ETIOTROPIC THERAPY OF ACUTE DIARRHEAL INFECTIONS IN CHILDREN

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https://doi.org/10.5281/zenodo.18797166

Abstract. *It has been revealed that antibacterial drugs have been widely used for the treatment of acute intestinal infection, the effectiveness of which has not been proven against the causative agent of acute intestinal infection (rifampicin, cephalosporins of the first and second generation, lincomycin, penicillin). Their unjustifiably widespread use forms the resistance of pathogens, which means that it reduces their effectiveness in the treatment of acute intestinal infections.*

Keywords*: antibacterial therapy, acute intestinal infections in children.*

Introduction. Acute intestinal infections (AII) continue to occupy a leading position among infectious diseases in both children and adults, ranking second only to influenza and acute respiratory infections. Over the past decade, the incidence rate has remained consistently high. This situation highlights the critical importance of early diagnosis and comprehensive assessment of diarrheal syndrome in the initial differential diagnosis of acute intestinal infections. During the summer season, the protection of public health and the prevention of acute intestinal infections become particularly urgent issues. Among all infectious and parasitic diseases, acute intestinal infections hold a prominent place. These diseases are registered across all age groups; however, the highest incidence is observed in children, who account for approximately 60% of the age structure. The highest morbidity rates are recorded among unorganized children under the age of two.

Aim of the Study. The aim of this research was to investigate the clinical characteristics of acute intestinal infections in young children under hot climate conditions and to determine their sensitivity to antibiotics. In order to examine the issues related to the selection of antibacterial therapy in the treatment of acute intestinal infections in children, a multicenter pharmacoepidemiological analysis was conducted. The findings revealed that antibiotics are widely and often irrationally used in the treatment of acute intestinal infections in pediatric patients. When selecting treatment tactics, clinicians primarily consider clinical symptoms and disease severity. However, the pattern of antibiotic selection indicates a low level of awareness among physicians regarding the pharmacokinetics, pharmacodynamics, and safety profiles of antibacterial agents. Consequently, continuous monitoring of the selection and prescription of medications, particularly antibiotics, in children is required. To assess current treatment practices for acute intestinal infections, a multicenter pharmacoepidemiological study was planned and conducted, with the primary objective of evaluating antibacterial treatment strategies in pediatric patients.

Results and Discussion. A total of 142 medical records of patients aged from 1 month to 15 years diagnosed with acute intestinal infections were analyzed. The majority of cases were children aged between 1 and 3 years (30.8%). Hospitalization of children older than 3 years was

observed twice less frequently (14.4%), whereas among children under 1 year of age this показатель reached 81.3%.

According to nosological forms, the following distribution was identified: invasive forms – 35.7%, secretory diarrhea – 20.2%, viral diarrhea – 18%, and bacterial intestinal infections caused by opportunistic microflora – 8.0%. Although the majority of patients (63.8%) were hospitalized within the first three days of illness, delayed hospitalization was also observed in 46.2% of cases.

The diagnosis of acute intestinal infection was primarily established based on clinical symptoms (51.1%), while laboratory-confirmed cases (through bacteriological, serological, and virological investigations) accounted for 48.8% of the total. Determination of antibiotic susceptibility in isolated pathogens was performed in only 25.5% of cases overall; however, in Tashkent city this показатель was significantly higher (76.7%). In contrast, serological diagnostics of acute intestinal infections in the central district medical associations of Tashkent region were found to be at a very low level.

It should be noted that moderate forms of the disease predominated in specialized centers (79.6%), whereas severe forms were more frequently observed in central district medical associations (8.6%). The proportion of severe cases in these district associations was 2.7–3.7 times higher than the average показатель. In Tashkent city, mild forms of the disease were registered twice as often as the average rate.

