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THE CLINICAL COURSE OF GASTRITIS AND ITS MODERN SOLUTIONS AMONG PRIMARY SCHOOL-AGED STUDENTS

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Abstract
This scientific article describes the clinical course, pathogenesis, risk factors, and modern approaches to diagnosis and treatment of gastritis in primary school children. The study was conducted among children aged 7–11 years and examined the role of diet, stress, infectious factors, and H.pylori bacteria in the development of gastritis. Clinical signs, laboratory and instrumental diagnostics were analyzed. The effectiveness of modern treatment methods, including eradication therapy, diet therapy, and psychological correction, was evaluated. The results of the study showed that complex therapy is highly effective in children with gastritis.

Keywords: Gastritis, children's gastroenterology, clinical course, H.pylori, diagnosis, treatment, prevention, junior school age.

Introduction

Gastritis is a disease characterized by inflammation of the gastric mucosa and is one of the leading gastroenterological pathologies in children. According to the World Health Organization (WHO), 30–45% of the world's children have symptoms of various forms of gastritis, and 20–30% have morphologically confirmed gastritis. Children, especially at younger school age (7–11 years), are a group prone to gastritis due to the ongoing morphofunctional development of the digestive system and immune system[1,4].

Major studies conducted worldwide on the etiopathogenesis of gastritis, including the work of B. Marshall and J. Warren (Nobel Prize, 2005), have proven the main role of the H.pylori bacterium in the development of gastritis. It is noted that

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H.pylori in children, like in adults, causes inflammation of the gastric mucosa, impaired acidity, dystrophic changes in epithelial cells, erosion, and obvious morphological changes. Scientists such as Atherton, Malfertheiner, Suerbaum, Blaser have emphasized that the mechanism of transmission of H.pylori in children is mainly associated with infection from the family pool, sanitary and hygienic factors, and food culture[5].

Global studies show that H.pylori infection among children varies by region: in the Middle East and Central Asia — 50–70%, in South Asia — 60–80%, in Africa — more than 70%, and in Europe and the USA — 20–30%.

D. Grahamand M.Parsonnet, it was noted that gastritis in children infected with H.pylori, if not diagnosed in a timely manner, can lead to adult diseases - erosive gastritis, duodenitis, and even gastric ulcers[2].

In addition to infectious factors, a number of psychogenic and functional factors also play an important role in the development of gastritis in children. School attendance, academic pressure, emotional stress, not eating according to time, consumption of fast food, carbonated drinks, energy or sugary drinks, and an abundance of various snacks have a negative effect on children's stomach function [6].

W. Chey, R. Kliegman (Nelson Pediatrics), Johns Hopkins Pediatrics Group studies have shown that gastritis in children is often masked by functional dyspepsia, that it is difficult to accurately describe symptoms in children, and therefore diagnosis is often delayed. In children aged 7–11 years, the inflammatory process develops rapidly, which leads to the frequent occurrence of erosive gastritis and reflux gastritis [9].

According to the World Gastroenterology Organization (WGO), gastritis in children is closely linked to the following risk factors: unbalanced diet and eating disorders, stress and psycho-emotional stress, inappropriate use of antibiotics, the presence of H.pylori infection in the family, and poor water and food sanitation.

The clinical course of gastritis in children differs from that in adults. According to the studies of F.Magista, S.Koletzko, in children, symptoms such as epigastric pain, nausea, rapid satiety, reflux symptoms, vomiting, and decreased appetite

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often predominate. Also, gastritis in young children often has a subclinical or latent course and is confirmed by laboratory and instrumental studies [10].

Today, modern protocols used worldwide for the treatment of gastritis - Maastricht V/VI, NASPGHAN, ESPGHAN, WGO recommendations - include H.pylori eradication, diet therapy, complex treatment with probiotics, and stress management measures [3].

Thus, studying the clinical course, etiology, diagnosis, and modern approaches to the treatment of gastritis in primary school children is very important due to the widespread prevalence of this disease and the subsequent potential for serious complications [7,8].

The clinical presentation of gastritis in children of primary school age differs from that in adults; in acute or exacerbation cases, symptoms such as abdominal pain, nausea, loss of appetite, vomiting, and crushing discomfort predominate. In children, the disease often proceeds in a latent form or is masked by functional dyspepsia, which leads to its untimely detection.

Therefore, studying the clinical course, diagnostic methods and modern solutions of gastritis in this group of children is an urgent medical problem.

Purpose

The main goal of this study is to study in depth the clinical course of gastritis in children of primary school age, its etiological factors, stages of pathogenesis, modern diagnostic possibilities and the effectiveness of complex treatment methods.

Material and Methods

The study was conducted in 2024–2025 with the participation of 280 children studying in grades 1–4. The aim of this study was to study the clinical course, diagnostic capabilities, and treatment effectiveness of gastritis among children of primary school age (7–11 years old).

