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

# COMBIDAL PROBLEMS OF INFECTED BOWEL SYNDROME IN ADOLESCENT AGE

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**Abstract**
This article discusses the clinical features, diagnostic challenges, and treatment approaches of IBS in this age group. Irritable bowel syndrome (IBS) is a functional disorder characterized by impaired intestinal motility and hypersensitivity to internal and external factors. In adolescence, this syndrome is associated with many comorbid conditions, including allergic diseases, psychoemotional disorders, and metabolic syndrome.

**Keywords**: Affected bowel syndrome, comorbid diseases, allergies, psychoemotional disorders, metabolic syndrome, dysbiosis.

## INTRODUCTION

Irritable bowel syndrome (IBS) – is one of the most common problems in gastroenterology, affecting approximately 10-15% of the world's population. The disease is highly prevalent among adolescents and has a significant impact on their quality of life. IBS often coexists with other diseases, which complicates its diagnosis and treatment [1,4]. Irritable bowel syndrome (IBS) is a functional gastroenterological disease characterized by impaired intestinal motility and sensitivity. This condition is often accompanied by comorbid diseases, in particular, allergic diseases, psychoemotional disorders, and metabolic syndrome. IBS in adolescents not only negatively affects the quality of life, but also complicates its diagnosis and treatment[2,3].

## Material and Methods

This article analyzes scientific sources to study the course of irritable bowel syndrome with comorbid conditions. International studies on IBS, materials on gastroenterology, allergology and psychosomatic diseases were reviewed. The aim is to study the course of irritable bowel syndrome (IBS) with comorbid conditions in adolescent children and their clinical, biomarker and biomicrobiome aspects. The following materials and methods were used in this study:

Study period and population. The study was conducted at the Pediatric Institute of Uzbekistan between 2020 and 2023. The population included 150 adolescents aged 12-18 years, all of whom presented with symptoms of IBS. Patients participating in the study were selected based on specific diagnoses. In addition, 100 healthy adolescents participated in the study as a random control group.

Diagnostics and detection methods. In the study, the diagnosis of IBS was made on the basis of clinical signs, laboratory and instrumental examinations:

Clinical examination: A thorough clinical examination was performed before each patient was enrolled. We included the initial diagnosis of IBS based on signs and symptoms.



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Rome IV criteria: Patients were diagnosed based on the Rome IV criteria, which is the presence of symptoms of abdominal pain, diarrhea, and constipation.

Functional gastroenterology tests: Blood, fat, and glucose tests were taken from the patients. These analyzes were taken for the purpose of examining gastroenterological and metabolic conditions.

Biomicrobiome analysis: Fecal samples were collected to examine the gut microbiota. 16S rRNA genotyping technology was used to obtain information about the composition and function of the biomicrobiome.

Allergic sensitization: The allergic status of the patients was studied. Allergy tests (scarification tests) and immunoglobulin E (IgE) screening tests were used to detect signs of food allergy and atopic dermatitis.

Assessment of psychoemotional conditions:

Psychological assessment: The study also assessed psycho-emotional states. Standardized tests (GAD-7, PHQ-9) were used to assess the patients' levels of anxiety, depression, and stress. These tests helped to determine the patients' psycho-emotional states.

Stress level: Cohen's stress scale and stress index questionnaires were used to study the stress level in adolescents.

Assessment of endocrine and metabolic conditions:

Metabolic syndrome: Patients were tested for blood lipid levels, insulin resistance, cholesterol, and glucose levels. The HOMA-IR index was used to determine insulin resistance.

Hormonal tests: In order to study the association of IBS with metabolic syndrome, specifically obesity and hormonal disorders, blood tests were performed to detect leptin, glucagon, cortisol, and thyroid hormones.

Treatment and monitoring methods:

Diet and nutritional strategies: During the study, patients were prescribed a specialized diet. This diet focused on reducing cravings, increasing fiber and tracking food allergies.

Probiotics and prebiotics: The study also included treatment with probiotics (Lactobacillus, Bifidobacterium) and prebiotics. They were used to restore the intestinal microbiota and reduce symptoms of IBS.

Psychotherapeutic support: Cognitive behavioral therapy (CBT) and psychotherapeutic support for stress management were provided to reduce psychoemotional problems.

Data Analysis: All data were subjected to statistical analysis. New data were collected and analyzed using SPSS 22.0 software. In this study, any of the results recorded were considered statistically significant if $p<0.05$.

With these methods, the study made it possible to examine the comorbid course of IBS in adolescents and assess their clinical, biological, and psychoemotional parameters.

## Results

Diagnostic problems. The symptoms of IBS are nonspecific and resemble those of other gastroenterological and allergic diseases. Currently, there is no specific biomarker for the diagnosis of IBS, so diagnosis is based primarily on clinical signs.



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**Allergic sensitization and immunological factors.** Allergic diseases such as food allergy and atopic dermatitis are common in children with IBS. Dysbiosis of the intestinal microflora can affect the activity of the immune system and aggravate allergic diseases.

**Psychoemotional factors and neurological comorbidity.**Stress, depression, and anxiety in adolescents affect IBS symptoms. Dysfunction of the autonomic nervous system can impair intestinal motility and exacerbate symptoms.

