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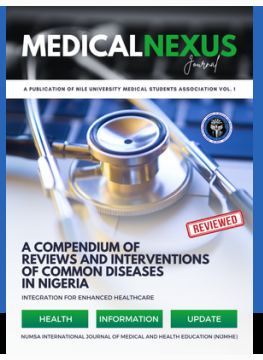

Diarrhoeal Disease: A Review

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Abstract

Diarrhoea is a common gastrointestinal disorder characterized by the passage of frequent loose or watery stools, with significant implications for global health. While often self-limiting, severe diarrhoea can result in life-threatening dehydration, malnutrition, and impaired growth, particularly in children under five, the elderly, and immunocompromised individuals. This review explores the definition, mechanisms, aetiology, pathophysiology, clinical presentation, diagnosis, and management of diarrhoeal disease. It highlights infectious and non-infectious causes, including viral, bacterial, and parasitic pathogens, as well as functional and systemic disorders. Management focuses on fluid and electrolyte replacement, nutritional support, and targeted therapies such as antibiotics, probiotics, and zinc supplementation. Preventive strategies, including water, sanitation, and hygiene (WASH) interventions, rotavirus and cholera vaccination, breastfeeding, and community education, are emphasized as critical tools to reduce incidence and mortality. Special considerations for vulnerable groups, such as children, pregnant women, and immunocompromised patients, are discussed. Despite advances in prevention and treatment, diarrhoea remains a leading cause of morbidity and mortality globally, underscoring the need for integrated health strategies to break the cycle of infection, malnutrition, and death.

Keywords: : *Gastrointestinal disorder, dehydration, malnutrition, rotavirus, oral rehydration therapy, zinc supplementation; WASH, vaccination,*

INTRODUCTION

Diarrhoea is a common gastrointestinal disorder characterized by the frequent passage of loose or watery stools, often accompanied by symptoms such as abdominal cramps, bloating, and general body weakness. While most cases of diarrhoea are mild and self-limiting, severe diarrhoea can lead to life-threatening dehydration, especially in vulnerable populations such as children under five, the elderly, and individuals with weakened immune systems (WHO, 2023).

Diarrhoea remains a significant public health challenge, particularly in low-resource settings where poor sanitation and limited access to clean drinking water contribute to high transmission rates. Globally, diarrhoea is a leading cause of mortality in young children, contributing not only to death but also to malnutrition and impaired growth. (Lamberti, 2012).

DEFINITION

Diarrhoea is medically defined as the passage of three or more loose or liquid stools per day, or more frequently than is normal for the individual. The severity and duration of diarrhoea vary widely, and it is generally classified into three categories (CDC, 2023)

- **Acute Diarrhoea**: Lasts less than 14 days and is usually caused by infections. It is the most common type and is often related to food poisoning or viral infections.
- **Persistent Diarrhoea**: Lasts more than 14 days but less than four weeks. Persistent diarrhoea may be caused commonly by bacterial infections or malabsorptive conditions.
- **Chronic Diarrhoea**: Persists for four weeks or longer and is often associated with underlying health issues such as irritable bowel syndrome (IBS), inflammatory bowel disease (IBD), or malabsorption syndromes.

TYPES/MECHANISMS

1. **Secretory Diarrhoea**: This occurs when there is an increase in the secretion of fluids and electrolytes into the intestines, overwhelming the body's ability to reabsorb them. This type of diarrhoea can occur with infections (e.g., cholera), certain medications, or tumours that secrete hormones (e.g., VIPomas). It is characterized by large volumes of watery stool that continue even when the patient is fasting (Farthing, 2004).
2. **Osmotic Diarrhoea**: Results from the ingestion of poorly absorbed solutes, such as lactose in lactose-intolerant individuals or excessive intake of artificial sweeteners like sorbitol. The non-absorbable substances draw water into the intestinal lumen, leading to diarrhoea. This type of diarrhoea typically stops with fasting. (Guerrant, 2001).
3. **Exudative Diarrhoea**: Caused by inflammation of the intestinal mucosa, leading to the secretion of mucus, blood, and pus into the stool. Common causes include infections (e.g., Shigella, Campylobacter), inflammatory bowel disease (IBD), and ischemic bowel disease. (Thapar & Sanderson, 2004.)
4. **Motility-Related Diarrhoea**: This type of diarrhoea is caused by increased gut motility, resulting in insufficient time for the absorption of water and nutrients, causing a reduced transit time. Conditions such as irritable bowel syndrome (IBS), diabetes, and post-surgical complications can lead to motility-related diarrhoea (CDC, 2023).