Clinical examination and history taking included dietary habits, stress factors, gastrointestinal complaints, and history of acute illnesses. The study was

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conducted in three stages: screening of children, clinical and instrumental diagnostics, and evaluation of treatment and its effectiveness.

Research participants j280 children aged 7-11 were involved in the study. They were divided into the following groups:

Main group- children with clinical and laboratory diagnosis of gastritis (112 children).

Control group- conditionally healthy children without gastrointestinal complaints (168 people).

Selection criteria: Be 7–11 years old; the presence of symptoms such as epigastric pain, dyspeptic disorders, vomiting, loss of appetite; consent to undergo laboratory and instrumental diagnostics; written consent of parents (informed consent).

Exclusion criteria: acute infectious diseases; severe organic diseases of the gastrointestinal tract; diabetes, kidney or heart failure; eating disorders such as anorexia, bulimia; those who have taken antibiotics or PPIs (proton pump inhibitors) in the last 30 days.
Complaints were collected from all children, and anamnesis was collected, including: diet and nutrition, stress factors and school workload, family history of H.pylori infection, and hereditary predisposition to gastrointestinal diseases.
General examination, abdominal palpation, percussion and auscultation were conducted by the doctor.

See laboratory methods Laboratory tests were performed at home: detection of H.pylori antigen (in stool). General blood test: hemoglobin, leukocytes, ESR. Biochemical tests: liver enzymes, amylase, lipase, CRP. Coprogram: detection of digestive disorders and signs of inflammation.

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Fibrogastroduodenoscopy (FGDS) from instrumental methods The condition of the gastric mucosa was assessed: hyperemia, infiltration, erosions, and signs of reflux were detected. If necessary, a biopsy was taken and the morphology was analyzed (based on the Sydney classification).

The condition of the stomach and perirenal organs was assessed, and functional changes associated with gastritis were looked for **USD (abdominal)**.

In the treatment algorithm The primary group was treated according to modern protocols depending on the diagnosis: in H.pylori positive cases, eradication based on the Maastricht VI protocol: PPIs + amoxicillin + clarithromycin or metronidazole; symptomatic treatment: antacids, gastroprotectors (rebamipide, sucralfate), probiotics; diet therapy (table options No.1, No.5); recommendations for psychological correction and stress reduction were given. To assess the effectiveness of therapy, the following were assessed before and after 4 weeks of treatment: symptom dynamics (VAS scale), laboratory parameters, re-testing for H.pylori, and assessment of children's quality of life (PedsQL scale).

In statistical analysis m Data were processed in SPSS 26.0 and Statistica 10.0. Statistical methods used: χ^2 test (for comparison of dry compounds), t-test (for assessing the difference in mean values), ANOVA (multiple group analysis), correlation analysis (Pearson). A value of $P<0.05$ was considered statistically significant.

Analysis and Results

A total of 280 primary school-age children were screened as part of the study. As a result of the tests, gastritis was diagnosed in 112 children (40%) based on clinical, laboratory, and instrumental signs. The remaining 168 children (60%) were assessed as conditionally healthy.

Frequency and clinical forms of gastritis.

The following morphological and clinical forms of the disease were noted in 112 children with gastritis:

Catarrhal gastritis - 25% (28 people). It was manifested by hyperemia of the mucous membrane, infiltration, and superficial changes in the epithelium.

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Erosive gastritis — 10% (11 patients). It was accompanied by erosions, spotting, and severe dyspeptic symptoms.

Reflux gastritis — 5% (6 patients). It was characterized by pyloric valve dysfunction, heartburn, and the presence of symptoms of esophagogastric reflux.

Table 1. Gastritis forms and frequency of occurrence (n=112)

Gastritis form	Number of children	Percentage (%)
Catarrhal gastritis	28	25
Erosive gastritis	11	10
Reflux gastritis	6	5
Total	112	40*

*Gastritis symptoms were found in 112 out of 280 people (40%).

In general, the predominance of the catarrhal form in children (25%) indicates the functional and rapidly developing nature of the inflammatory process.

2. Level of H.pylori infection

Of the 112 children with gastritis, 58 (51.8%) tested positive for H.pylori antigen. This indicator confirms that H.pylori infection is one of the main etiological factors of gastritis in children. The prevalence rate exceeding 50% is consistent with the data of world studies (Marshall, Koletzko, Malfertheiner).

H.pylori positive children had more symptoms, in particular: epigastric pain — 88%, vomiting — 45%, reflux symptoms — 39%.

