American Journal of Medicine and Medical Sciences 2025, 15(11): 4077-4080
DOI: 10.5923/j.ajmms.20251511.72

Clinical Features of Acute Intestinal Infections of Various Etiology

Tuychiev Laziz Nodirovich[1], A'zamov Otabek Fakhrutdinovich[1], Akhmedova Khalida Yuldashevna[2], Akhmedov Murod Rakhmonberdiyevich[1]

[1]Tashkent Medical University, Uzbekistan
[2]Republican Specialized Scientific and Practical Medical Centre of Epidemiology, Microbiology, Parasitology and Infectious Diseases Uzbekistan

Abstract The high incidence of illness among children, the risk of complications, and the need for differential diagnosis necessitate the study of the clinical features of various etiologies of acute intestinal infections (AII). **Objective:** to study clinical manifestations depending on the etiological factor. **Materials and methods:** The study was conducted on 103 children hospitalized with a confirmed diagnosis in 2023. Bacteriological culture and PCR analysis of feces were used to determine the etiology. **Results:** Viral and combined AII are characterized by a higher frequency of diarrhea and a lower frequency of vomiting compared to bacterial AII. Severe fever predicts the development of severe vomiting and diarrhea. **Conclusions:** Taking clinical features into account helps to avoid unnecessary medication, reduce hospitalization time, and adjust rehydration therapy in a timely manner.

Keywords Acute intestinal infections, Etiology, Viral, Bacterial, Clinical features

1. Introduction

The relevance of studying the clinical manifestations of acute intestinal infections (AII) depending on their etiology is due to the need to improve the accuracy of diagnosis, timely initiation of adequate treatment, and reduction of the risk of complications. Different pathogens (viruses, bacteria, parasites) cause symptoms and clinical syndromes characteristic of each type of infection, which allows them to be differentiated from each other and the optimal tactics for managing patients to be determined. Understanding the characteristics of clinical manifestations depending on the etiology contributes to a more accurate diagnosis in the early stages of the disease, which is especially important when laboratory diagnostic capabilities are limited or when quick decisions need to be made. For example, viral infections are more often accompanied by watery diarrhea without significant fever, while bacterial infections are accompanied by more severe symptoms, such as high fever, blood in the stool, or signs of intoxication. In addition, knowledge of characteristic symptoms helps to identify potentially dangerous forms of infection and take timely measures to prevent complications such as dehydration, toxic shock, or the development of chronic consequences [2,5,7,11].

Thus, studying the clinical manifestations of acute intestinal infections depending on their etiology is an important aspect of modern clinical practice, improving the effectiveness of diagnosis and therapy, as well as contributing to better outcomes for patients [1,4,9].

In most cases, it is impossible to determine the etiological nature of acute intestinal infections during the initial examination of a patient, so the diagnosis is carried out in two stages. Stage I is a preliminary diagnosis of acute intestinal infections (AII) . It is based on an assessment of clinical and epidemiological data and allows the etiology of the disease to be assumed before laboratory confirmation of the diagnosis is received. Stage II is the final diagnosis of acute intestinal infections, which becomes possible after receiving the results of laboratory tests (bacteriological, virological, serological, etc.). The outcome of acute diarrhea syndrome largely depends on the timeliness and adequacy of therapy. Before starting treatment, it is important to assess the child's general condition, the degree of dehydration, determine the extent of gastrointestinal tract damage (gastritis, gastroenteritis, enteritis, enterocolitis, colitis) and the nature of the diarrhea [3,8].

The high incidence among children, the risk of severe complications, and the need for timely differential diagnosis determine the relevance of studies aimed at identifying the characteristics of the clinical course of AII of various etiologies.

In this regard, the aim of our study was to investigate the clinical features of acute intestinal infections depending on the etiological factor [6,10].

Received: Sep. 4, 2025; Accepted: Oct. 2, 2025; Published: Nov. 19, 2025
Published online at http://journal.sapub.org/ajmms

2. Material and Methods of Research

The study involved 103 children hospitalized at the Republican Specialized Scientific and Practical Medical Centre of Epidemiology, Microbiology, Parasitology and Infectious Diseases (RSSPMCEMIPD) clinic in 2023 with a diagnosis of AII. Etiological diagnosis was performed using bacteriological and PCR methods. In 33 patients, the diagnosis was confirmed bacteriologically, and in 70 — molecular genetically. Three groups were identified: AII of viral etiology (n=45; 43,69%), bacterial (26; 25,24%), and combined bacterial-viral intestinal infections (32; 31,07%).