AETIOLOGY

The causes of diarrhoea can be broadly divided into infectious and non-infectious causes:

- **Infectious Causes:**
  - **Viral:** Rotavirus is the leading cause of diarrhoea in children, while Norovirus is a common cause in adults, especially in outbreaks. Enteric adenovirus and astrovirus also contribute to viral diarrheal diseases. (Guerrant, 2001).
  - **Bacterial:** Escherichia coli, Salmonella, Shigella, Campylobacter, and Vibrio cholerae are major bacterial pathogens associated with diarrheal disease. Clostridium difficile is a notable cause of antibiotic-associated diarrhoea. (Thapar & Sanderson, 2004).
  - **Parasitic:** Giardia lamblia, Entamoeba histolytica, and Cryptosporidium spp. are common parasites associated with diarrheal illness, particularly in low-resource settings. (WHO, 2023).
- **Non-Infectious Causes:**
  - **Food Intolerances:** Lactose intolerance and gluten intolerance (celiac disease) are common causes of chronic diarrhoea.
  - **Medications:** Antibiotics, laxatives, and medications that affect gut motility can cause diarrhoea as a side effect (Farthing, 2004).
  - **Malabsorptive Conditions:** such as chronic pancreatitis, cystic fibrosis, and short bowel syndrome, impair nutrient absorption, leading to diarrhoea (Guerrant, 2001).
  - **Inflammatory Bowel Diseases:** Crohn's disease and ulcerative colitis cause chronic inflammation in the gastrointestinal tract, resulting in diarrhoea (Thapar & Sanderson, 2004).
  - **Endocrine Disorders:** Hyperthyroidism, Addison's disease, and diabetes can affect gastrointestinal function, leading to diarrhoea.
  - **Functional Disorders:** Irritable bowel syndrome (IBS) is a common functional gastrointestinal disorder that can lead to diarrhoea (Farthing, 2004).

PATHOPHYSIOLOGY

Diarrhoea results from a disruption in the normal balance between fluid absorption and secretion in the gastrointestinal (GI) tract. The body typically absorbs the majority of fluids that enter the Gl tract, but when this process is impaired, excess fluid is lost in the form of diarrhoea. The pathophysiology can be explained through four primary mechanisms:

- **Secretory Diarrhoea:** This occurs when the intestinal epithelial cells secrete excessive amounts of water and electrolytes into the gut lumen. Bacterial toxins, such as those produced by Vibrio cholerae and Escherichia coli, increase the production of cyclic adenosine monophosphate (CAMP), which leads to the secretion of chloride ions into the gut. Sodium and water follow the chloride, resulting in large volumes of watery diarrhoea (Farthing, 2004). Hormonal disorders, such as VIPomas, can also cause secretory diarrhoea.
- **Osmotic Diarrhoea:** In osmotic diarrhoea, poorly absorbed substances in the intestine draw water into the lumen to maintain osmotic balance. This can occur in conditions like lactose intolerance, where unabsorbed lactose leads to water retention in the

intestine, or with the ingestion of non-absorbable compounds. like sorbitol. Osmotic diarrhoea typically improves or stops with fasting (Lamberti, 2012).

- Exudative Diarrhoea: Exudative diarrhoea is associated with mucosal damage and inflammation. Infections or conditions like IBD lead to the loss of fluids, electrolytes, and blood in the stool. This type of diarrhoea is often accompanied by bloody stools and may be seen in severe bacterial infections like Shigella or in chronic inflammatory diseases like Crohn's disease. (Thapar & Sanderson, 2004).
- Motility-Related Diarrhoea: When intestinal motility is increased, there is insufficient time for water and nutrients to be absorbed. This can occur in conditions like irritable bowel syndrome (IBS) or after gastrointestinal surgeries that alter bowel anatomy. In diabetic patients, autonomic neuropathy may cause abnormal gut motility, leading to diarrhoea. (Guerrant, 2001).

