

GUIDE FOR MANAGEMENT OF DIARRHOEA IN HIV PATIENTS

Diarrhoea could be defined as increased frequency, consistency (fluid content) and/or volume of fecal discharge. It results mainly from excess stool water, i.e. 60-90% of stool is water. It is very common in PLWHA with inter-current illnesses.

Evaluate for:

Duration and severity: < 5days (acute) (acute diarrhea defined as >3 loose or watery stools for 3-10 days), <14days sub acute and >30days (chronic). *Chronic diarrhea could be an AIDS defining ailment.* It could be mild or severe diarrhea. Endoscopy and biopsy are indicated in patients with chronic severe diarrhea.

Hemodynamic derangement; Assessment of mild, moderate or severe dehydration can be made from the tongue, skin turgor, pulse rate/volume and urine. For example, fast and thready pulse ± cold extremities points to significant dehydration. In severe cases postural hemodynamic changes including cardiovascular collapse and shock may result.

GI abnormalities: Cramps, bloating, nausea, large volume or relatively infrequent or nocturnal diarrhea and melaena stools suggest small bowel or upper GI lesions. Tenesmus, frequent small volume motions, stools with mucus or blood (haematochezia) suggest large bowel lesions.

Abdomen: Abdominal tenderness, splenomegaly, hepato-splenomegaly, decreased bowel sounds, rectal bleeding and digital rectal exam should be evaluated.

Renal dysfunction: Presence of oliguria (urine < 300 mls /day or concentrated urine) or renal shutdown (anuria).

Constitutional symptoms: Fever suggests an infective etiology: high grade (infective- bacterial, or protozoal), low grade (viral, toxigenic, TB origin). Nausea and vomiting.

CNS derangement: confusion, disorientation, cerebral dysfunction, etc.

Other conditions: recent travel, possibility of food poisoning, stage of HIV infection (±HAART), other associated conditions, drug intake, etc.

Investigations

A stepwise approach is recommended.

a. **Stool:** At least one specimen daily for 3 days for microscopy (*ova, pus cells/leucocytes, cysts, larvae, tapeworm segments, parasites; including trichrome staining if CD4 is <100/mm³*), culture and sensitivity. Faecal fat excretion in malabsorption may be considered in selected cases. Rectal snip or swab may be considered.

b. **Blood:** Electrolytes (*metabolic acidosis, hypokalaemia in severe or chronic diarrhea containing excessive mucus, hypomagnesaemia*) and urea. Blood cultures in febrile patients, Full Blood Count and CD4 cell counts.

c. Endoscopy: not routinely in acute diarrhea. Flexible sigmoidoscopy / colonoscopy ± upper endoscopy (± biopsy) and biopsies especially for chronic inflammatory cases. Endoscopy is useful in CMV infection, Kaposi sarcoma and Lymphoma.

d. Others: plain or contrast X-rays not very useful; erect plain X-ray may suggest bowel perforation. CT scan may be useful e.g in CMV colitis and lymphoma.

Treatment

A. Symptomatic: Mainstay of treatment is rehydration with fluids and electrolytes, nutrients supplementation and anti-motility medications

- Fluids and electrolyte replacement especially in acute severe diarrhea to correct dehydration and acidosis (NACL, darrows, KCl, and glucose fluids could be used). Oral rehydration solution in mild diarrhea.
- Antimotility agents as loperamide 4mg stat, then 2mg/diarrhoea, atropine, diphenoxylate and tincture of opium.
- Antimicrobials - TMX-SMX, (or norfloxacin) with or without metronidazole.(empiric treatment)
- Nutritional supplements, vitamin and mineral supplements are important

ORS and other oral fluids may be given for mild diarrhea. Parental fluids if diarrhea is more severe.

