Clinical characteristics, diagnosis, and management of intestinal infectious diseases.

Soatov J,Qo'yboqarov X,Nabiyeva F,
Nurillayev R,Ummatov G'.
Clinical Resident in Infectious Diseases, Faculty of General Medicine,
Samarkand State Medical University, Republic of Uzbekistan.

ANNOTATION

Intestinal infectious diseases constitute a broad group of disorders caused by bacterial, viral, and parasitic pathogens that primarily affect the gastrointestinal tract. These conditions are characterize by acute onset, digestive symptoms, and a high risk of dehydration and metabolic disturbances. This article reviews the clinical manifestations, diagnostic approaches, treatment principles, and preventive strategies of intestinal infectious diseases, emphasizing evidence-based clinical management and rational use of antimicrobial therapy.

Key words: *intestinal infectious diseases, clinical features, diagnosis, treatment, prevention.*

Introduction.

Intestinal infectious diseases remain an important clinical problem in modern medicine. They are frequently encountered in outpatient and inpatient practice and may affect individuals of all age groups. The diseases vary widely in severity, ranging from mild self-limiting diarrhea to severe forms accompanied by dehydration, electrolyte imbalance, and systemic complications. Timely recognition of symptoms and appropriate management are essential for reducing complications and improving patient outcomes.The causative agents of intestinal infections include bacteria, viruses, and parasites. Each group is associated with specific clinical features and treatment approaches.

Common bacterial agents include Salmonella spp., Shigella spp., Escherichia coli, and Campylobacter spp. Bacterial infections often present with fever, abdominal pain, and inflammatory diarrhea and may require antimicrobial therapy in moderate to severe

cases. Urinary tract infections (UTIs) affect over 150 million individuals annually, making them one of the most common infectious diseases worldwide. They pose a significant burden on healthcare systems, especially with the increasing prevalence of antimicrobial resistance and catheter-associated infections. Understanding their etiology, pathogenesis, and clinical management is essential for effective control.Viral intestinal infections are most commonly caused by rotaviruses, noroviruses, and adenoviruses. These infections are characterized by acute onset, vomiting, watery diarrhea, and rapid dehydration, particularly in children. Intestinal infectious diseases are among the most common causes of morbidity and mortality worldwide, particularly affecting children in low-income countries. Caused by a wide range of pathogens—including bacteria (Salmonella, Shigella), viruses (rotavirus, norovirus), and parasites (Giardia lamblia, Entamoeba histolytica)—these infections often result in acute diarrhea, dehydration, and nutritional deficiencies.

Parasitic infections such as giardiasis and amoebiasis are typically associated with prolonged or recurrent diarrhea, malabsorption, and weight loss. Targeted antiparasitic treatment is required for effective management. The overuse of broad-spectrum antibiotics, such as carbapenems, third-generation cephalosporins, and fluoroquinolones, is a major contributor to the development of antimicrobial resistance. While these drugs are essential for managing severe or life-threatening infections, their inappropriate or empirical use in mild or uncomplicated cases leads to multiple clinical and public health problems.Unnecessary broad-spectrum therapy promotes the selection of multidrug-resistant organisms (MDROs), disrupts the normal microbiota, and increases the risk of complications such as Clostridioides difficile infection. It also contributes to higher healthcare costs and prolonged hospital stays.

Clinical guidelines recommend narrowing antimicrobial coverage once pathogen identification and susceptibility results are available—a practice known as de-escalation. Antimicrobial stewardship programs emphasize the importance of targeted therapy, adherence to local antibiograms, and reassessment of initial therapy within 48–72 hours.Avoiding broad-spectrum antibiotics when they are not clinically indicated helps

preserve their effectiveness, reduces the risk of resistance, and ensures safer and more cost-effective patient care.The clinical presentation of intestinal infectious diseases depends on the type of pathogen, infectious dose, and host-related factors.

In severe cases, patients may develop dehydration, electrolyte disturbances, metabolic acidosis, and hypotension. Children, elderly individuals, and immunocompromised patients are at increased risk of severe complications.

Diagnosis is based on a combination of clinical evaluation and laboratory investigations.Assessment includes evaluation of hydration status, severity of diarrhea, presence of fever, and signs of systemic involvement.Laboratory diagnostics.Laboratory methods include stool microscopy, stool culture, rapid antigen detection tests, and molecular techniques such as polymerase chain reaction (PCR). Blood tests are used to assess electrolyte balance, renal function, and acid-base status in severe cases.

The management of intestinal infectious diseases focuses on supportive care and pathogen-specific therapy when indicated. The management of intestinal infectious diseases (IIDs) relies primarily on supportive care, aiming to prevent complications such as dehydration, electrolyte imbalance, and malnutrition. Pathogen-specific therapy, including antimicrobial treatment, is reserved for cases with confirmed or highly suspected bacterial or parasitic etiology. An evidence-based, patient-centered approach is critical to ensure effective and safe treatment. Comprehensive care also involves monitoring of hydration status, nutritional support, and, when appropriate, adjunctive therapies such as probiotics or zinc supplementation. Management strategies should be tailored to the severity of illness, age, comorbidities, and local antimicrobial resistance patterns.