The overall rate of antibiotic use in the treatment of acute intestinal infections reached 88.5%. The analysis demonstrated that antibacterial therapy is widely used in adolescent and pediatric healthcare centers. In Tashkent city, however, the rate of antibiotic prescription was considerably lower, accounting for 59.5%. In nearly every fourth case (45.6%), combinations of two or even three antibacterial agents were prescribed.

Analysis of the structure of prescribed antibacterial drugs revealed that only 10.7% of medications had confirmed efficacy in clinical trials (third-generation cephalosporins – 3.8%, fluoroquinolones – 6.2%, macrolides – 0.7%). The majority of antibiotics used in clinical practice (89.3%) consisted of drugs either lacking proven clinical efficacy or associated with toxicity (first- and second-generation cephalosporins, penicillins, lincomycin, aminoglycosides, chloramphenicol).

Antibiotic selection was guided by antimicrobial susceptibility testing in only 25.5% of cases, while in 74.5% of cases such testing was not performed. The average duration of antibiotic therapy was 14.5 ± 5.0 days, ranging from 5 to 20 days. Most antibacterial agents were administered parenterally, predominantly via intramuscular injection (61.1%), while oral administration accounted for 38%, and topical use was observed in 0.1% of cases.

The results of the study demonstrated that in the treatment of acute intestinal infections in children, antibacterial agents are frequently prescribed even in cases of viral diarrhea. According to modern treatment concepts, recommendations for the management of acute intestinal infections are based on the severity of clinical symptoms and the type of diarrhea.

Watery diarrhea is typically non-invasive and develops primarily as a result of toxin-mediated mechanisms rather than direct tissue invasion. In such cases, antibacterial therapy is not indicated. Antibiotics should be prescribed only when clinically justified, particularly to reduce the duration of bacterial shedding and to prevent the spread of pathogens into the environment.

On the other hand, the main approach to the treatment of watery diarrhea is pathogenetic therapy, which primarily includes measures to maintain electrolyte balance. This is achieved through oral or parenteral rehydration therapy.

In cases of dysentery-like diarrhea or the presence of blood in the stool, the condition may result from damage (dysfunction) of the colonic epithelial layer caused by invasive microorganisms. In such situations, the use of antibiotics is considered necessary. For example, pathogens such as Shigella, *Escherichia coli* (E. coli), and Salmonella are capable of causing invasive diarrhea in children.

Table 1. Frequency of Antibacterial Therapy Use According to the Etiology of Acute Intestinal Infections.

Causative agent	Tashkent region	Tashkent city
Shigellosis	91.7 %	100 %
Escherichiosis	60 %	100 %
Salmonellosis	100 %	90 %
Rotavirus infection	93.8 %	87.5 %
Opportunistic pathogenic flora	100 %	100 %

Antibacterial therapy is used to reduce the severity of clinical manifestations, shorten the duration of illness, accelerate recovery, decrease the period of bacterial shedding, and prevent the spread of epidemic pathogens. The results of our study demonstrated that widely used antibiotics in the treatment of acute intestinal infections—such as rifampicin, first- and second-generation cephalosporins, lincomycin, and penicillins—lack evidence confirming their effectiveness against *Shigella*. Such irrational use contributes to the development of antimicrobial resistance and, consequently, reduces the overall effectiveness of intestinal infection treatment.

The main antibacterial agents recommended for the treatment of shigellosis include quinolones (nalidixic acid), fluoroquinolones (ciprofloxacin and norfloxacin), macrolides (azithromycin), and third-generation cephalosporins.

Conclusion. The results of the conducted pharmacoepidemiological study indicate that antibiotics are widely and unjustifiably used in the treatment of acute intestinal infections in children. In the process of selecting treatment strategies, insufficient attention is given to clinical symptoms and the severity of the disease. The choice of antibiotics reflects a high level of inadequate awareness regarding pharmacokinetics, pharmacodynamics, and the safety profiles of antibacterial agents. All of the above underscores the necessity of developing unified treatment standards for acute intestinal infections and implementing targeted educational programs for healthcare practitioners in clinical practice.

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