B. Specific:

- Antimicrobials according to culture and sensitivity pattern.
- Acidosis – Give HCO₃(dose)
- Hypokalaemia- give KCL (dose)
- Anemia- Give haematinica nd folic acid. Give screened blood with severe anemia
- Vomiting- anti-emetics

AETIOPATHOGENESIS

There are infectious causes (bacterial, parasitic, viral) drug-induced (e.g. ARV drugs), food related and so on. These all cause diarrhea by these 4 mechanisms: increased osmotic load, increased secretion, inflammation and decreased absorption time.

These 4 mechanisms can broadly be divided into 2 or 3 main groups:

Infectious causes

Inflammatory –secretory, exudative

Malabsorption – osmotic or secretory

Non –infectious causes

Decrease absorption - post surgery, drugs, and hormone agents

Malabsorption – osmotic or secretory

Cancer

Inflammatory/infectious (Pathogens)

Organisms associated with diarrhea in HIV positive patients may be grouped into 3 functional categories as outlined in table:

1. Usual pathogens, which also affect immune-competent individuals
2. Opportunistic pathogens, which most commonly cause diarrhea in persons with dysfunction of the immune system
3. Questionable pathogens which are found with increased frequency with individuals with impaired immunity whose role in the pathogenesis of diarrhea is disputed:

Usual pathogens (%)	Opportunistic Pathogens	Questionable significance
Salmonella (5-15%)	CMV	Intestinal spirochetosis
Shigella (1-3%)	Adenovirus	Blastocytosis
Campylobacter pylori (4-8%)	Herpes simplex virus(HSV)	Balantidium coli
Escherichia coli	Mycobacterium avium complex	Blastocystis hominis
Clostridium difficile (10-15%)	Cryptosporidium	
Yersinia enterocolitica	Isospora belli	
Staphylococcus aureus	Cyclospora cayentanesis	
Aeromonas spp.	Enterocytozoon bienueusi	
Pleisomonas	Encephalitozoon intestinalis	
Vibrio parahaemolytica	Histocapsulatum	
Bacillus cereus	S. stercoralis	
Giardia lamblia	HIV associated enteropathy	
E.histolytica	Blastocystis hominis	

Non Infectious causes

Drug- related	Cancer	lymphoma	Malabsorption
ARVs(NFV,SQV)	KS	NHL	
LPV/r,ddl, NVP			

	Malabsorptive	Secretory	Inflammatory
Causes	Chronic pancreatitis,	Bacterial toxins(e.g. in	Acute and chronic

	Pancreatic CA, Mesenteric ischemia, lactate intolerance, biliary cirrhosis	cholera), Enterogenic pathogenic viruses, Unabsorbed fat(steatorrhoea)	infective causes: bacteria, viral, protozoan, TB. lymphoma, Kaposi sarcoma
Symptoms and signs	Weight loss, flatulence, gaseous abdominal distention, Jaundice, abdominal pain, anemia. Absent tendon reflexes	Nauseas vomiting, flatulence, weight loss. Can also have fever, abdominal pain and weight loss.	Fever-high grade(bacterial , protozoan , low grade- viral, TB origin , weight loss, abdominal pain, frequent stools
Stool appearance	Steatorrhoea- pale, soft bulky malodorous stools that stick to the side of the bowl or float difficult to flush away inspection for undigested food and greasy stool	Large volume	Consistency, volume, and contents depends on the part of the bowel affected- large or small. Small bowel – voluminous stool, watery or fatty. Large bowel-small in volume with blood mucus and pus.
Stool microscopy culture and sensitivity	Stool microscopy- , fat globules. Culture when fever is present		White blood cells, parasitic infestations(ova , parasites) With prominent fever and abd pain, culture before commencing on empiric antibiotics
Blood investigations			
Radiological investigation	Measure fecal fat excretion , small bowel x-ray (r/o structural diseases) and biopsy (r/o mucosal disease)		Sigmoidoscopy and biopsy in chronic cases to look for inflammatory causes.
Treatment		Loperamide ,Steroids	Acute diarrhea sometime resolves spontaneously. ORS in mild diarrhea. Par- enteral fluids in severe diarrhea

