



10.5281/
zenodo.7968256

Gastroenteritis: A mini-review

Hamed Hujeyrat¹

1. Saint-vincent-hospital, Pediatric department, Nazareth Israel.

Abstract

Gastroenteritis, an inflammation of the stomach and intestines, manifests primarily through symptoms such as diarrhea, vomiting, and abdominal cramping. Despite its commonality and typically self-limiting nature, it poses considerable health risks globally, particularly to children and immunocompromised individuals. Its etiology is broad, with infectious agents such as viruses, bacteria, and parasites being the principal culprits. Noroviruses and rotaviruses are notable viral causes, often instigating outbreaks in enclosed environments and causing severe disease in children, respectively. Bacterial agents include *Escherichia coli*, *Salmonella*, *Shigella*, and *Campylobacter*, generally causing gastroenteritis through food or water contamination. Although less common, parasites like *Giardia* and *Cryptosporidium* can also induce the condition.

The global distribution of gastroenteritis results in its impact on millions each year. Diarrheal diseases, largely attributed to gastroenteritis, are the second leading cause of death in children under five. The incidence and prevalence of gastroenteritis fluctuate based on geographic location and factors like sanitation, hygiene practices, and access to clean water.

Diagnosis primarily hinges on clinical presentation, supplemented by laboratory tests, such as stool culture and microscopy, for severe or protracted cases. Molecular techniques like PCR also play a crucial role in detecting specific viral pathogens.

Management of gastroenteritis is chiefly supportive, emphasizing rehydration and electrolyte balance restoration due to the high risk of dehydration from fluid loss. The use of antibiotics and antimotility agents is circumscribed to severe bacterial infections and symptomatic relief, respectively, while vaccination serves as an essential preventive measure against rotavirus in children. Despite its typical self-limiting progression, gastroenteritis continues to be a global health concern, underscoring the need for persistent improvements in hygiene practices, sanitation, safe food and water access, and vaccination programs. Continued research and understanding of this complex disease are imperative to refine its management and reduce its global impact.

Cite as: Hujeyrat H. Gastroenteritis: A mini-review. *Meya Med J.* 2023;2(1):5-7

Correspondence

Hujeyrat H, Saint-vincent-hospital,
Pediatric department, Nazareth
Israel.

e-mail

hujeyrat.hamed@gmail.com

Received: 18 January 2023

Revised: 28 February 2023

Accepted: 2 March 2023

Published: 30 April 2023

Keywords

- ⇒ Diarrhea
- ⇒ Gastroenteritis
- ⇒ Intestines
- ⇒ Stomach
- ⇒ Vomiting

ORCID ID of the author(s):

HH: 0009-0000-5161-3307

Introduction

Gastroenteritis is an inflammatory condition primarily affecting the stomach and the intestines. Characterized by symptoms such as diarrhea, vomiting, abdominal pain, and cramping, gastroenteritis is a common disease that affects people of all ages worldwide. Though generally a self-limiting disease, it can pose severe threats, especially to children and immunocompromised individuals, and requires a comprehensive understanding for effective prevention and treatment (1).

This essay presents an overview of gastroenteritis, including its etiology, epidemiology, diagnosis, and treatment.

Etiology

Gastroenteritis can be caused by a variety of factors, most commonly by infectious agents. These include viruses, bacteria, and parasites. Among viruses, noroviruses and rotaviruses are the leading causes of gastroenteritis. Norovirus is often responsible for outbreaks in enclosed environments such as cruise ships, nursing homes, and daycare centers. Rotavirus, on the other hand, is a major cause of severe gastroenteritis in children (2).

Bacterial gastroenteritis is caused by bacteria such as *Escherichia coli*, *Salmonella*, *Shigella*, and *Campylobacter*. These pathogens are typically contracted through contaminated food or water, a condition referred to as food poisoning. Parasitic gastroenteritis, though less common, can be caused by protozoans like *Giardia* and *Cryptosporidium*, often due to ingestion of contaminated water (1-4) (**Table 1**).