CLINICAL PRESENTATION

The symptoms of diarrhoea vary depending on its type and underlying cause. Common clinical features include:

- **Frequent loose or watery stools:** This is the hallmark of diarrhoea, with stool consistency ranging from loose to entirely watery.
- **Abdominal cramps or pain**: Often generalized, the pain may be particularly pronounced in the lower abdomen, especially with mucoid stool.
- **Nausea and vomiting**: These symptoms are common in viral gastroenteritis and can exacerbate fluid loss, leading to dehydration. (Walker, Perin, & Katz, 2013)
- **Fever:** A frequent sign of infectious diarrhoea, especially in bacterial or parasitic infections.
- **Dehydration**: A serious complication, especially in children and the elderly, dehydration is marked by dry mucous membranes, reduced skin turgor, sunken eyes, lethargy, and decreased urine output (CDC, 2023)
- **Blood or mucus in the stool**: Common in exudative diarrhoea, particularly in dysentery caused by invasive organisms such as Shigella or Entamoeba histolytica, or in inflammatory bowel diseases, usually associated with tenesmus. (Thapar & Sanderson, 2004)
- **Weight loss and fatigue**: Chronic diarrhoea, particularly in malabsorptive conditions, can lead to significant weight loss, fatigue, and malnutrition. (Farthing, 2004)

DIAGNOSIS OF DIARRHOEA: FROM HISTORY TAKING TO INVESTIGATIONS

Diarrhoea can be acute, persistent, or chronic, and proper diagnosis involves a systematic approach that starts with a thorough history and proceeds to physical examination, targeted investigations, and treatment.

- **History Taking**
  - **Duration:**
    - Acute diarrhoea: Lasts less than 14 days (often infectious).
    - Persistent diarrhoea: Lasts 14-30 days.
    - Chronic diarrhoea: Lasts more than 30 days (suggests non-infectious causes like IBS, malabsorption, etc.).
  - **Stool Characteristics:**
    - Watery diarrhoea: Suggests secretory causes like infections (e.g., cholera) or osmotic diarrhoea (e.g., lactose intolerance).
    - Bloody diarrhoea (dysentery): May indicate invasive infections (e.g., Shigella, E. coli, Campylobacter) or inflammatory conditions (e.g., ulcerative colitis).
    - Fatty stools (steatorrhea): Points to malabsorption syndromes (e.g., celiac disease, chronic pancreatitis).
  - **Associated Symptoms:**
    - Fever: Suggests an infectious cause.
    - Vomiting: Common in viral gastroenteritis or food poisoning.
    - Abdominal pain: Severe pain might indicate inflammatory or ischemic causes.
    - Nausea and vomiting: These symptoms are common in viral gastroenteritis and can exacerbate fluid loss, leading to dehydration. (Walker, Perin, & Katz, 2013)
    - Fever: A frequent sign of infectious diarrhoea, especially in bacterial or parasitic infections.
    - Dehydration: A serious complication, especially in children and the elderly, dehydration is marked by dry mucous membranes, reduced skin turgor, sunken eyes, lethargy, and decreased urine output (CDC, 2023)
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        - Weight loss and fatigue: Chronic diarrhoea, particularly in malabsorptive conditions, can lead to significant weight loss, fatigue, and malnutrition. (Farthing, 2004)
- **Blood Tests:**
    - Full blood count: Elevated white cell count may indicate infection or inflammation.
    - Blood culture (in cases of suspected bacterial sepsis).
    - Electrolytes: Helps assess dehydration and metabolic disturbances like hypokalaemia.
    - C-reactive protein (CRP): Elevated in inflammatory causes (IBD, severe infections).
    - Serum albumin: To assess for malnutrition or chronic disease.
- **Imaging**:
    - Abdominal X-ray or CT scan
    - Ultrasound: Useful in suspected gallbladder or pancreatic disease.
    - Colonoscopy: Helps in diagnosing IBD, polyps, and malignancy.
    - Upper GI endoscopy with biopsy: If malabsorption syndromes are suspected (e.g., celiac disease).