3. Results and Discussion

The clinical manifestations of bacterial, viral, and combined AII were typical, and most children had characteristic symptoms (fever + vomiting + diarrhea), but there were significant differences in some manifestations of the disease.

Table 1. Clinical characteristics of the examined children with acute intestinal infections of various etiologies (abs./%)

Indicators	bacterial acute intestinal infections **(n=37)**		viral acute intestinal infections **(n= 64)**		viral-bacterial acute intestinal infection **(n=49)**	
Temperature, ℃						
37,1-38,0	7	18,92±0,71	10	15,63±0,49*	9	18,37±0,61•
38,1-39,0	16	43,24±1,08	30	46,88±0,85	18	36,73±0,86*•
Above 39,1	6	16,22±0,66	14	21,88±0,58*	12	24,49±0,71*•
total	34	91,89±1,57	55	85,94±1,15*	43	87,76±1,33
Vomiting frequency						
up to 3 times	13	35,14±0,97	17	26,56±0,64*	17	34,69±0,84•
4-9 times	11	29,73±0,90	15	23,44±0,60*	15	30,61±0,79•
more than 10 times	4	10,81±0,54	8	12,50±0,44	6	12,24±0,50
	28	75,68±1,42	40	62,50±0,99*	38	77,55±1,25•
Diarrhea frequency						
up to 5 times	18	48,65±1,14	42	67,19±1,02*	24	48,98±1,00•
6-14 times	13	35,14±0,97	20	31,25±0,70*	20	40,82±0,91*•
more than 15 times	6	16,22±0,66	2	3,13±0,22*	5	10,20±0,46*•
Nature of the stool						
diarrhea without impurities	11	29,73±0,90	30	46,67±1,02*	35	71,43±1,20*•
diarrhea with mucus	26	70,27±1,37	20	31,1±0,83*	8	16,33±0,58*•
hemorrhagic diarrhea	-		14	22,2±0,70	6	12,24±0,50•
	37	100,0±1,64	64	100,0±1,24	49	100,0±1,42
Other clinical signs						
weakness	16	43,24±1,08	14	21,88±0,58*	23	46,94±0,98*•
abdominal pain	11	29,73±0,90	8	12,50±0,44*	17	34,69±0,84*•
anxiety	6	16,22±0,66	11	17,19±0,52*	15	30,61±0,79*•
nausea	31	83,78±1,50	17	26,56±0,64*	11	22,45±0,68*•
decreased appetite	16	43,24±1,08	38	59,38±0,96*	14	43,8±1,17•
headache	6	16,22±0,66	2	3,13±0,22*	1	3,1±0,42*
drowsiness	2	5,41±0,38	8	12,50±0,44*	11	22,45±0,68*•
dryness of skin	15	40,54±1,04	14	21,88±0,58*	15	31,2±0,99*•
liver enlargement	3	8,11±0,47	11	17,19±0,52*	9	18,37±0,61*
spleen enlargement	2	5,41±0,38	7	10,94±0,41*	6	12,24±0,50*
bloating of the abdomen	10	27,03±0,85	13	20,31±0,56*	11	22,45±0,68*
hyperemia of the throat	3	8,11±0,47	17	26,56±0,64*	11	22,45±0,68*•
catarrhal signs of AII (sneezing, sneezing, sore throat)	3	8,11±0,47	20	40,63±0,80*	15	30,61±0,79*

Note: * - P<0,05 values are significant relative to bacterial AII indicators;
• - P<0,05 significance relative to viral acute intestinal infection indicators.