**Metabolic syndrome and endocrine disorders.**Obesity, insulin resistance, and dyslipidemia may coexist with IBS. Hormonal changes may affect intestinal function and lead to dysbiosis.

**Current treatment and prevention problems.**Treatment of IBS requires a comprehensive approach (diet, probiotics, psychotherapy). The effectiveness of treatment can vary from person to person, which makes it difficult to choose a therapeutic approach.

## Discussion

Irritable bowel syndrome (IBS) – causes not only gastroenterological problems but also numerous comorbid conditions in adolescents. This study identified an association between IBS and allergic, psychoemotional, and metabolic conditions, which complicates its diagnosis and treatment[5].

The results of the study showed that there is a comprehensive relationship between IBS and allergic diseases. In this study, a large proportion of adolescents with IBS suffered from food allergies, atopic dermatitis, and bronchial asthma. Allergic sensitization and disruption of the intestinal microbiota weaken the immune system and lead to an increase in the symptoms of IBS. Also, the interaction of allergies and IBS causes various disorders of the immune system, which can lead to an increase in gastroenterological symptoms[6,8].

Psycho-emotional factors. Stress, depression, and anxiety have been identified as important factors that exacerbate the symptoms of IBS. Psycho-emotional disturbances alter intestinal motility and sensitivity. Stress and depression in adolescents have a negative impact on the physical condition of a person, which leads to an increase in the duration and severity of gastroenterological symptoms. The results of the study suggest that psycho-emotional support and cognitive-behavioral therapy play an important role in reducing the symptoms of IBS[7,9].

Metabolic syndrome and IBS. This study found an association between metabolic syndrome (obesity, insulin resistance, hyperlipidemia) and IBS. Metabolic disorders can disrupt the gut microbiota and intestinal motility, which can lead to an increase in the clinical symptoms of IBS. In addition, insulin resistance and high cholesterol levels can increase inflammatory processes in the gut, leading to the appearance of IBS symptoms[1,10].

Studying the role of the gut microbiota. It has been important to study how the gut microbiota alters and influences the symptoms of IBS. Disruption of the gut microbiome, known as dysbiosis, can exacerbate IBS symptoms and perpetuate gastroenterological problems. It can also lead to a compromised immune system and increased allergic reactions. Regulating the gut microbiome with probiotics and prebiotics may help reduce IBS symptoms[2].



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Diagnostic and treatment problems. Diagnosis and treatment of IBS are difficult, as its symptoms can be similar to many other gastroenterological, allergic, and psychoemotional diseases. In addition, the symptoms of IBS are usually nonspecific, and their extent and course may vary from patient to patient. Therefore, a comprehensive approach to the treatment of IBS is important, which requires clinical and laboratory examinations, biomicrobiome analysis, allergy tests, and assessment of the psychoemotional state.

Positive treatment experiences. The results of the study showed that integrative approaches were effective in the treatment of IBS. A suitable combination of diet, probiotics and psychotherapeutic support helped to reduce the symptoms of IBS and reduce the impact on the patient's quality of life. The results of this study suggest that IBS requires comprehensive and individualized treatment strategies.

At the same time, these studies provide key directions for a full understanding of the pathogenesis of IBS among adolescents and for improving its treatment methods. The results of the study confirm the interrelationship of IBS with gastroenterological, allergic, psychoemotional and metabolic factors, as well as the need for complex and integrated therapeutic approaches for its successful treatment.

## Conclusion

Irritable bowel syndrome (IBS) – is a complex disease in adolescents, associated not only with gastroenterological, but also with psychoemotional, allergic and metabolic problems. The results of the study clearly showed that the clinical symptoms of IBS are closely related to age-specific conditions, as well as its occurrence with numerous comorbid diseases.

IBS and comorbid diseases. As shown in the study, the association of IBS with allergic diseases, psychoemotional disorders, and metabolic syndrome in adolescents further complicates its pathogenesis. These conditions interact with each other and lead to aggravation of IBS. At the same time, difficulties in diagnosing IBS, the diversity of its symptoms, and its similarity to other diseases create complexity.

Diagnostics and treatment methods. Taking into account the occurrence of comorbid conditions in IBS, it is necessary to further clarify and individualize its treatment strategies. It is necessary to use complex approaches for patients, including gastroenterological, allergic, psychoemotional and metabolic therapies. The use of probiotics and prebiotics to restore the intestinal microbiome, as well as psychotherapeutic support and stress management are also important factors.

Positive results. In the patients studied, a successful combination of diet, probiotics, psychotherapy, and metabolic monitoring resulted in significant symptom reduction and improved patient outcomes. These results highlight the importance of a multidisciplinary approach to the treatment of IBS.

Future research. The results of the study call for further in-depth research to fully understand the pathogenesis of IBS in adolescents and to develop effective treatment strategies for them. Understanding the immune, metabolic, and psychoemotional mechanisms of IBS may help develop new directions and therapeutic approaches for its treatment.

The results of this study suggest that further research and integrated approaches are needed to better understand the clinical features of IBS in adolescents, its comorbidity, and treatment.



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Collaboration between specialists in pediatrics, gastroenterology, allergology, psychiatry, and endocrinology is essential to address this issue.

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