KEY DIAGNOSTIC DIFFERENCES BETWEEN CHILDREN AND ADULTS

- **AETIOLOGY**
    - CHILDREN: Viral infections, food intolerances, genetic disorders
    - ADULTS: Bacterial infections, chronic diseases, medications
- **HISTORY FOCUS**
    - CHILDREN: Growth, feeding, immunization status
    - ADULTS: Travel, medication use, chronic conditions
- **PHYSICAL EXAMINATION**
    - CHILDREN: Hydration status, growth parameters
    - ADULTS: Subtle dehydration signs, abdominal examination
- **INVESTIGATIONS**
    - CHILDREN: Stool for rotavirus, reducing substances, genetic testing
    - ADULTS: Stool for C. difficile, faecal calprotectin, endoscopy
- **COMPLICATIONS**
    - CHILDREN: Growth and developmental delays
    - ADULTS: Chronic diseases and functional disorders

COMPLICATIONS OF DIARRHOEA

- Dehydration
- Malabsorption
- Electrolyte imbalance [hyponatremia, hypokalaemia, metabolic acidosis]
- Malnutrition
- Transient lactose intolerance
- Chronic diarrhoea
- Systemic infection (meningitis, arthritis, pneumonia), especially with Salmonella infections
- Sepsis
- Haemolytic-uremic syndrome (much more common in children, especially with E. coli O157:H7)
- Toxic megacolon
- Rectal prolapse.
- Reactive arthritides (Salmonella, Shigella, Yersinia, Campylobacter, Giardia organisms)
- Acute kidney injury
- Thrombotic thrombocytopenic purpura or TTP (E coli O157:H7)
- Guillain-Barré syndrome (Campylobacter organisms)

MANAGEMENT

The management of diarrhoea involves a multifaceted approach that aims to restore fluid and electrolyte balance, address the underlying cause, and provide supportive care.

- **Fluid and Electrolyte Management:** The primary concern in diarrhoea is dehydration due to the loss of fluids and electrolytes. This is especially important in children and elderly patients.
  - **Oral Rehydration Therapy (ORT):**
    - WHO Oral Rehydration Solution (ORS): A solution containing sodium, potassium, chloride, and glucose is the gold standard for mild to moderate dehydration.
    - Administration: prepared by mixing one sachet in 1 litre of water, then small, frequent sips are recommended, particularly in children. For mild dehydration, 50-100 mL/kg of ORS should be given over 4 hours, and for moderate dehydration, 75ml/kg over 4-6 hours.
    - Homemade salt sugar solution: In settings where commercial ORS is unavailable, a mixture of salt and sugar (1 level teaspoon(3ml) of salt + 10 level teaspoon (or 5 cubes) of sugar + 600mls of water) can be used.
    - Intravenous (IV) Fluids:
      - Indicated in cases of severe dehydration, shock, or when the patient is moderately dehydrated but cannot tolerate oral intake.
      - Also, if the child is > 3 months, has large volume stools, or the enteral route is threatened.
      - Ringer's lactate or normal saline (0.9% NaCl) is typically used. In severe dehydration, fluid resuscitation begins with a bolus of 20-30 mL/kg over 30-60 minutes in > 1 yr or infants, respectively, to elicit shock, followed by maintenance fluids based on the patient's ongoing losses and requirements.
  - **Electrolyte Replacement:**
    - Sodium: Replaced via ORS or IV fluids.
    - Potassium: Supplementation is essential, especially when there are signs of hypokalaemia (muscle weakness, cramps, or arrhythmias). This is found in ORS, but in severe cases, potassium may be added to IV fluids or potassium-containing IV fluids.
    - Bicarbonate: Can be added to IV fluids if metabolic acidosis is severe, often in cases of cholera or persistent vomiting.

- **Pharmacological Management:** The use of medications in diarrhoea depends on the underlying cause and the severity of symptoms.
- **Antibiotics:**
  - Generally, not recommended for most cases of acute diarrhoea, which are viral in nature. They are indicated for bacterial causes like:
    - Shigella: Ciprofloxacin or azithromycin.
    - Campylobacter: Azithromycin.
    - Clostridioides difficile: Metronidazole or oral vancomycin.
    - Traveller's diarrhoea: Ciprofloxacin or azithromycin.

  In cases of cholera, Ciprofloxacin, Ofloxacin, Doxycycline, or azithromycin can be used to reduce the duration and severity.

- **Antimotility agents:**
  a. Loperamide: Can be used in adults to reduce stool frequency in non-bloody, non-febrile diarrhoea, but should be avoided in children and patients with bloody diarrhoea or suspected bacterial infections, as it may prolong the illness (generally not recommended in children).

