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ASSESSING CHRONIC DIARRHEA

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Chronic diarrhea is a common ailment affecting approximately 6.6% of the United States (U.S.) population (Singh et al., 2018). Chronic diarrhea has been defined as an increase in the frequency of defecation, urgency, or looser stool consistency for greater than 4 weeks (Dains, Baumann, & Scheibel, 2020). Abnormal stool form is the most consistent factor in the diagnosis of chronic diarrhea. Pseudodiarrhea may occur with normal stool consistency and frequent defecation. Chronic diarrhea is attributed to a wide array of causes. Although prolonged diarrhea may be infectious in nature, chronic diarrhea is typically noninfectious in immunocompetent patients. If infectious, a parasitic source is more common than bacteria or viral sources (Borum & Khan, 2021).

Pathophysiology

Disturbances in luminal wall and electrolyte balance within the intestine lead to increased stool water volume resulting in diarrhea (Borum & Khan, 2021). The colon and small intestine absorb 99% of bodily secretions and fluid intake. Chronic diarrhea ensues when a normal physiologic secretion or absorption process becomes deranged for prolonged or permanent periods (Sakaria & Rutherford, 2018). Chronic diarrhea is often classified into three main categories (see Table 1) based on stool characteristics:

1. Inflammatory diarrhea is caused by damage to the gastrointestinal mucosa due to inflammation and/or infection that leads to a decrease in the ability to absorb fluids and electrolytes and a passive loss of protein-rich fluids. In the presence of inflammatory diarrhea, stools often contain leukocytes and occult or frank blood. Watery or fatty diarrhea (also known as steatorrhea) may also be present.
2. Watery diarrhea implies no structural damage to the intestinal mucosa. Watery diarrhea is subcategorized into the following:
 - a. Osmotic: Caused by ingestion of a poorly absorbed substance(s). Osmotic diarrhea abates when ingestion of the offending agent stops.

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TABLE 1. Common Causes of Chronic Diarrhea by Clinical Presentation^a

Inflammatory diarrhea	
Inflammatory bowel disease (ulcerative colitis, Crohn disease)	
Ischemic colitis	
Infectious disease (<i>Aeromonas</i> spp., <i>Giardia</i> , <i>Yersinia</i> spp., <i>Plesiomonas</i> spp.)	
Radiation enteritis	
Microscopic colitis (collagenous and lymphocytic colitis)	
Watery diarrhea	
Osmotic	
Ingestion of poorly absorbed sugars (lactulose, sorbitol)	
Carbohydrate malabsorption (pancreatic insufficiency, lactase deficiency)	
Laxative (containing phosphate, sulfate, magnesium, or lactulose) ingestion	
Secretory	
Hyperthyroidism	
Addison's disease	
Neoplasms (colon cancer, gastrinoma, lymphoma, pheochromocytoma, carcinoid syndrome)	
Bile acid malabsorption (following cholecystectomy, postsurgical resection of terminal ileum)	
Medication induced (antibiotics, antacids, antiretrovirals, vitamin/mineral supplements, chemotherapeutic agents, proton pump inhibitors, nonsteroidal anti-inflammatory agents)	
Dysmotility	
Irritable bowel syndrome	
Diabetic autonomic neuropathy	
Postvagotomy	
Postsympathectomy	
Fatty diarrhea	
Malabsorption	
Celiac disease	
Short bowel syndrome	
Heart failure	
Amyloidosis	
Chronic mesenteric ischemia	
Constrictive pericarditis	
Small intestine bacterial overgrowth	
<i>Giardia</i> infection	
Whipple's disease	
Mastocytosis	
Maldigestion	
Bile acid deficiency (cirrhosis, primary biliary cholangitis)	
Atrophic gastritis	
Chronic pancreatitis	

^aFrom "Chronic Diarrhea." In S. Srinivasan & L. Friedman (Eds.), *Essentials of Gastroenterology* (pp. 89–104), by S. S. Sakaria and R. E. Rutherford, 2018, Hoboken, NJ: John Wiley & Sons Ltd.

- b. Secretory: Often caused by a defect in water absorption resulting from (1) increased secretion or (2) reduced electrolyte absorption. Secretory diarrhea continues even in the absence of oral intake.

- c. Dysmotility-related: Usually intermittent, often alternating between periods of diarrhea and constipation. Irritable bowel syndrome (IBS) is the most common cause of dysmotility-related diarrhea.

3. Fatty diarrhea (steatorrhea): Indicates an excess of fat in stools. Fatty diarrhea results from (1) maldigestion or (2) malabsorption of fat and other nutrients and is subcategorized accordingly. A notable feature of fatty diarrhea is that stools often float (due to excessive lipid presence within the stool), may appear oily, and have a distinctive foul odor. Celiac disease is the most common cause of fatty diarrhea. Stools may also appear normal amid the presence of excess fat (Sakaria & Rutherford, 2018).

