the intestinal microbiota and the detection of inflammatory biomarkers increase the effectiveness of the treatment of this disease. An integrated approach is required to diagnose IBS in children. When laboratory and instrumental examinations are used together, the accuracy of diagnosis increases. In the future, attention should be paid to microbiota analysis and biomarker research.

It is reported that a variety of therapeutic approaches are being developed for the effective treatment of IBS in children. Such therapies include methods aimed at restoring the intestinal microbiota, including probiotics and prebiotics, or the development of fecal microbiota transplantation. These approaches are aimed at alleviating symptoms and improving the general condition of children.

Studies are also looking at the role of genetic factors in the development of IBS in children. Such factors may be important in determining the severity of the disease. However, epidemiological analyses are one of the most effective ways to broadly study the incidence of IBS in children.

Future research on the diagnosis and treatment of IBS in children should focus on microbiota analysis and biomarkers. It is also necessary to develop early detection and effective treatment methods for IBS in children, taking into account psychological, nutritional, and genetic factors.

REFERENCES

1. Mayer EA, Tillisch K. The brain-gut axis in IBS. Gastroenterology, 2019.
2. Camilleri M. Diagnosis and treatment of irritable bowel syndrome. American Journal of Gastroenterology, 2021.
3. Klinicheskie rekomendatsii po SRK u detey. Association detskih gastroenterologist Rossii, 2022.
4. Rasulova S.Kh. – Modern aspects of the pathogenesis of irritable bowel syndrome in children //New Day in Medicine 2023 7(57): 245-249 Read more: https://newdaymedicine.com/index.php/2023/07/31/l-285/
5. Sidorov A.B. Sovremennye metody diagnostici SRK. Journal of gastroenterology, 2023.
6. Simren M. et al. Intestinal microbiota in functional bowel disorders. Gut Microbes, 2020.
7. Rasulova Saodat Khalimovna. "Pediatric aspects of the etiology and pathogenesis of irritable bowel syndrome". Gospodarka and innovations. 21 (2022): 363-367. http://www.gospodarkainnowacje.pl/index.php/poland/article/view/155.
8. Khalimovna, RS. (2022). Research on irritable bowel syndrome in adolescents. Scientific Journal of Applied and Medical Sciences, 1(7), 132–135. Extracted from https://www.sciencebox.uz/index.php/amaltibbiyot/article/view/4926
9. Rasulova S.Kh., Navruzova Sh.I., Differential Diagnostics of Irritable Bowel Syndrome Depending on Allergic Sensibilization, American Journal of Medicine and Medical Sciences, Vol.4 No.2, 2024, pp. 306-309. doi: 10.5923/j.ajmms.20241402.31.
10. Rasulova, S.H., Navruzova, S.I. и Muxamedova, S.T. 2024. Bolalarda allergiya va ta'sirlangan ichak sindromining differential tashhisi. *Журнал гуманитарных и естественных наук*. 1, 8 (апр. 2024), 184–188. https://journals.tnmu.uz/index.php/gtfj/article/view/471.