- **Probiotics:**
  - Helps restore the gut's normal flora and may shorten the duration of diarrhoea, especially in antibiotic-associated diarrhoea or viral gastroenteritis, especially if taken up to 2 weeks.
  - Probiotic strains like Lactobacillus and Saccharomyces boulardii have shown benefit.
- **Zinc supplementation**: Recommended by the WHO for children with acute diarrhoea. Zinc supplementation (10-20 mg per day for 10-14 days) has been shown to reduce the severity and duration of diarrhoea and improve intestinal absorption.

- **Considerations in Children**: Children are more vulnerable to the effects of dehydration and malnutrition due to diarrhoea, making prompt and appropriate treatment critical.
  - Breastfeeding and feeding:
    - Continue breastfeeding during and after diarrhoea episodes, as breast milk provides not only hydration but also nutrients and immune protection.
    - Exclusive breastfeeding for infants under six months helps prevent dehydration and provides protective antibodies.

        - Monitoring for malnutrition: Children with chronic or recurrent diarrhoea should be evaluated for failure to thrive and potential underlying conditions like malabsorption syndromes (e.g., celiac disease) or food allergies

- **Dietary Considerations:** Nutrition plays an important role in the recovery and management of diarrhoea, particularly in preventing malnutrition and further dehydration.
    - Early refeeding is encouraged, especially in children. Food should be reintroduced as soon as possible after rehydration to prevent malnutrition and promote recovery of intestinal function.
    - Simple, digestible foods: Start with starchy foods (e.g., rice, potatoes), yogurt, bananas, and toast. These foods are easy to digest and can help with stool consistency.
    - High-fat or greasy foods should be avoided, as they can aggravate diarrhoea.
    - Sugary drinks (soft drinks, fruit juices) and artificial sweeteners (e.g., sorbitol) should also be avoided, as they can worsen osmotic diarrhoea.
    - In cases of post-infectious diarrhoea, temporary lactose intolerance is common, especially in children. Lactose-containing foods should be avoided if they worsen symptoms. A lactose-free formula may be necessary for infants recovering from gastroenteritis.
    - Yogurt containing active cultures of probiotics can help restore normal gut flora and reduce the duration of diarrhoea
    - The BRAT diet (bananas, rice, applesauce, tomatoes) is often recommended for children and adults as it provides easily digestible food that helps firm up stools, as well as being a rich source of potassium.

In children, nutritional supplements may be necessary, particularly in cases of malnutrition or chronic diarrhoea. Vitamin and mineral deficiencies (e.g., zinc, vitamin A, and iron) should be corrected.

PREVENTION

Prevention of diarrhoea is essential, particularly in children, as it is a leading cause of morbidity and mortality worldwide in under-5s, especially in LMIC like Nigeria. Effective prevention strategies focus on improving hygiene, ensuring access to clean water, promoting proper sanitation, and adopting vaccination, as well as proper waste and sewage disposal, and nutritional interventions. Below are key measures for the prevention of diarrhoea:

- **Water, Sanitation, and Hygiene (WASH) Interventions**: Diarrhoea is commonly caused by consuming contaminated water. Ensuring access to clean, safe drinking water is vital and can be achieved by employing community enlightenment. Proper Sanitation is also important. The availability and proper use of latrines or toilets can significantly reduce the transmission of pathogens by reducing open defecation and contamination of water sources. Prevent open defecation through community education and the construction of proper sanitation facilities.
    - **Hand Hygiene**: Regular handwashing with soap and water, especially before eating, after using the toilet, and after handling diapers, can dramatically reduce the incidence of diarrhea.
    - **Food Hygiene**: Cook food thoroughly, especially meats and eggs, except vegetables, and store food at safe temperatures, wash fruits and vegetables with clean water before eating.
- **Vaccination:**
    - **Rotavirus Vaccination**: Rotavirus is the leading cause of severe diarrhoea in infants and young children. Vaccination is one of the most effective ways to prevent diarrhoea caused by this virus. It is administered to infants starting at 6 weeks of age.
    - **Cholera Vaccination:** In areas where cholera is endemic or during outbreaks, oral cholera vaccines (such as; Hillchol, Shanchol, Dukoral, and Euvichol) can be effective in preventing cholera, which causes severe watery diarrhoea.
- **Breastfeeding and Nutrition:** Breastfeeding exclusively for the first six months of life provides infants with essential nutrients and antibodies that protect against infections, including diarrhoea. Continued breastfeeding during and after diarrhoea episodes helps prevent malnutrition and aids in recovery.
    - Complementary Feeding: After six months, the introduction of safe and appropriate complementary foods while continuing breastfeeding helps ensure adequate nutrition.
- **Environmental Controls:** Maintain proper sanitation by disposing of household waste and faecal matter properly. Ensure proper sewage systems and avoid contaminating water sources with human or animal waste. Ensure that livestock or pets do not contaminate water or food sources. Proper hygiene when handling animals or animal products is crucial.
- **Education and Awareness:** Educating communities about the importance of hygiene, sanitation, and proper nutrition can help prevent diarrhoea. Teaching children about hand hygiene and safe drinking water practices in schools can have a large impact on reducing the incidence of diarrhoea. Ensure schools have access to clean water and functional sanitation facilities.

