MODERN TREATMENT OF INTESTINAL HELMINTOSES IN CHILDREN

Zaripova Saragul Orifjonovna

✓ *PhD, Assistant, Department of Therapeutic Sciences, Institute of Medicine and Bioengineering, Zarmed University, Bukhara c., Uzbekistan.*

✓ *zaripovasaragul.1981@gmail.com*

✓ ***Abstract***

In this article, we have evaluated the diagnostic methods of helminthiasis with an extensive review of literature, electronic databases and books. The search covered articles published up to 2022 and some textbooks.

It was concluded that the combination of traditional microscopy with the stool concentration method should still be performed in a routine medical laboratory due to its economic and high sensitivity and immunologically based analysis and molecular methods, which are recommended to be used as additional tests to the traditional technique.

Key words: *helminthiasis, diagnostics, methods, metronidazole*

Relevance of the topic

Unfortunately, the vigilance of health workers regarding parasitic diseases among the population is currently extremely low, and the prevention of helminthiasis depends on the treatment of identified infected patients [1,2]. At the same time, many researchers emphasize the connection between the prevalence of parasitosis in the children's population and the development of functional pathology of the digestive organs against the background of dysregulation and the risk of developing chronic diseases even if the child is normal.

Intestinal helminthiasis is a worldwide intestinal parasite and is the most common pathogenic protozoan infection in the world. Children, travelers, and immunocompromised patients are at high risk of infection, especially in areas with limited water treatment and poor sanitation. Because causative cysts are transmitted through contaminated food or water [4]. In resource-limited settings,

the estimated prevalence of giardiasis reaches 20-40% and is higher in children under 5 years of age [1]. A study of childhood diarrhea in Spain found prevalence in 10% of travelers [3]. In 2004, giardiasis was included in the list of diseases of the World Health Organization [2].

In children, most cases are mild or almost symptomatic; however, clinical manifestations may include acute or chronic diarrhea, abdominal distension, and intestinal malabsorption. This can lead to anemia and contribute to stunting and malnutrition in the long term [4,5]. Some studies suggest that giardia can cause lactose intolerance or postinfectious irritable bowel syndrome [6]. There is considerable evidence linking Giardia with long-term consequences ranging from subclinical or chronic malnutrition to cognitive delay, vitamin and iron deficiency, and chronic fatigue [6,7, 8, 9, 10]. Along with the potential for transmission, the long-term consequences of giardiasis emphasize the need to rule out infection in children from areas with limited water treatment and poor sanitation, even in asymptomatic cases.

According to most guidelines, metronidazole is the first step in the treatment of giardiasis in children. 15 mg/kg per day every 8 hours for 5-7 days [11]. Despite evidence that single-dose tinidazole is the best treatment for giardiasis in symptomatic and asymptomatic patients [12], the lack of pediatric formulations of tinidazole has made this drug second-line for children. Although treatment is generally effective and well-discussed, confirmation of eradication is generally recommended, and persistent infection should be suspected if symptoms recur. The rate of treatment failure with nitroimidazoles ranges from 5.8% to 22% in the adult population [6]. Some series including children and adults have reported similar treatment failures [7]. Unfortunately, series describing only pediatric populations are few, and clinical trials comparing the efficacy of different drug regimens are insufficient [13].

The reasons for first-line treatment failure are unclear. Re-infection may underlie some cases and the presence of certain mucosal immunosuppression has been suggested as an etiological explanation [8]. However, the most widely

accepted hypothesis suggests that problems caused by mucosal damage and/or drug malabsorption may lead to treatment failure [9]. Retreatment with metronidazole at a high dose (45 mg/kg/day every 8 hours for 10 days) is recommended for amoebiasis, despite limited data [10]. Most authors also consider nitazoxanide, quinacrine, or albendazole as alternative regimens in cases of treatment failure [13,15,17].

Materials and methods.

Inclusion criteria: age from 3 to 15 years, confirmation of giardiasis by the results of coprological examination. Absence of allergic reactions to nitroimidazole drugs in the anamnesis. All patients were examined according to a single scheme, which included clinical and laboratory examinations, an interview and a patient examination complex. Clinical manifestations of the disease are evaluated before treatment, on the 5th day of therapy and immediately after the end of the course of treatment. Determination of clinical and biochemical blood parameters before the start of treatment and immediately after the end of treatment. The diagnosis was confirmed on the basis of clinical and anamnestic data and laboratory data (faecal coproscopy).

Results and discussion.

A comparative analysis of clinical and laboratory indicators was conducted in patients with giardiasis before conventional treatment.

Analyzing the clinical symptomatology of the studied patients, we found disorders of the general condition in the form of asthenovegetative syndrome (in 76% and 70% of cases); gastrointestinal tract injury syndrome (64% and 54%); toxic-allergic syndrome (33% and 38%) - in the main and control groups, respectively.

After taking Metronidazole for 15 days, the general condition and condition of all patients improved. In the control group, after taking "Albendazole" for 7 days, the dynamics of symptoms was insignificant. In the group of patients who received metronidazole, the manifestation of asthenovegetative syndrome was less pronounced than in the control group. In patients in the main group, the incidence

of weakness and headache was twice as low as in the control group. In the main group, the dynamics of changes in indicators of toxic-allergic syndrome were more dynamic, it was noted that skin itching was completely eliminated.

Since the treatment efficiency in the control group did not exceed 38%, the patients were treated repeatedly. In addition, 21 days after treatment, the effectiveness of anti-giardia therapy was evaluated based on the results of repeated examination of feces for giardia cysts. Only 2 (4%) in the main group and 8 (16%) in the control group had recurrent discharge of giardia cysts. After 3 months of treatment, the effectiveness of anti-giardia therapy was further evaluated according to the results of repeated stool examination for giardia cysts. Fecal coprological examination was positive in 8% of cases in the main group and in 16% of cases in the main group and the control group. Protozoan sanitation rates were 92% in the primary group versus 84% in the control group, promising response rates within 3 months post-treatment (positive coproscopy - 2% and 16%, respectively).) shows a high effect of metronidazole combined with albendazole.

Summary

The results of this pediatric series show a high prevalence of asymptomatic cases among children infected with Giardia. This suggests that screening for giardia is mandatory in patients from high-prevalence areas to prevent long-term consequences such as malnutrition and delayed cognitive development. Treatment with metronidazole is well-discussed, but treatment failure rates have reached 20%.

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