GUIDE FOR HIV/AIDS CLINICAL CARE

Section 5: Common Complaints

Diarrhea

Background

Diarrhea is a common complaint among HIV-infected individuals, and it has a variety of causes. Episodes may be acute and brief, intermittent or recurrent, or, in some cases, chronic and severe. If diarrhea persists, it may cause dehydration, poor nutrition, and weight loss. Diarrhea may diminish patients’ quality of life significantly, and may interfere with adherence to and efficacy of antiretroviral (ARV) medications.

Diarrhea is defined in various ways, but commonly as more than four loose or watery stools per day for more than 3 days. Duration is classified as follows:

- Acute: <2 weeks
- Persistent: 2-4 weeks
- Chronic: >4 weeks

The causes of diarrhea, both infectious and noninfectious, found in HIV-infected individuals with normal or mildly depressed CD4 cell counts are likely to be similar to those in HIV-uninfected persons. Among the noninfectious causes of diarrhea, adverse effects of ARVs and other medications are particularly common. Persons with advanced immunodeficiency are more likely to have infections, including opportunistic infections, as the cause of diarrhea.

Infectious diarrhea typically involves either the small or the large intestine, and the patient’s history often suggests the site of the problem. Infections of the small intestine (enteritis) commonly produce generalized or periumbilical abdominal cramps, large-volume diarrhea without blood, and frequently dehydration. Large-intestine infections (colitis) often produce lower abdominal pain, an unproductive urge to defecate, and frequent small-volume stools with blood and pus.

S: Subjective

The patient complains of diarrhea. Take a thorough history, including the following:

- Onset of diarrhea: sudden or gradual
- Frequency (times per day, last episode)
- Stool consistency (soft vs. liquid)
- Stool color (gray, white, or greasy stools: possible cholelithiasis or pancreatitis; dark stools: possible gastrointestinal bleeding)
- Bloody stools (may indicate invasive organisms, inflammation, ischemia, or neoplasm)
- Rectal bleeding
- Straining at stool
- Pain with defecation, rectal discharge (consider sexually transmitted infections, herpes simplex virus)
- Nausea or vomiting (within 6 hours of ingesting food, consider foodborne illness, gastroenteritis)
- Weight loss: quantify amount and time frame
- Abdominal pain or cramping; location if present
- Fever (consider invasive pathogens: Shigella, Campylobacter, Salmonella, Clostridium difficile)
Other associated symptoms (e.g., bloating, flatus)
- Allergies (to foods or medications)
- Aggravating factors (e.g., dairy products, fatty or spicy foods)
- Alleviating factors (e.g., fasting)
- Treatments tried (e.g., over-the-counter antidiarrheals)
- Contact with others with similar symptoms
- Previous episodes of diarrhea
- History of cytomegalovirus (CMV), *Mycobacterium avium* complex (MAC), or other infections involving the gastrointestinal tract
- Family history of inflammatory bowel disease, celiac disease
- Oral-anal sexual contact (males and females)
- Receptive anal intercourse
- Exposure to unsafely prepared food (e.g., raw, undercooked, spoiled), unpasteurized milk or juices
- Exposure to possibly contaminated water (swimming in or drinking from well, lake, or stream) (consider parasites, including *Giardia*)
- Exposure to non-toilet-trained infants and children (e.g., at a daycare facility), pets, farm animals, reptiles (consider *Giardia*, *Salmonella*)
- Recent travel (enterotoxigenic *Escherichia coli*, *Shigella*, *Rotavirus*, *Salmonella*, *Campylobacter*, *Giardia*, *Entamoeba histolytica*)
- Antibiotic use or exposure in recent weeks or months or recent hospitalization (consider *C. difficile*)
- ARV medications, especially ritonavir-boosted protease inhibitors; check relationship of diarrhea onset to initiation of ARVs
- Other current and recent medications (prescribed or over-the-counter), including supplements and herbal preparations
- Dietary factors, especially "sugar-free" foods (containing nonabsorbable carbohydrates), fat substitutes, milk products, and shellfish, or heavy intake of fruits, fruit juices, or caffeine
- Alcohol and recreational drug use; withdrawal

**O: Objective**

Record vital signs, including temperature, orthostatic heart rate, blood pressure measurements, and weight. Compare these with recent or baseline values. Perform a thorough physical examination, including evaluation of the following:

- Hydration status (skin turgor, mucous membrane moistness)
- Nutritional status (body habitus, muscle mass, skin and hair integrity)
- Oropharynx (lesions, candidiasis, ulcerations, Kaposi sarcoma)
- Optic fundi (signs of CMV infection)
- Abdomen (distention, bowel sounds, tenderness, organomegaly, masses, adenopathy)
- Rectum (masses, tenderness, bloody stool)

Review recent CD4 cell counts. Low CD4 counts increase the risk of chronic or systemic illnesses and opportunistic infections.