- **Preventing Antibiotic-Associated Diarrhoea**: Avoid unnecessary antibiotic use, which can disrupt the gut flora and lead to antibiotic-associated diarrhoea, including infections with Clostridioides difficile. If antibiotics are necessary, consider the use of probiotics during antibiotic therapy to maintain a healthy gut microbiome. Other vaccinations like measles, BCG, DPT, ROTA, etc.
- **Regular Deworming**: 3 monthly dewormings by households, especially in children. It can be done during outreaches for communities.

DIARRHOEA IN SPECIAL POPULATIONS

The Immunocompromised

Diarrhoea is a frequent complication of infection with the human immunodeficiency virus (HIV), significantly affecting the gastrointestinal tract. In Africa, HIV was once referred to as "slim disease" due to its association with severe diarrhoea, weight loss, malnutrition, and eventual death. Prior to the introduction of highly active antiretroviral therapy (HAART), the severity of diarrhoea worsened as immune function declined, contributing to high morbidity and mortality among patients. (Krones, 2012).

Patients with compromised immune systems, such as those with HIV, solid organ transplants, or hematologic malignancies, are particularly susceptible to gastrointestinal infections caused by various pathogens. These infections often result in more severe clinical outcomes in immunocompromised individuals than in healthy people. Common culprits include bacterial pathogens like Salmonella and Campylobacter, which cause more aggressive and prolonged infections in HIV-positive individuals. Parasitic infections such as those caused by Cryptosporidium and Giardia are also prevalent, along with viral agents like cytomegalovirus (CMV), especially in advanced AIDS cases. (Krones, 2012).

Other causes of diarrhoea include drug-induced cases, particularly from immunosuppressive drugs like mycophenolate mofetil (MMF) and calcineurin inhibitors used in transplant patients. Diarrhoea may also manifest in congenital immunodeficiency syndromes, such as selective IgA deficiency and severe combined immunodeficiency, with various aetiologies depending on the specific immunodeficient condition. (Krones, 2012). Management of diarrhoea in this group of people is similar to that outlined properly.

The Pregnant

Diarrhoea is a very common condition that can affect anyone, including women who are pregnant. According to the American College of Gastroenterology (ACG), there is no up-to-date research about the prevalence of diarrhoea in pregnant women. During pregnancy, diarrhoea may arise from hormonal or physical changes. However, it can also be unrelated to pregnancy and result from an infection or underlying bowel disorder. (Rachel Nall, 2019).

Diarrhoea can lead to severe dehydration and malnutrition, which can be harmful to the woman and foetus, and a pregnant woman should receive immediate medical care if she experiences any of the following symptoms: (Rachel Nall, 2019).

PROGNOSIS OF DIARRHOEA

Acute Diarrhoea is Usually Self-limiting and has a good prognosis, when the underlying cause is identified and treated. The presence of the following features in a patient with acute diarrhoea for over 4 weeks may indicate poor prognosis: (C. Micheal Gibson, 2020).

- Weight loss
- Rectal bleeding
- Immunosuppression
- Haemolytic uremic syndrome with EHEC infection
- Gillian Barre syndrome with Campylobacter infection
- Toxic megacolon
- Tenesmus
- Associated psychological factors
- Somatization
- Dietary causes of diarrhoea
- Age > 50 years

The outlook for chronic diarrhoea depends on the cause. If you can treat an inflammatory bowel disorder, infection, or other digestive problem, your stools should gradually return to normal. If you don't have a medical condition, keeping a food journal, watching your diet, and making lifestyle changes may also provide relief. The important thing is that you don't ignore the problem. (Valencia & Elaine K. Luo, 2019).