Presentation

An accurate clinical history helps distinguish between inflammatory, watery, and/or fatty diarrhea (Taylor & Gallagher, 2021). Symptoms that point to an organic cause of chronic diarrhea include (1) diarrhea less than 3 months duration, (2) daily symptoms, (3) nocturnal symptoms, and (4) notable weight loss (Sakaria & Rutherford, 2018). It is important to obtain a thorough medication history (including new/changed prescribed and over-the-counter medications, herbs, vitamins, and all supplements). Understanding how these substances are being taken with note of the medication/supplement frequency is also necessary. Patients will commonly veer from prescribed directions and package instructions in an effort to achieve a desired result. Use of laxatives should be specifically asked about along with current stress levels. Past medical history includes any previous or current alcohol/tobacco abuse, prior radiation therapy, and/or surgeries. A family history including gastrointestinal disease should be obtained. Family history of colorectal cancer in a first-degree relative younger than 50 years raises the risk of colorectal cancer. Risk factors (see Table 2) and any previous evaluations and therapeutic measures/trials for diarrhea should be documented (Sakaria & Rutherford, 2018). Any previous symptom relief achieved by specific measures should be gauged and noted (Freshman, 2021).

Descriptions of diarrhea onset (gradual, lifelong, abrupt), diarrheal pattern (continuous, intermittent), and duration of diarrhea symptoms should be included (Sakaria & Rutherford, 2018). Epidemiologic data must also be gathered and include any recent travel, suspicious food intake, new or changed water sources, and possible sick contacts. The presence of fecal urgency and fecal incontinence (which can be commonly mistaken for diarrhea) should be established along with presence of nocturnal diarrhea and any persistent

TABLE 2. Chronic Diarrhea Risk Factors^a

Lactose intolerance
Ingestion (excess) of nonabsorbable carbohydrates
Celiac disease
History of stimulant laxative use/abuse
History of neuroendocrine disease
Presence of dysmotility syndrome(s)
Malabsorption syndromes
Irritable bowel syndrome
History of alcohol abuse
Chronic pancreatitis
Medications
Diabetes mellitus
Immunosuppressive therapy
Preceding infection
Genetic predisposition
Psychosocial stress
Prior cholecystectomy
Inflammatory bowel disease
Malignancy
Radiation
High carbohydrate intake
Obesity
^a From "Chronic Diarrhea," <i>The 5-Minute Clinical Consult</i> , by M. L. Borum and S. Baumgartner, 2021, Philadelphia, PA: Wolters Kluwer.

diarrhea (despite fasting). Associated and alarm symptoms should be elicited including the following:

- Fever
- Weight loss
- Blood in stools
- Abdominal pain
- Muscle weakness
- Arthralgias
- Visual disturbances

Physical Examination

Complete head-to-toe physical assessment of chronic diarrhea should include a full abdominal and rectal examination (Weber & Kelley, 2018). Distinct signs detected during physical examination may provide clues to chronic diarrhea causes (Sakaria & Rutherford, 2018). These include the following:

- Eyelid retraction and exophthalmos—hyperthyroidism
- Oral ulcerations—inflammatory bowel disease (IBD)
- Skin hyperpigmentation—Addison's disease, Whipple's disease
- Angular cheilitis—IBD, malabsorption
- Dermatitis herpetiformis—celiac disease
- Erythema nodosum—IBD
- Respiratory wheezing—carcinoid syndrome, cystic fibrosis
- Arthralgias and arthritis—common variable immunodeficiency, *Campylobacter jejuni* infection, Whipple's disease, IBD
- Perianal abscess or fistula—Crohn disease
- Reduced rectal sphincter tone—fecal incontinence

Special attention should be given during physical examination to the presence of alarm symptoms including fever, severe abdominal pain, dehydration, gastrointestinal bleeding, and significant/unintentional weight loss (Borum & Baumgartner, 2021). The presence of fever suggests inflammatory diarrhea (Schiller, Pardi, & Sellin, 2017).

Diagnostic Workup

Differential diagnosis of chronic diarrhea should be informed by findings obtained through a complete history and physical examination. These findings should guide the direction of diagnostic testing and ultimately efficient care provision (Schiller et al., 2017). Laboratory testing, radiographic studies, and endoscopy should be chosen selectively to confirm suspected diagnoses (Sakaria & Rutherford, 2018). Laboratory testing should assess for (1) malabsorption, (2) abnormalities in electrolytes, and (3) acute kidney injury, and imaging studies should be used to exclude (1) bowel obstruction, (2) strictures/fistulae, and/or (3) other specific processes (Borum & Baumgartner, 2021). Endoscopy or colonoscopy is indicated in the presence of inflammatory diarrhea or if a neoplasm is suspected (Sakaria & Rutherford, 2018).

Clinical Pearls

Treatment of chronic diarrhea should target the cause (Sakaria & Rutherford, 2018). Volume resuscitation and electrolyte replacement should be provided if needed. Abdominal pain is rare in patients with chronic diarrhea except in the presence of IBS, Crohn disease, chronic pancreatitis, or mesenteric ischemia. Patients with carbohydrate malabsorption often present first with flatulence, bloating, and watery diarrhea which typically occurs within 90 minutes after eating (Sakaria & Rutherford, 2018).

Conclusion

In the absence of alarm symptoms and a clearly identifiable cause, elimination diets may be trialed. Avoidance

of gluten-containing foods, nonabsorbable carbohydrates, and/or lactose-containing products and food allergens may be needed on an ongoing basis depending on the diarrheal etiology. Stress reduction is also commonly recommended. New onset and/or a reoccurrence of blood in stools requires a careful workup and urgent treatment. Patient education and/or needed dietary changes should be specific and based on underlying etiology. Symptomatic treatment with an antidiarrheal agent is frequently necessary in patients with chronic diarrhea when a specific treatment is unavailable (Borum & Baumgartner, 2021).

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