

Diarrhea

Summary from Rosen's By Nnenna Ejeseime

Epidemiology

- 4% of all deaths each year
- 3.5 million cases/ year of childhood diarrhea are caused by rotavirus
- 90% of diarrheal cases in the U.S. are caused by norovirus

Pathophysiology

- Types:
 - Infectious (viral mc, bacterial, protozoal, etc) vs Noninfectious (autoimmune, toxins, anatomic)
 - *Secretory* – cytotoxins increase membrane permeability and over secretion of water and electrolyte
 - *Inflammatory* – aka invasive, severe, or dysentery diarrhea s/s attributed to mucosal cell damage, leading to secondary hyper secretion of water, electrolytes, blood and mucus.
 - *Osmotic* – solutes induces osmotic movement of water into the lumen
 - *Abnormal Motility* – decrease contact time between absorbing mucosa and luminal contents.

Differential Diagnosis*

- Infections
 - Viral (60% of cases) → Rotavirus, Norovirus, Coronavirus, CMV, HSV
 - Bacterial (20%) → E. Coli, Salmonella, Shigella, Campy, C. Diff, Campylobacter, V. Cholera, Yersinia
 - Parasitic (5%) → Cryptosporidium, Cyclospora, Giardia, Schistosoma
- Noninfectious – ACE Inhibitors, Diuretics, Antibiotics, Antidepressants, Sorbitol, Shellfish neurotoxin, Ethanol, Carcinoid Tumor, Hyperthyroidism, VIPoma, Diabetes, Cystic Fibrosis, IBS, Crohn's. UC, Diabetes

Signs and Symptoms

- Duration:
 - Acute < 14 days, typically infectious
 - Persistent 14-30 days, suggests bacterial or protozoal
 - Chronic > 30Days, typically noninfectious
- Associated w/ Dehydration → tachycardic, hypotensive, poor skin turgor, diaphoretic, dry mucus membranes
- Associated with electrolyte disturbance → Kussmaul breathing. Muscle cramping, seizures, AMS
- Stool:
 - melena, mucus in stool → Invasive, inflammatory
 - Watery, loose, drug changes → Osmotic
 - watery, rice like → secretory
 - Pale → hepatobiliary
- Pediatrics : sunken eyes, depressed fontanel, decreased urine output, decreased activity

Work-up¹

- Thorough H&P
- Labs typically unnecessary in the Acute setting ; illness is usually self limiting
- Invasive or 'non-noroviral' suspicion → CBC, CMP, TSH, Serum lipase, Urine hCG, Hemocult and fecal cell count, C diff Toxin, E. Coli 0157:H7 toxin assay, Stool Culture, , and stool O&P,
 - Others: Giardia Antigen Assay, U/A
 - r/o Surgical Abdomen → Abd Series, or Abd CT, or laparotomy

Empiric Management

- Specific treatments are directed towards cause
- General → Oral Rehydration for Mild to moderate fluid loss.
 - Antimotility drugs still undecided → Loperamide safest for sx relief

- Of Note:
 - Bowel Rest is no longer suggested and may worsen diarrhea
 - Avoid Dairy products b/c some of the infectious pathogens cause a transient lactase deficiency worsening symptoms
 - Avoid foods high in simple sugars
- Pediatrics → BRAT (Bread, Rice, Apple, Toast) diet is suggested
 - *Abx treatment in severe cases may lead to HUS or TTP* → **AVOID ABX IN PEDS PT'S!!**
- Severe or invasive diarrhea aka the pt looks toxic → Cipro 500mg bid or levo 500mg daily for 3-5 days
- Suspicion of C. Diff → Metronidazole (Flagyl) or Vancomycin
- Suspicion of amebic inf → Metronidazole (Flagyl)

Disposition

- Uncomplicated acute diarrhea → d/c home after symptomatic relief, improvement of general exam, or stable. Follow up with PCP if symptoms worsen or do not improve
- Severe dehydration, hemodynamically unstable, toxic appearing, high risk patient → Admit to Floor for further management

¹Figure 31-1 – Approach to patient with acute diarrhea

* Extensive list of possible Causes see Box 31-1 and 31-2