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EPIDEMIOLOGY AND MODERN DIAGNOSTICS OF INTESTINAL YERSINIOSIS

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Abstract: Intestinal yersiniosis is a widespread acute infectious disease across the globe. Annually, around 3,000–5,000 cases of intestinal infection are registered in our country, with the incidence among preschool-aged children being 3–4 times higher than in adults. A sharp increase in cases occurs during the cold seasons, most often in spring and autumn. In many regions of our country, cases of yersiniosis are not registered due to the complexity of diagnosis, but in some areas, an uneven distribution of the infection is observed.

Keywords: intestinal infections, intestinal yersiniosis.

Introduction

Intestinal yersiniosis is a widely prevalent infection worldwide. The high incidence rate (the detection rate of intestinal yersiniosis among other intestinal infections is approximately 26.6%, occurring in 34 out of 120 gastroenterological patients) is associated with the development of several severe complications [1,2]. As a key component of public health protection, it is essential to pay attention to the transmission routes and primary prevention methods of the infection. The causative agent of intestinal yersiniosis is the bacterium *Yersinia enterocolitica* [3,4]. A distinctive feature of these bacteria is their extraordinary resistance to low temperatures, which is why they are often referred to as "refrigerator disease."

The clinical manifestations of intestinal yersiniosis are highly diverse and can easily be mistaken for a group of gastroenterological diseases, including enterocolitis, enteritis, mesadenitis, and terminal ileitis [5,6]. Less common forms include tonsillitis, sepsis, and secondary inflammation. The most frequent clinical symptom is inflammation of the small and large intestines. Symptoms include frequent diarrhea lasting an average of two weeks and subfebrile fever (sometimes reaching 37–38°C) [7,8]. Another characteristic symptom is lymph node enlargement.

The leading symptom of "refrigerator disease" is cramping abdominal pain localized in the lower right abdomen, often leading specialists to suspect appendicitis. However, these pains are actually associated with terminal ileitis, which has a tendency to persist in the lymph nodes. The typical tonsillitis of yersiniosis also presents with fever, swollen lymph nodes, and sometimes diarrhea. This rare form of

yersiniosis can occasionally be fatal. The icteric form of the disease results from complications of enteritis, characterized by jaundice of the skin and mucous membranes, pain in the right epigastric region, and skin itching.

The septic form develops when the infection spreads systemically, meaning microorganisms multiply in the bloodstream. It is more common in patients with weakened immune systems and chronic illnesses. Frequently, the septic form of yersiniosis is accompanied by arthritis, which manifests as joint pain, swelling, and redness in the knee and ankle joints. Arthritis progresses in waves, with inflammation disappearing in some joints after two weeks while new joints become affected. It usually resolves within 1–3 months. Myocarditis is another complication of the septic form, characterized by arrhythmias and tachycardia. The mortality rate of the generalized form of intestinal yersiniosis reaches 30–60%.

The secondary focal form is a rare complication of other forms of the disease. In this form, the primary disease (enteritis) and secondary manifestations (damage to individual organs) are separated by periods of well-being. Secondary manifestations often include arthritis, myocarditis, autoimmune thyroiditis, and less commonly, meningitis.

The diagnosis of intestinal yersiniosis is confirmed by identifying the pathogen in the patient's stool and urine. In disseminated forms of the disease, *Yersinia* can be detected using PCR analysis of cerebrospinal fluid, blood, bile, and purulent abscesses.

Materials and Methods

We analyzed the examination, diagnosis, and treatment data of 120 children aged 6 months to 14 years with acute diarrheal disease over the period of 2021–2023, who constituted the main research group. All controlled children underwent an extensive dispensary examination, including clinical laboratory, biochemical, virological, and immunological studies. Special attention was paid to their complaints, past and concomitant diseases, causes and duration of illness, the effectiveness of modern diagnostic methods, and early treatment measures.

Results and Discussion

The study retrospectively analyzed 250 children with acute diarrhea and prospectively examined 120 children, all of whom comprised the main research group. Among them, 78 children (65%) lived in rural areas, while 42 children (35%) were from urban areas.

An etiological analysis of 120 patients with intestinal infections revealed that 34 had intestinal yersiniosis, 2 had salmonellosis, 2 had shigellosis, and 2 had rotavirus infection. The cause of acute diarrhea remained unidentified in the rest of the patients.

The 120 children under study were divided into three subgroups based on age:

- The first subgroup consisted of 91 children (75.8%) aged 6 months to 3 years,
- The second subgroup included 24 children (20%) aged 4 to 11 years,

• The third subgroup included 5 children (4.2%) aged 12 to 14 years.

Educational materials were provided to controlled patients, considering their age and gender. Among the studied children, 44% were boys and 66% were girls. It is noteworthy that across all age groups, the number of girls exceeded that of boys.

Explaining this pattern is quite challenging; the reason for this may be related to biological sex characteristics of children's bodies, which remain unclear. However, more than half of the examined children affected by intestinal infection (75.8%) were aged 6 months to 3 years. This can be explained by anatomical, physiological, pathological, and local as well as general characteristics of the body that are specific to children infected with yersiniosis.

Conclusions

When studying the etiology of the disease in 120 patients with intestinal infections, intestinal yersiniosis was detected in 34 cases, salmonellosis in 2, shigellosis in 2, and rotavirus infection in 2. The cause of acute diarrhea remained unknown in the rest of the cases. The localized form of the disease was observed in 62.5% of patients, the generalized type in 39 (32.5%), and the secondary focal type in 6 (5%). The clinical course of yersiniosis is predominantly characterized by a gastrointestinal form of the disease.

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