

A) Constipation

B) Diarrhea

Lecture 6

Prof. Ahmed Shaaban

Professor of Pharmacology &
Senior Consultant of Endocrinology



CONSTIPATION

Stools are too hard, small or infrequent or too excessive straining during defecation.

Beside treatment of the underlying cause, constipation is treated by laxatives (mild), purgatives (of moderate potency) and cathartics (potent).

Adverse effects

1. Cathartic habit and atonic colon.
2. Diarrhea.
3. Dehydration and hypokalemia.
4. Abortion.
5. Excretion in milk during lactation.



USES of purgatives

1. Constipation.
2. Pre and postoperative.
3. Before X ray on GIT or urinary tract.
4. Before endoscopy.
5. Hepatocellular jaundice.
6. Removal of ingested poisons.
7. With anthelmintics.
8. Before delivery.



Types of purgatives

A) Bulk purgatives

e.g. bran and methyl cellulose.

Mechanism:-

They pass in GIT unabsorbed, bind with water causing distension of intestine leading to increase peristalsis. Mild action.

Uses:-

1. Constipation.
2. Obesity.
3. Irritable bowel syndrome.

Adverse effects:-

1. Hardening of stools → intestinal obstruction if not taken with plenty of fluids.
2. Decrease iron and Ca^{++} absorption.



B) Stimulant (irritant) purgatives

They stimulate autonomic plexuses leading to increase peristalsis.

1. Cascara, senna and aloes contain emodin alkaloids which are absorbed in intestine and excreted into colon leading to stimulation of peristalsis.

2. Bisacodyl: Stimulates large intestine.

Mild action, given before sleep.

3. Castor oil: stimulates small intestine.

Potent, with rapid onset, given in the morning.



C) Osmotic purgatives

1. Potent hyperosmolar **saline purgatives** :

e.g. magnesium sulfate, Mg citrate and sodium sulfate.

They cause fluid, electrolyte and acid – base imbalance.

2. Polyethylene glycol:

Safer than saline purgatives, does not cause imbalance.

Both are used in ttt of acute constipation and before surgical, endoscopic (as colonoscopy) and radiographic procedures.



3. Lactulose:

Mechanism:

Non absorbable disaccharide (galactose – fructose), digested by colon bacterial flora forming short chain fatty acids causing acidification of colon→

- a. Disturbance of bacterial flora.
- b. Prebiotic.
- c. Laxative
- d. Ammonia binding.
- e. ↓colon pH → ↓survival of urease- producing & glutaminase - producing gut bacteria & converts ammonia (NH_3) into ammonium (NH_4^+) which is not absorbed.

Uses:

- a. Hepatic encephalopathy.
- b. Constipation.

Adverse effects:

- a. Flatulence.
- b. Abdominal pain.
- c. Diarrhea.



D) Lubricants

→ softening of stools.

1) Docusate sodium:

Stool surfactant agent that softens stools by lowering of surface tension. Mild laxative.

2) Paraffin (mineral oil):

Side effects:

1. ↓ absorption of fats & fat soluble vitamins.
2. Aspiration lipoid pneumonia.
3. Leakage causing eczema around anus.
4. Granulomatous reactions in regional lymph nodes.
5. Delay anorectal wound healing.

3) Suppositories e.g. glycerin.

4) Evacuant enema.



DIARRHEA

A stool weight of > 250 gm daily, \uparrow stool frequency (more than twice daily) or liquidity of feces.

Treatment of acute diarrhea

1. Diet:

Soft easily digested foods with frequent feeding of fruit drinks and tea to rest the bowel.

Avoid high fibers foods, fats and milk products.

2. Rehydration :

- Oral rehydration is effective in almost all awake patients.

Fluids contain glucose, sodium, potassium, chloride, bicarbonate or citrate. They are given in rates of 50-200 ml/kg/24 hours depending on hydration state.

- IV fluids are used only in severe selected cases.



3. Symptomatic treatment:

a. Opioid agents decrease stool number and liquidity and control fecal urgency. Loperamide is preferred. The initial dose is 4 mg, followed by 2 mg after each loose stool. Maximal dose is 16 mg / day.

Contraindicated in patients with bloody diarrhea, high fever or systemic toxicity.

Discontinued in patients whose diarrhea is worsening despite therapy.

b. Anticholinergic drugs e.g. atropine with diphenoxylate are contraindicated in acute diarrhea because they decrease GIT motility and lead to retaining of toxins.

c. Drugs increasing gut viscosity:

They provide a coat for bowel and adsorb toxins

e.g. kaolin, pectin and bismuth subsalicylate.

d. Astringents:

They coagulate surface layer of mucosa e.g. tannic acid.



4. Antibiotics:

Used in signs of invasive pathogens with moderate to severe symptoms of fever, tenesmus and bloody stools.

Drugs of choice are fluoroquinolones e.g. ciprofloxacin 500 mg twice daily for 5-7 days.

Alternative drugs include antimicrobials against shigella & salmonella and antiamebic or antifungal drugs.

Rifaximin is used also as tablets 200 mg tds for 3 days in traveller,s diarrhea.

Chronic diarrhea is similar, but diphenoxylate & anticholinergic drugs are used. Clonidine is used in secretory diarrhea & diabetes.

Dugs producing diarrhea are avoided as cholinomimetics, α methyl dopa, purgatives, magnesium antacids, broad spectrum antimicrobials & colchicine.