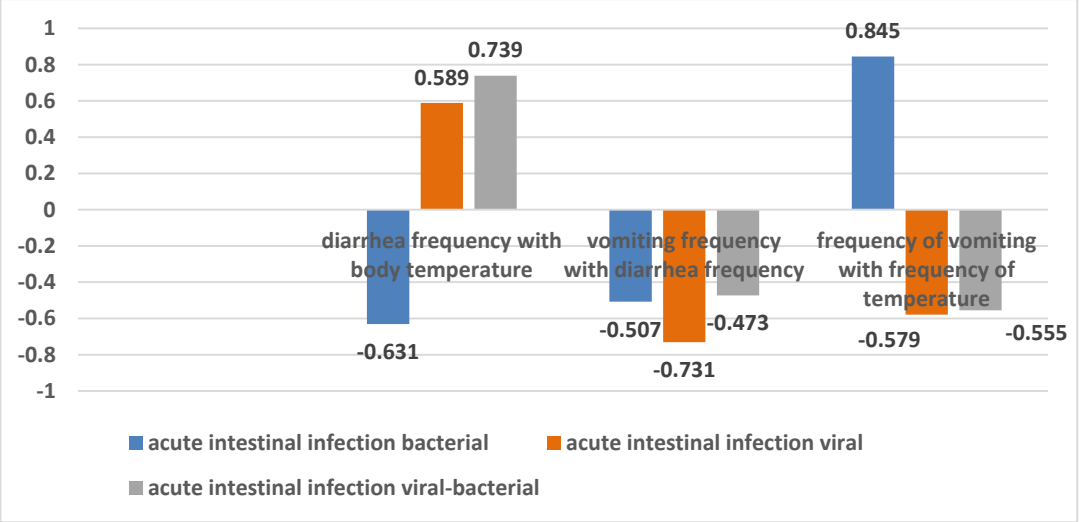

Figure 1. Correlation coefficients of certain characteristics in acute intestinal infections of various etiologies

For example, fever was more common in BAII (91,89%) than in VAII (85,94%) and combined AII (87,76%). At the same time, subfebrile temperature was observed mainly only in patients with BAII (16,22%), significantly less in VAII (3,13%) and VBAII CI (6,12%). Hyperthermia (above 39 ℃) was significantly more common in patients with combined viral-bacterial AII (24,49%), while in bacterial AII it was 16,22% and in viral AII it was 21,88%.

Diarrhea was observed in all patients regardless of the etiological factor (100%), pathological impurities (mucus) were more often detected in patients with bacterial gastroenteritis (70,3%), less often in viral gastroenteritis (31,1%) and in viral-bacterial gastroenteritis (16,3%). Diarrhea with streaks of blood was significantly more common in patients with V AII (22,2%) than in those with combined AII (12,2%); there were no such patients with bacterial AII.

Vomiting was observed in all cases of acute gastroenteritis at almost the same rate: in 75,7% of cases with bacterial gastroenteritis, in 62,5% of cases with viral gastroenteritis, and in 77,6% of cases with combined gastroenteritis. After 24 hours, a significant decrease in the frequency of vomiting was observed in patients with viral gastroenteritis, more than 6 times ($p<0,01$). On the second day, the severity of clinical symptoms decreased, but diarrhea against a background of elevated body temperature dominated in sick children.

Patients with viral-bacterial etiology of acute gastroenteritis experienced weakness in 46,9% of cases, in 43,2% of cases of bacterial acute gastroenteritis, and significantly less (21,9%) in cases of viral acute gastroenteritis. Abdominal pain also bothered more patients with combined AII (34.4%) and bacterial AII (29,7%) than patients with viral AII (12,5%). Nausea was characteristic of bacterial AII, observed in 83,8% of patients, while it was observed in 26,6% of patients with V AII and significantly less often in patients with combined AII (22,45%). Dry skin was also more common in patients with bacterial IBS (40,54%), less common in patients with viral IBS (31,2%), and significantly less common in patients with viral AII (21,9%). Abdominal distension was more troublesome for patients with BKI (27,03%) than for patients with VB AII (22,4%) and V AII (20,3%). Catarrhal symptoms (runny nose, sneezing, sore throat) were mainly observed only in viral (40.6%) and viral-bacterial AII (30,6%).

Our study showed significant clinical differences between VI and BI, as well as their combined form. Thus, VI and the combined form of VI+BI, unlike IB, are characterized by a higher frequency of diarrhea with a lower frequency of vomiting and a more pronounced febrile reaction, while VI is characterized by a higher frequency of vomiting with a lower severity of diarrhea and febrile rea tion.

The strength of the relationship between the signs was assessed using Spearman's rank correlation coefficient: a coefficient <0,3 was considered an indicator of a very weak relationship; 0,3-0,7 — moderate; and ≥0,7 — strong.

At the same time, for viral AII, a direct moderate correlation was established between the severity of the febrile reaction and the diarrhea syndrome (r=0,589), an inverse correlation between the severity of the febrile reaction and vomiting with a moderate level of significance (r=-0,579) and between the frequency of vomiting and diarrhea syndrome (r=-0,507). In cases of combined viral-bacterial acute intestinal infection, a direct correlation was established between the severity of the fever response and diarrhea syndrome with a high level of significance (r=0,739), and an inverse relationship between the severity of the febrile reaction and vomiting with a moderate level of significance (r=-0,555) and the frequency of vomiting and diarrhea syndrome (r=-0,473).