**A: Assessment**

The differential diagnosis of diarrhea is broad and includes the following infectious and noninfectious causes. The CD4 cell count is important in stratifying risk of infection with opportunistic pathogens; some organisms cause disease only with severe immunosuppression.

**Infectious Causes**

**Table 1. Infectious Causes**
### Severity

<table>
<thead>
<tr>
<th>Active diarrhea, any CD4 count</th>
<th>Chronic diarrhea, any CD4 count</th>
<th>Chronic diarrhea, CD4 count &lt;300 cells/µL</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Viruses (especially Norwalk virus)</td>
<td>● C. difficile (suspect in patients who have been treated with antibiotics</td>
<td>● Microsporidia</td>
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<tr>
<td>● Viral hepatitis</td>
<td>● Giardia lamblia</td>
<td>● Cryptosporidium parvum</td>
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<tr>
<td>● Herpes enteritis</td>
<td>● E. histolytica</td>
<td>● MAC (CD4 count &lt;50 cells/µL)</td>
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<tr>
<td>● C. difficile (suspect in patients who have recently undergone treatment with antibiotics, or hospitalization)</td>
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<td>● Isospora belli</td>
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<td>● Salmonella</td>
<td></td>
<td>● CMV (CD4 count &lt;50 cells/µL)</td>
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<tr>
<td>● Shigella</td>
<td></td>
<td></td>
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<tr>
<td>● Campylobacter</td>
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<td>● E. coli O157:H7</td>
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### Noninfectious Causes

- Medication adverse effects, common with many medications including some ARVs:
  - Protease inhibitors (especially ritonavir and nelfinavir)
  - Didanosine buffered tablets (no longer available in the United States)
- Irritable bowel syndrome
- Inflammatory bowel disease (ulcerative colitis, Crohn disease)
- Lymphoma
- Lactose intolerance
- Celiac disease
- Small-bowel overgrowth
- Pancreatic insufficiency
- Diverticulitis
- Fecal incontinence
- Laxative abuse

### P: Plan

### Diagnostic Evaluation

For suspected infections, perform laboratory studies including complete blood count with differential, serum electrolyte panel, and liver function tests. Check stool for white blood cells and blood. Perform stool studies as indicated by the patient's presentation.
(bacterial culture, ova and parasites, microsporidia, cryptosporidia, Giardia antigen, C. difficile toxin assay). Order additional studies as suggested by the history (e.g., blood cultures, MAC cultures, hepatitis serologies, retinal examination for CMV). If noninfectious causes are suspected, perform evaluation for these etiologies as indicated (e.g., fecal fat concentration [for steatorrhea], stool osmolar gap [for osmotic diarrhea], anti-tissue transglutaminase [TTG] antibody [for celiac disease], or D-xylose [for pancreatic insufficiency]).

If the patient is febrile, perform a complete fever workup as appropriate (see chapter Fever).

Check the CD4 cell count and HIV viral load, if not checked recently.

If stool study results are negative (ova and parasite negative in three successive samples) and the patient has severe symptoms, particularly in the case of advanced immunodeficiency, refer to a gastroenterologist for colonoscopy or flexible sigmoidoscopy with biopsy. Endoscopy with biopsy is the best procedure for identifying certain conditions, including CMV colitis and inflammatory bowel disease. If all study results are negative but the diarrhea persists, repeat endoscopy in 6-8 weeks regardless of the level of immunodeficiency. Pathogens may be difficult to identify.

Treatment

Once a diagnosis is made, initiate appropriate treatment. For seriously ill patients, presumptive treatment may be started while diagnostic tests are pending. If the cause of the diarrhea cannot be identified, consult with an HIV expert or a gastroenterologist.

- For moderate to severe acute diarrhea, including dysentery (bloody diarrhea), empiric treatment can be given pending stool study results or in settings with limited resources for workup. If bacterial pathogens are suspected, use oral fluoroquinolones (e.g., ciprofloxacin 500 mg BID, norfloxacin 400 mg BID, or levofloxacin 500 mg once daily) for 5 days. Monitor effectiveness and adjust therapy according to the results of diagnostic studies and clinical response. Specific treatment with antimicrobials is guided by the pathogens identified in stool studies or on biopsy.