Table 2. H.pylori infection and therapy effectiveness (n=112)

Group/Index	Number of children	Percentage (%)
H.pylori positive children	58	51.8
Group 1 (standard therapy)		
Reduction of symptoms	27	48
Eradication of H.pylori	0	0
Group 2 (eradication + complex therapy)		
Complete disappearance of symptoms	44	78
Eradication of H.pylori	48	86

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The most common clinical symptoms in 112 children with gastritis were as follows: Epigastric pain - 82% (92 people). More often after meals or in the morning, in the form of heartburn, cramping. Nausea - 57% (64 people). Mainly worse in the morning, sometimes after meals. Decreased appetite - 49% (55 people). More often observed in cases associated with functional dyspepsia and H.pylori infection. Acid vomiting - 37% (41 people). Predominant in cases of reflux gastritis and pyloric dysfunction. Headache - 22% (25 people).

This condition may be a reflex reaction involving the central nervous system or may be associated with intoxication.

The high incidence of symptoms indicates a very active course of gastritis in children.

The study included 112 children with gastritis divided into two groups: Group 1 — 56 children (standard therapy). They were treated only with antacids, PPIs and gastroprotectors. Reduction of symptoms — 48% (27 people). Despite the obvious positive dynamics, the symptoms did not completely disappear. Eradication of H.pylori — 0%. It was confirmed that standard therapy did not affect the infection. This result indicates the ineffectiveness of therapy without an antibacterial component in children with H.pylori.

Group 2 — 56 children (eradication + complex therapy). According to the Maastricht VI recommendation: IPP + amoxicillin + clarithromycin (or metronidazole). + probiotic + diet therapy.

Results of therapy: Complete disappearance of symptoms - 78% (44 patients). Almost complete elimination of epigastric pain, vomiting, reflux and dyspepsia symptoms was noted. Elimination of H.pylori - 86% (48 patients). Eradication was highly effective. Signs of mucosal recovery (in EGD) - 63%. Reduction of inflammation, healing of erosions were observed.

Discussion

The results of the study indicate that gastritis has a high incidence among primary school children, and its main etiological factors are H.pylori infection, dietary disorders, stress, and psychoemotional factors. The detection of gastritis

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symptoms in 112 out of 280 children (40%) in the study indicates that the disease is widespread in children of school age.

The tables and clinical data show that catarrhal gastritis (25%) is the most common in children. This form usually indicates a mild and functional course of inflammation, but in the case of long-term untreated disease, there is a high probability of its transition to an erosive form. The relatively low incidence of erosive gastritis (10%) and reflux gastritis (5%) indicates that the disease in children is more likely to be functional and subclinical than previously thought[9,10].

Clinical symptoms were manifested by dyspeptic syndromes such as epigastric pain (82%), nausea (57%), decreased appetite (49%), and acid vomiting (37%). Headache (22%) was noted as a reflex reaction or a result of intoxication associated with gastritis. This symptom profile is consistent with world studies (Koletzko, Graham, Malfertheiner) and clearly shows the clinical course of gastritis in children. Of the 112 children with gastritis, 58 (51.8%) had a positive H.pylori antigen test. This indicator is high and confirms bacterial infection as the main cause of gastritis in children[8].

H.pylori infection was found to be associated with more symptoms, inflammatory changes, and erosive changes in blood, coprogram, and FGDS results. This result is fully consistent with the conclusions noted in global clinical studies by Marshall & Warren, Atherton, and Malfertheiner.

Nowadays, early detection of H.pylori infection in children and effective eradication therapy are of great importance in stopping the progression of the disease and preventing complications. In the study, children were divided into two groups:

1. Standard therapy (antacid + PPI + gastroprotectors) - although the symptom reduction was 48%, the eradication of H.pylori was 0%. This indicates that standard therapy is ineffective against bacterial infection.
2. Eradication + complex therapy (based on Maastricht VI) - complete disappearance of symptoms was 78%, H.pylori eradication was 86%, proving the high effectiveness of the modern complex treatment protocol. This result is fully consistent with the recommendations of WGO and ESPGHAN/NASPGHAN.

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Also, observation of reduction of inflammation and healing of erosions in FGDS in children in complex therapy confirms the clinical and morphological effectiveness of treatment.

The results of the research indicate the need to strengthen the prevention of gastritis in children, improve diet therapy and eating habits, increase the sanitary-hygiene culture, and establish educational activities among parents and educators. In addition, early detection of H.pylori infection and effective eradication therapy are important in preventing the progression of gastritis to erosive and reflux forms.

Conclusion

Gastritis is common in young school-age children, accounting for 40% of the total number of children. H.pylori infection has been confirmed as the main etiological factor of gastritis. Eradication therapy has shown high efficacy in eliminating symptoms and eliminating H.pylori. A comprehensive approach to the treatment of gastritis (diet, psychological correction, medications) gives high results.

Eating right at school and reducing stress is the main focus of prevention.

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