

# Diarrhea: Background and Categories

- Diarrhea occurs in
  - 6% of hospitalized patients with cancer
  - Up to 10% of patients with advanced cancer
  - 20% to 49% of patients undergoing abdominopelvic irradiation
  - 50% to 87% of patients receiving 5-FU and topoisomerase inhibitors (irinotecan)
  - 80% of patients with carcinoid tumors
- Categories
  - *Osmotic*: ingestion of hyperosmolar substances such as sorbitol or enteral feeding solutions
  - *Secretory*: biochemical disturbances caused by enterotoxin-producing pathogens such as *Clostridium difficile*, *Escherichia coli*
  - *Exudative*: toxicity from radiation therapy to the bowel mucosa; mucosal atrophy and fibrosis
  - *Malabsorptive*: mechanical and biochemical disturbances from enzyme deficiencies
  - *Dysmotility-associated*: mechanical disturbance or peristaltic dysfunction resulting in rapid transit time of stool through the small and large intestine

# Diarrhea: Pathophysiology and Contributing Factors

- Gastrointestinal motility involves
  - Processes that promote the absorption of nutrients
  - Movement requiring coordination of intraluminal pressure and smooth muscle contractions
  - Control of the enteric nervous system and peptide hormonal release
- Diarrhea is caused by an imbalance in the physiologic mechanisms of the GI tract, resulting in impaired absorption and excessive secretion
- Chemotherapy-induced diarrhea (CID) is caused by mechanical and biochemical disturbances resulting from chemotherapy on the bowel mucosa
- In radiation that involves the abdomen and/or pelvis CID, acute damage to the epithelial crypt cells results in necrosis, inflammation, and ulceration of the intestinal mucosa
- Atrophy and fibrosis of the lining can occur over time, resulting in decreased absorption of water and electrolytes
- Decreased absorption of fluid and electrolytes can result from the presence of osmotically active substances in the lumen and/or increased intestinal motility

# Diarrhea: Assessment

- Hallmark assessment tool is patient report, which should include
  - Description of baseline bowel movements
  - Current bowel movement
    - History-onset, frequency, volume, consistency of stool, incontinence, presence of blood, or distinct change in odor of stool
- Evaluated for associated symptoms of bloating, abdominal cramping, fever or nausea, and vomiting
- Assess for secondary effects, such as signs and symptoms of
  - Dehydration, including orthostatic hypotension, dry mouth, excessive thirst, dizziness, feelings of weakness, decreased urination, or weight loss
- Comprehensive physical examination, including thorough examination of the abdomen
  - Incorporate palpation for tenderness or distension and percussion for dullness, which may indicate obstruction and auscultation for bowel sounds

# Diarrhea: Pharmacologic Interventions

Drug Class	Drug	Dose	Dose Limit/Duration
<b>Opioid</b>	<b>Lomotil</b> (2.5 mg diphenoxylate with 0.025 mg atropine sulfate/tablet)	May load with 2 tablets, then 1-2 tablets 4 times a day	Not to exceed 8 tablets/day
	<b>Opium tincture</b> (10% opium liquid: 10 mg morphine/mL with 19% alcohol)	0.3-1 mL PO every 2-6 hours until controlled	Not to exceed 6 mL/24 hours
	<b>Codeine</b>	15-60 mg PO every 4-6 hours as needed	
	<b>Paregoric</b> (0.4 mg morphine/mL)	5-10 mL PO 1-4 times a day	
<b>Nonopioid</b>	<b>Imodium® (loperamide)</b> (2-mg capsules or liquid 1 mg/mL or 1 mg/5 mL)	May load 4 mg orally, then 2 mg after each loose stool	Not to exceed 16 mg/day Discontinue after a 12-hour diarrhea-free interval
<b>Absorbents</b>	<b>Bismuth subsalicylate (Pepto-Bismo®)</b> (chewable tablets: 262 mg or suspensions 262 mg/15 mL or 524 mg/15 mL)	Dosing 524 mg every 30 minutes	Not to exceed 5 g/day
	<b>Kaopectate</b> (5.85 g kaolin and 130 mg pectin/30 mL)	2-6 g every 4 hours as needed	
<b>Somatostatin analogue</b>	<b>Octreotide acetate</b>	100-150 mcg SC 3 times/day	2nd-line treatment for loperamide-refractory CTID

Benson et al. *J Clin Oncol*. 2004;22:2918-2926.  
Viale et al. *Clin J Oncol Nurs*. 2005;9:541-552.

# Diarrhea: Nonpharmacologic Interventions

- Select foods that build stool consistency and that are low in fiber and contain pectin, eg, bananas, applesauce, rice
- Eat foods high in potassium: peach and apricot nectar, boiled or mashed potatoes without skin, lactose-free milk, bananas
- Eat foods at room temperature to minimize peristalsis
- Maintain a lactose-free diet if indicated: avoid milk and dairy products; may use lactose-free dairy products or soy milk products
- Increase fluid intake to at least 3 liters per day and avoid alcohol and carbonated beverages
  - Bouillon, fruitades, Gatorade<sup>®</sup>, Propel<sup>®</sup>, or other sports drinks
  - Pedialyte<sup>®</sup> or Pedialyte<sup>®</sup> ice pops, ice pops, gelatin
- Avoid high-fiber, high-fat, greasy, or spicy foods or caffeine-containing foods
  - Whole-grain breads or cereals, raw vegetables, nuts, seeds, popcorn
  - Relishes or pickles, high-fat spreads or dressings, chocolate, coffee/tea, cola drinks