For bacterial acute intestinal infections, there is a direct strong correlation between the severity of the fever reaction and the frequency of vomiting (r=0,845), an inverse relationship between the severity of vomiting and diarrhea syndrome with a strong level of significance (r=-0,731), and a moderate relationship between the frequency of vomiting and the severity of the temperature reaction (r=-0,631). These correlations are statistically significant ($p<0,01$).

4. Conclusions

Thus, the data obtained have prognostic significance: the presence of a pronounced feverish reaction allows one to predict the development of severe vomiting, while in viral and viral-bacterial acute intestinal infections, the presence of a pronounced feverish reaction in a patient allows one to predict the development of severe diarrhea syndrome.

The clinical manifestations of acute intestinal infections (AII) vary significantly depending on their etiology, which allows characteristic symptoms to be used for differential diagnosis and determining patient management tactics.

Viral, bacterial, and combined AIDs have their own characteristics: for example, bacterial infections are more often accompanied by high fever, blood in the stool, and severe vomiting, while viral infections are characterized by less severe fever, a predominance of diarrhea, and less frequent blood in the stool.

Correlation analysis showed that the severity of the feverish reaction is a prognostic sign for the development of more severe symptoms, such as vomiting and diarrhea, especially in bacterial and viral-bacterial infections.

The data obtained emphasize the importance of comprehensive clinical analysis for timely diagnosis and selection of optimal therapy, and also allow predicting the clinical course of the disease based on the assessment of symptoms.

Overall, studying clinical manifestations depending on the etiology of acute gastroenteritis contributes to improving the effectiveness of diagnosis, reducing the risk of complications, and improving outcomes in patients of all age groups.

REFERENCES

[1] Babik R.K. Etiological characteristics of viral intestinal infections // Bulletin of South Ural State University. Series “Education, Health Care, Physical Culture.” - 2010. - Issue 24, No. 24. - Pp. 34-37.

[2] Babik R.K. Etiological characteristics of viral intestinal infections // Infectious Diseases. - 2012. - Vol. 10, Appendix 1. - M, 2012. - P. 32.

[3] Barnaul G.G., Onishchenko I.P., Saldon C.I., Tribunskiy C.I. et al. Retrospective assessment of the epidemiological situation for acute intestinal infections of bacterial and viral etiology in the pre-flood period. Altai State Medical University // Bulletin of Medical Sciences. - 2017. - No 2 (6). - P. 3-7.

[4] Briko N.I., Gorelov A.V. Rotavirus infection: a modern view of the problem. Medical Bulletin, 2014. - No. 14-15. - P. 663-664.

[5] Kovalev O.B., Molochkova O.V., Konyaev K.S. et al. Etiology and clinical manifestations of acute intestinal infections in children, according to data from the Moscow City Hospital for 2016-2018. // Children's Infections. - 2019. - No18 (2).

[6] Kovalev O.B., Novokshonov A.A., Rossina A.L., Chuelov S.B. et al. Characteristics of acute intestinal infections in children hospitalized in Moscow // Children's Infections. - 2017. - No. 16(3). - pp. 59-63. DOI:10.22627/2072-8107-2017-16-3-59-63.

[7] Navanetan W., Giannella R. A. Mechanisms of infectious diarrhea // Nat Clin Pract Gastroenterol Hepatol. 2008; 5 (11): 637-647.

[8] Pronko N. V., Leshko K. V. Clinical and epidemiological characteristics of viral diarrhea in hospital-acquired infections // Medical Panorama. - 2015. - No. 1. - P. 38-41.

[9] Pronko N.V. Current aspects of acute intestinal infections of viral etiology in children // Aktual'na â Infektologi â, ISSN 2312-413X (print), ISSN 2312-4148 (online) Grodno State Medical University, Grodno, Republic of Belarus. - 2018. - Vol. 6, No. 2. - P. 93-97.

[10] Tuychiev L. H, Eraliev U. E. Etiology of diarrheal syndrome in children // Medical Journal of Uzbekistan. - 2016. - No. 3. - P. 42.

[11] Usenko D.V., Ploskireva A.A., Gorelov A.V. Acute intestinal infections in children in pediatrician practice: diagnostic and therapeutic possibilities. Review of Literature // Issues of Modern Pediatrics. - 2014. - 13 (3). - P. 12-20.