Table 1: Etiologic factor of the gastroenteritis

Etiologic Factor	Examples
Viral Infections	Rotavirus, Norovirus, Adenovirus
Bacterial Infections	Salmonella, Campylobacter, E. coli
Parasitic Infections	Giardia, Cryptosporidium
Foodborne Toxins	Staphylococcus aureus, Clostridium botulinum
Contaminated Water	Waterborne pathogens
Contaminated Food	Improperly cooked or stored food
Poor Hygiene Practices	Lack of handwashing, contaminated surfaces
Person-to-Person Spread	Fecal-oral transmission
Travel-Related Factors	Exposure to foreign pathogens during travel

Epidemiology

Gastroenteritis has a global distribution, affecting millions of individuals each year. According to the World Health Organization, diarrheal diseases (most of which are due to gastroenteritis) are the second leading cause of death in children under five, with approximately 525,000 deaths annually (5).

The incidence and prevalence of gastroenteritis vary geographically and depend on factors such as sanitation, hygiene practices, and access to clean water. In developed countries, viral gastroenteritis, particularly due to norovirus, is most common, while in developing regions, bacterial and parasitic gastroenteritis are more prevalent due to poor sanitation and contaminated water sources (6).

Diagnosis

The diagnosis of gastroenteritis is primarily based on clinical presentation. A thorough medical history, focusing on the onset, duration, frequency, and characteristics of symptoms such as diarrhea and vomiting, is crucial. Information about recent travel, food intake, contact with ill individuals, and underlying health conditions can provide valuable insights (7).

Laboratory tests, such as stool culture and microscopy, can help identify the causative agent, particularly in severe or prolonged cases. Rapid antigen tests and molecular techniques like polymerase chain reaction (PCR) are used for the detection of specific viral pathogens (8).

Treatment

Most cases of gastroenteritis are self-limiting, resolving within a few days without specific treatment. The mainstay of management is supportive care, focusing

on rehydration and electrolyte balance restoration, given the risk of dehydration from excessive fluid loss. Oral rehydration solutions are widely used, but intravenous fluids may be necessary in severe cases (9).

Antibiotics are generally reserved for severe or prolonged bacterial gastroenteritis confirmed by laboratory tests. Antiparasitic medications are used for parasitic infections. Antimotility agents can help alleviate symptoms but are used cautiously due to potential side effects. Vaccination against rotavirus is an important preventive measure in children (10).

Conclusions

Gastroenteritis, despite being a common and generally self-limiting condition, remains a significant health issue worldwide, particularly in children and vulnerable populations. It underscores the need for continued efforts in hygiene practices, sanitation, safe food and water provision, and vaccination programs.

Conflict of interest

The authors report no conflict of interest.

Funding source:

No funding was required.

Ethical approval:

No need for reviews.

Acknowledge:

No

Contributions

Research concept and design: **HH**

Data analysis and interpretation: **HH**

Collection and/or assembly of data: **HH**

Writing the article: **HH**

Critical revision of the article: **HH**

Final approval of the article: **HH**

References

1. Elliott EJ. Acute gastroenteritis in children. *BMJ*. 2007;334(7583):35-40.
2. Zhang H, Morrison S, Tang YW. Multiplex polymerase chain reaction tests for detection of pathogens associated with gastroenteritis. *Clin Lab Med*. 2015;35(2):461-86.
3. Cox E, Christenson JC. Rotavirus. *Pediatr Rev*. 2012;33(10):439-45.
4. Northrup RS, Flanigan TP. Gastroenteritis. *Pediatr Rev*. 1994;15(12):461-72.
5. Fajfr M, Neubauerová V, Fajfrová J. Virové gastroenteritidy [Viral gastroenteritis]. *Klin Mikrobiol Infekc Lek*. 2012;18(1):11-6.
6. Alverson B, Biondi E. It Is Time for a Gastroenteritis Guideline. *Hosp Pediatr*. 2020;10(7):625-7.
7. Oh HE, Chetty R. Eosinophilic gastroenteritis: a review. *J Gastroenterol*. 2008;43(10):741-50.
8. Arostegui D, Wallach T. The Cutting Edge of Gastroenteritis: Advances in Understanding of Enteric Infection. *J Pediatr Gastroenterol Nutr*. 2022;74(2):180-5.
9. Prisco A, Capalbo D, Guarino S, Miraglia Del Giudice E, Marzuillo P. How to interpret symptoms, signs and investigations of dehydration in children with gastroenteritis. *Arch Dis Child Educ Pract Ed*. 2021;106(2):114-9.
10. Gale AR, Wilson M. Diarrhea: Initial Evaluation and Treatment in the Emergency Department. *Emerg Med Clin North Am*. 2016;34(2):293-308.

Publisher's Note: Unico's Medicine remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.