Chapter 31 - Diarrhea

Episode Overview:

1) Define Acute, Persistent, Chronic Diarrhea
2) Describe the 4 mechanisms of diarrhea
3) List 15 historical factors that increase the risk of probability of non-benign diarrhea
4) What are the indications for empiric antibiotic treatment?
5) List 6 organisms that cause bloody diarrhea

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1) When is Loperamide indicated?
2) When should you use stool cultures / O&P
3) Best way to give children pedialyte?

Rosens in Perspective:

Diarrhea accounts for 5% of all ED visits (6 patients / week / provider)
- 4% of all deaths worldwide
- Infectious vs. Non-infectious
  - Infectious (85%)
    - 70% viral
    - 24% bacterial
    - 6% parasitic
  - Non-infectious (15%)

1) Define Acute, Persistent, Chronic Diarrhea

Diarrhea - Greek from *dia*- (through) and *rhein* (to flow)
- **Acute** - 14 days or less (usually infectious viral or bacterial)
- **Persistent** - 14 days or more (usually bacterial or protozoan)
- **Chronic** - 30 days or more (usually non-infectious)

2) Describe 4 mechanisms of diarrhea

*Rule of NUMBER 2 (POO):*
- 2 fast
- 2 strong
- 2 broken
- 2 confused

Too fast: **Abnormal Motility**
- Hypermotility decreases contact time, limiting water and electrolyte absorption
  - Example: heroin withdrawal (also component of almost every acute diarrhea)
Too strong: **Osmotic diarrhea**
- Highly osmotic solutes induce strong osmotic gradient favouring stool, overcoming transporter’s ability to absorb.
  - Examples: laxatives and steatorrhea

Too broken: **Inflammatory diarrhea**
- Direct damage or toxicity to cells, decreasing the ability to absorb
  - Examples: Chemotherapy, radiation, infection - continues *despite* fasting

Too confused: **Secretory diarrhea**
- Cellular confusion by cytotoxic chemicals cause secretion rather than absorption
  - Example: Cholera

3) **List 15 historical factors that increase the risk of probability of non-benign diarrhea**

*What are the so-called ‘red-flags’ of diarrhea?*

[1] **Location:** Encounters with hospital system, travel, day care, and wilderness

[2] **Exposure:** Antibiotic exposure, strange animals (shellfish, farm animals, amphibians), sick contacts, known contaminated meats or dairy

[3] **Symptoms:** Vomiting immediately after suspicious food, *pain/n/v/blood/fever/tenesmus*, greater than one week of diarrhea

[4] **Signs and Labs:**
- HUS (HGB < 80 with peripheral smear schistocytes and helmets, plt < 140, AKI)
- Stool WBCs (not sensitive or specific)
- Colonic ulcerations and pseudomembranes
- Proctitis

[5] **Patient factors:** Immune-compromised (Organs, HIV, other)

=== SEE Table 31-1 Listed Below ===
4) What are the indications for empiric antibiotic treatment?

Direct from Rosens:
“Antibiotic treatment is initiated in patients with a suspected invasive process and severe diarrhea, systemic symptoms, fever, or abdominal pain and in patients who appear toxic.”

If you decide to treat: Ciprofloxacin 500mg PO BID x 3-5 days is recommended
Caveats to this regime include:
- Pregnant women (crosses placenta)
- Children under 18 (supportive care until culture confirmed ETEC)
5) List 6 organisms that cause bloody diarrhea
   - “Clotty salty excrement screws your vitals”

   === Campylobacter // Salmonella // EPEC // Shigella // Yersinia // Vibrio ===

From: https://emlyceum.com/2015/11/02/diarrhea-answers/

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[1] When is Loperamide indicated?
   - Controversial, but generally accepted to be safe if no fever and non-bloody. Probably OK
   - However, probably okay if combined with antibiotics in the fever/bloody diarrhea
   - Avoid in pediatrics (can provoke HUS, toxic megacolon)

   Hippie granola tip of the week?
   - Lactobacillius probiotics may also help with diarrhea and can be suggested

[2] Who, what, when, when, why of stool cultures?
   - Ill-appearing
   - Immunocompromised (including young and old people)
   - Non-responders to treatment
   - Chronic course

   ➢ Know that positive rate is about 2%, which is astronomically low!

   Ova & Parasites?
   - Chronic, high risk locations
     - Rosens is very specific with this one: Russia and Nepal
   - Exposure to infants in daycare (strangely non-specific)
   - HIV (+) patients

[3] Best way to give children pedialyte?

   It turns out we may not have too…
   ➢ Recent study in JAMA by Freedman et al (Effect of Dilute Apple Juice and Preferred Fluids vs. Electrolyte Maintenance Solution on Treatment Failure Among Children With Mild Gastroenteritis)
     - Suggested that children with mild gastro who were given dilute juice had less treatment failure than electrolyte solution and required less IV fluid / hospitalization