CASE STUDIES

Case 1

A 66-Year-Old Man with Chronic Watery Diarrhoea (Shin, Seo, Younghoon Kim, MyungAh, & Se, 2022).

Presentation: A 66-year-old man presented with chronic watery diarrhea, weight loss, and hypotension. He had a history of hypertension and diabetes, but no known allergies or recent medication changes. (Shin, Seo, Younghoon Kim, MyungAh, & Se, 2022).

Clinical Findings: On admission, he exhibited severe dehydration, hypotension (66/29 mmHg), and metabolic acidosis (pH 6.985). Blood tests showed elevated urea nitrogen (117.6 mg/dL) and creatinine (11.62 mg/dL), indicating acute renal failure. (Shin, Seo, Younghoon Kim, MyungAh, & Se, 2022).

Investigations: Abdominal CT and MRI revealed a 5.2 cm mass in the pancreatic tail, suggestive of a neuroendocrine tumour (NET). Stool tests were negative for infections. (Shin, Seo, Younghoon Kim, MyungAh, & Se, 2022).

Diagnosis: The patient was diagnosed with a vasoactive intestinal peptide-secreting tumour (VIPoma) based on elevated serum VIP levels (290 pg./mL) and imaging findings. (Shin, Seo, Younghoon Kim, MyungAh, & Se, 2022).

Treatment: Initial management included fluid resuscitation and vasopressors. Octreotide was administered to control diarrhoea. The patient underwent distal pancreatectomy, resulting in symptom resolution and normalization of VIP levels. (Shin, Seo, Younghoon Kim, MyungAh, & Se, 2022).

Prognosis: Post-surgery, the patient showed significant improvement with no recurrence of symptoms. Follow-up is recommended to monitor for potential recurrence. (Shin, Seo, Younghoon Kim, MyungAh, & Se, 2022).

Case 2

Presentation: A 24-year-old man returning from a travel of 3 months (he passed through different countries) was well on his return but presented 3 days later with severe diarrhoea, which had been present for 2 weeks. (Parveen & Michael, 2013).

Clinical Findings: On admission, he is dehydrated and has lost over 5kg in weight (Parveen & Michael, 2013).

Investigations: FBC, E/U/Cr, LFTs. Send stools for ova, cysts, and culture. Rehydration with oral glucose/electrolyte solution initially. IV fluids are not usually necessary. Vomiting might need to be treated with an antiemetic (Metoclopramide 10mg X 3/day). (Parveen & Michael, 2013).

Diagnosis: This is not acute diarrhea because the patient did not have diarrhea when he returned to the UK. As a returning traveler, he may have non-acute diarrhoea due to Giardiasis, Cryptosporidiosis, Amoebiasis, Tropical sprue, Schistosomiasis or Strongyloidiasis. (Parveen & Michael, 2013).

Treatment: Stool samples showed no abnormal findings. Giardiasis is very likely in this patient, and treatment with metronidazole 2g a day for 3 successive days was given, with dramatic improvement. (Parveen & Michael, 2013).

CONCLUSION

Diarrhoea, a disease of fluid and electrolyte imbalance, is an important worldwide cause of morbidity and mortality among infants and children, especially in developing countries. However, it is also very much a nutritional disease. This is primarily because during periods of diarrhoea, nutrient intake and absorption are dramatically decreased, which results in undernutrition even when sufficient food is available. (Baqui, Heinzen, Santosham, & Black, 2005).

Sixty per cent of the 10 million deaths among children younger than 5 years old are associated with malnutrition. Approximately 2 million of the deaths are due to diarrhoea. Repeated episodes of diarrhoea result in malnutrition, which in turn puts the child at an increased risk of recurrent infections, including diarrhoea. To break this cycle, diarrheal episodes should be managed with appropriate fluid and nutritional therapy. (Baqui, Heinzen, Santosham, & Black, 2005).

In adults, diarrhoea in most cases isn't something to be concerned about and will resolve itself without medical treatment. However, it is important to seek medical help when there is persistent vomiting, persistent diarrhoea, dehydration and significant weight loss, anyone who experiences diarrhoea after surgery, spending time in the hospital, or after using antibiotics should seek medical attention. If a person has diarrhoea and it lasts more than 7 days, they should consult a doctor urgently (Markus MacGill & Cynthia Taylor Chavoustie, MPAS, PA-C, 2024).

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