- For mild persistent diarrhea with no identified pathogen, treat with an antidiarrheal agent (see below). For patients whose diarrhea is suspected to be caused by ARV agents or other medications, symptomatic treatment also may be tried. Diarrhea owing to protease inhibitors often decreases after a few weeks without treatment. For persistent daily ARV-associated diarrhea, antidiarrheal agents may be given on a scheduled basis (rather than as needed). If the diarrhea cannot be controlled, a change in ARV regimen should be considered.

Symptomatic treatments

- Antimotility agents such as loperamide (Imodium) in over-the-counter or prescription strengths and atropine/diphenoxylate (Lomotil) are useful for many patients. The suggested dosage is 2 tablets after each loose bowel movement, not to exceed 8 tablets per day. These agents should not be used if patients have bloody diarrhea or if the presence of C. difficile is suspected.

- Pharmaconutritional approaches include the use of calcium supplementation (500 mg BID or TID). Patients with diarrhea related to protease inhibitors may find that taking calcium with each dose of protease inhibitors can decrease or prevent diarrhea. Note that magnesium supplements may worsen diarrhea.

- Pancrelipase can be useful in managing chronic diarrhea caused by malabsorption. These come in different formulations with differing amounts of pancreatic enzymes; usual dosage is 2-3 capsules TID with meals, titrated downward according to response.

- Cholestyramine or psyllium (e.g., Metamucil) may reduce diarrhea by slowing peristalsis and adding bulk to stools. Avoid administering cholestyramine with other medications because it may impair their absorption.

- A combination of these treatments may be needed to control chronic diarrhea, and they can be continued for patients after an infectious process has been ruled out.

Nutrition and hydration

Encourage frequent intake of soft, easily digested foods such as bananas, rice, wheat, potatoes, noodles, boiled vegetables, crackers, and soups. Encourage hydration with fruit drinks, tea, "flat" carbonated beverages, and water. Patients should avoid high-sugar drinks, caffeinated beverages, alcohol, high-fiber foods, greasy or spicy foods, and dairy products. Many patients may benefit from a trial of a lactose-free, low-fiber, or low-fat diet. Patients should use nutritional supplements as needed or as recommended by a dietitian. In case of chronic or severe diarrhea, or significant weight loss, refer to a dietitian for further recommendations.

Patients with severe diarrhea must maintain adequate hydration, by mouth if possible. In severe cases, IV administration of fluids may be necessary. Oral rehydration solutions include the World Health Organization formula, Pedialyte, Rehydralyte, Rice-Lyte, and Resol. Homemade alternatives include the following:
• Combine 1/2 teaspoon of salt, 1 teaspoon of baking soda, 8 teaspoons of sugar, and 8 ounces of orange juice; add water to make 1 liter and drink.

• Drink 1 glass containing 8 ounces of apple, orange, or other juice; 1/2 teaspoon of corn syrup or honey; and a pinch of salt; then drink 1 glass containing 8 ounces of water and 1/4 teaspoon of baking soda.

• Mix 1/2 cup of dry, precooked baby rice cereal with 2 cups of water (boil first in areas with poor water quality); add 1/4 teaspoon of salt and drink.

Patient Education

• Diarrhea can have many causes. Instruct patients to notify their health care provider if they develop new or worsening symptoms.

• Instruct patients to take their medications exactly as directed and to call their health care provider if they experience worsening diarrhea, or other symptoms such as fever, nausea, vomiting, or pain.

• Patients must stay nourished and well hydrated even if they are having diarrhea. Instruct patients to eat small, frequent meals and to avoid dairy products, greasy food, and high-fat meals.

• Instruct patients to maintain good handwashing practices during diarrheal illnesses to prevent infection in close contacts or household members.

• Some diarrheal illnesses are reportable; advise patients that they may be contacted by the local health department.

References

• American Medical Association, American Nurses Association--American Nurses Foundation, Centers for Disease Control and Prevention, Center for Food Safety and Applied Nutrition, Food and Drug Administration, Food Safety and Inspection Service, US Department of Agriculture. Diagnosis and Management of Foodborne Illnesses. MMWR 2004; 53(RR04);1-33.