Conditions of the Gastrointestinal System: Chronic Diarrhea

Pathogen	Signs and symptoms	Diagnostics(lab and x-ray)	Management and treatment	Unique features and caveats
Bacterial				
Campylobacter	Fever, general malaise, sometimes without GI symptoms. When present - bloody diarrhea, abdominal pain and weight loss.	Bacilli found in stool culture	Erythromycin 500mg bid * 5days Fluoroquinolones are effective but with >20 % resistance	difficult to differentiate bacillary dysentery
Salmonella	same	Culture , positive widal test with increasing titre	TMP/SMX 960 mg bd, Chloramphenical 250mg quid *3 wks Ciprofloxacin 500mgbid or ofloxacin 400mg bid or ceftriaxone 2g IV for 7-10 days	Frequent cause of bacteraemia in PLHA. Many patients often relapse after treatment and chronic maintenance therapy (TMP/SMX 1dd daily) is sometimes necessary.
Shigella	same	stool microscopy, fresh examination and after concentration	TMX/SMX 960 mg bid * 5days Amoxicillin 500mg tid * 5days	Resistance to TMX/SMX is high Ciprofloxacin 500mg bd or Norflaxin 400mg bid*5days or nalixidic acid 1g qid *10days
Protozoa				
Clostridium difficile	Diarrhea , Fever	Stool MCS		Underestimated here(Africa) because it is difficult to diagnose
Cryptosporidium	Prolonged hx of diarrhea, large volume, bowel noise and activity Severe weight loss	Stool samples * 3 for staining /AFB smear. Oocysts (eggs) present in the stool	Rehydration (IV and ORS) Paromomycin 500mg bid for 2-3 weeks Loperamide 2-4mg tid or qid ARV is protective	Highly infectious Transmitted through water, food, animal to animal and human to human contact Prevent exposure in HIV patients with cd4 < 200
Toxin induced E coli	Diarrhea, fever			

Entamoeba histolytica	Colitis, bloody stools, diarrhea. Can be asymptomatic.	Stool MCS, O & P present in stool exam. No focal WBCs	Metronidazole 500-750mg po or IV X 5-10days	Though common in developing countries. Recurrent and more severe in HIV patients
Giardia Lamblia	Water diarrhea ± absorption, bloating, flatulence	Stool for ova and parasites	Metronidazole 250 mg po tid x10days	Common cause of diarrhea may be recurrent or more severe in HIV patients
Isospora belli	Symptoms similar to what occur in Cryptosporidium	Stool X 3: unstained wet prep.	TMX/SMX 960mg qid 10days the chronic suppression with TMX/SMX 960mg daily to prevent relapse	High dose of pyrimethamine with calcium folinate to prevent myelosuppression.
Microsporidium	Profuse watery, non-bloody diarrhea, abd. Pain and cramping, nausea, vomiting, weight loss	Fresh stool microscopy with modified trichrome stain. Spores present in stool exam.		Most microsporidial infections are not treatable
Helmintic				
Strongyloides stercoralis		Chest X-ray-diffuse infiltrates, stool microscopy, sputum sample. Disseminated strongyloides filariform larvae can be found in stool, sputum, broncho-alveolar lavage, pleural, peritoneal and surgical drainage fluid.	Ivermectin 12mg for 3days. Laos drug of choice for the systemic type. Alternatively; Albendazole 400mg bid X5days. A maintenance therapy once a month to suppress symptomatic infection (albandazole 400mg or ivermectin 6 mg once daily)	
Others				
hepatitis				

Clinical features of diarrhea: Small and large bowel .

	Small bowel	Large bowel
Pathogens	E.coli , cholera, Salmonella, Cryptosporidium , Giardia lamblia	Shigella, C. deficile,C.jejjeuni, E.coli , Entero invasive E.coli
Pain	Mild Abdominal discomfort	Severe abdominal pains/cramps, Painful defecation Tenesmus
Stools	Watery, voluminous	Bloody or mucoid, small volume and frequent
Stool WBC and RBC	Negative	WBC positive