Rehydration is the cornerstone of treatment. Oral rehydration solutions are recommended for mild to moderate dehydration, while intravenous fluids are required in severe cases. Rehydration represents the cornerstone of treatment for most IIDs, especially those characterized by acute diarrhea. The primary goal is to correct fluid and electrolyte losses and to prevent or reverse dehydration.

ORT is recommended as the first-line approach for mild to moderate dehydration, particularly in community and outpatient settings. Oral Rehydration Salts (ORS), as recommended by the WHO, are safe, effective, and cost-efficient. Solutions should contain appropriate concentrations of sodium, glucose, potassium, and bicarbonate or citrate to optimize intestinal absorption. Intravenous Fluid Replacement: In cases of severe dehydration, altered mental status, or persistent vomiting, intravenous (IV) fluids are necessary to rapidly restore circulating volume and correct electrolyte disturbances. Ringer's lactate or normal saline is typically used. Monitoring of serum electrolytes and urine output is essential during IV therapy. Special Populations: Children, elderly individuals, and patients with comorbidities require close monitoring due to higher risk of complications. Early rehydration reduces mortality, shortens illness duration, and improves clinical outcomes. Timely and adequate rehydration significantly improves patient prognosis and lays the foundation for subsequent therapeutic interventions.

Antimicrobial therapy should be prescribed only when a bacterial or parasitic infection is confirmed or strongly suspected. Unnecessary use of antibiotics should be avoided to prevent antimicrobial resistance. Probiotics may be used as adjunctive therapy to restore intestinal microflora. Antimicrobial therapy should be administered only when a bacterial or parasitic etiology is confirmed or highly suspected, based on clinical evaluation and laboratory diagnostics. The indiscriminate use of antibiotics must be strongly discouraged, as it significantly contributes to the development of antimicrobial resistance, alters the gut microbiota, and increases the risk of secondary infections such as Chloridoids difficile colitis. In cases of mild self-limiting viral gastroenteritis, antibiotic therapy is not indicated.

Empirical antimicrobial treatment, if initiated, should be reassessed within 48–72 hours and de-escalated or discontinued based on clinical response and microbiological results. Probiotics may be considered as adjunctive therapy, particularly in children or immunocompromised individuals, to help restore intestinal microflora, reduce the duration of diarrhea, and enhance mucosal recovery. However, their use should be evidence-based and strain-specific.

Early resumption of appropriate nutrition is recommended to support intestinal recovery and prevent malnutrition. Early and adequate nutritional support is a key component in the management of intestinal infections, particularly in pediatric and geriatric populations. Initiating feeding as soon as tolerated helps to maintain gut integrity, enhance immune function, and prevent malnutrition and micronutrient deficiencies. Breastfeeding should be continued in infants, even during episodes of diarrhea, as it provides essential nutrients and immunologic protection. In older children and adults, the use of easily digestible, nutrient-rich foods is encouraged. Oral rehydration solutions (ORS) with zinc supplementation can further improve outcomes, especially in low-resource settings. Prolonged fasting or unnecessary dietary restrictions are not recommended, as they may delay intestinal healing and worsen nutritional status. Individualized dietary plans may be needed in patients with underlying conditions or recurrent infections.Preventive measures include personal hygiene, safe drinking water, proper food handling, and sanitation. Vaccination against specific pathogens, such as rotavirus, plays a significant role in preventing severe disease in children.

Conclusion

Intestinal infectious diseases remain a significant clinical challenge due to their diverse etiology and potential complications. Effective management requires early diagnosis, appropriate rehydration, rational pharmacological therapy, and preventive measures. Improving clinical awareness and adherence to evidence-based treatment guidelines is essential for reducing disease-related morbidity.

References:

1. World Health Organization. Clinical management of acute diarrheal diseases.

2. DuPont H.L. Acute infectious diarrhea in clinical practice.

3. Guerrant R.L. et al. Management strategies for intestinal infections.

4. Thielman N.M., Guerrant R.L. Clinical practice: Acute infectious diarrhea. The Lancet.

5. Shane A.L., Mody R.K., Crump J.A., et al. 2017 Infectious Diseases Society of America clinical practice guidelines for the diagnosis and management of infectious diarrhea. Clinical Infectious Diseases.

6. Farthing M., Salam M.A., Lindberg G., et al. Acute diarrhea in adults and children: A global perspective. Journal of Clinical Gastroenterology.

7. Riddle M.S., DuPont H.L., Connor B.A. ACG clinical guideline: Diagnosis, treatment, and prevention of acute diarrheal infections. American Journal of Gastroenterology.

8. GBD Diarrhoeal Diseases Collaborators. Pathogen-specific clinical features and management of diarrheal diseases. The Lancet Gastroenterology & Hepatology.

9. Ramig R.F. Pathogenesis of intestinal and systemic rotavirus infection. Journal of Virology.

10. Kotloff K.L., Nataro J.P., Blackwelder W.C., et al. Burden and clinical manifestations of enteric infections. The Lancet.