



DRUGS USED FOR TREATMENT OF CONSTIPATION

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CONSTIPATION

Definition of Constipation

- ▶ Constipation is an acute or chronic condition that is characterized by the difficulties in passage of stool
- ▶ The stool usually tends to be hard and mostly passed in smaller quantities
- ▶ There is also straining when passing stool

The key note on constipation;

- ▶ Hard stool
- ▶ Pain and straining on passing stool
- ▶ Final passage of small stool

Risk factors

- ▶ Older age group
- ▶ Being a woman
- ▶ Being dehydrated
- ▶ Low fibre diet
- ▶ Certain medications
- ▶ Mental health conditions e.g. depression or an eating disorder

Drugs that cause constipation

Opioids

Antihistamines

Tricyclic antidepressants

Scopolamine, benztropine

Diuretics

Bile acid sequestrants

Calcium channel blockers

Calcium supplements/antacids

Aluminum-containing drugs (antacids, sucralfate)

Iron supplements

Phenothiazines

Benzodiazepines

Complications of constipation

- ▶ Hemorrhoids - swollen veins in the anus
- ▶ Anal fissure - Torn skin in the anus
- ▶ Anal impaction - stool that cant be expelled
- ▶ Rectal prolapse – intestine that protrudes from the anus

Treatment of constipation

- ▶ Treatment of constipation focuses on the following;
- ▶ Removal of underlying cause
- ▶ Lifestyle modification which includes the following;
 - Increase of dietary fibre ingestion
 - Adequate fluid intake
 - Regular exercise
- ▶ Patients be encouraged to embark on dietary modification like the need to eat fruits, vegetables and whole grain foods that add bulk to diet
- ▶ If dietary modification fails to achieve the control of constipation, a laxative can be used

Laxatives

- ▶ Laxatives are a group of drugs that help stimulate intestinal motility and increase the movement of material through the bowel
- ▶ This leads to decreasing intestinal transit time and hence facilitation of defecation

Indication of laxatives

- ▶ Constipation where dietary modification has proved insufficient
- ▶ Evacuate the bowel before surgery or diagnostic examination
- ▶ Elimination of drugs or poisons from the intestinal tract in case of drug overdose or poisoning

Types of laxatives

- ▶ Bulk forming laxatives
- ▶ Stool softeners (Surfactant laxatives)
- ▶ Osmotic laxatives
- ▶ Stimulant (Secretory) laxatives

Bulk forming laxatives

- ▶ These are indigestible hydrophilic substances which **resemble natural dietary fibre**

Examples:

- ▶ Calcium polycarbophyl
- ▶ Methyl cellulose
- ▶ Psyllium hydrophyllic mucilloid

Mechanism of action

- ▶ They absorb and retain water in the intestinal lumen thereby, increasing the mass of intestinal content
- ▶ This causes eventual distention of the intestinal wall and thus leading to stimulation of peristalsis
- ▶ To help enhance adequate hydration and prevent intestinal obstruction, bulk forming laxatives should be taken with a full cup of water

Bulk forming laxatives

- ▶ Bulk forming laxatives are the safest and most physiologic form of laxatives and rarely cause adverse effects
- ▶ They are therefore preferred for the chronic constipation
- ▶ Based on their ability to absorb water and irritant substances such as bile salts, these drugs are also used in the treatment of diarrhea

Stool softeners (Surfactant laxatives)

Examples –

- ▶ Docusate (sodium, calcium)
- ▶ Liquid paraffin

Mechanism of action

- ▶ As their name stipulates, these help to soften the stool by facilitating the incorporation of water into fatty intestinal material and thereby, softening feces

Indications

- ▶ Constipation where stool is hard with painful and irritating passage
- ▶ anorectal conditions like hemorrhoids
- ▶ Conditions where patients needs to avoid straining during defecation e.g after having abdominal or other related surgery

Osmotic laxatives

▶ Examples –

Poorly Absorbed Sugars

- ▶ Lactulose
- ▶ Polyethylene glycol (PEG)

Poorly absorbed salts (saline laxatives)

- ▶ Magnesium oxide (Milk of magnesia)
- ▶ Sodium phosphate
- ▶ These drugs can either be taken orally or as enemas (an injection of a liquid through the anus to stimulate evacuation; sometimes used for diagnostic purposes)
- ▶ **Sufficient doses of saline laxatives act rapidly to stimulate defecations**

Mechanism of action

- ▶ These substances attract and retain water in the intestinal lumen leading to increase intraluminal pressure
- ▶ This eventually stimulate peristalsis

Indications of osmotic laxatives

▶ Sodium Phosphate

- **Bowel evacuation** in patients scheduled for surgery/diagnostic exams
- Patients with **drug overdose or poisoning**

▶ Magnesium hydroxide

- can be used in lower doses to **prevent constipation** like in patients receiving opioids

- ▶ In contrast to saline laxatives, lactulose and PEG are effective in chronic constipation

Side effects of saline laxatives

- ▶ Excessive use of saline laxatives can lead to loss of fluids and electrolytes

Caution

- ▶ Patients with renal impairment may not be able to properly excrete saline laxatives that are absorbed into circulation
- ▶ Therefore, use of these agents should be limited to short term use

Stimulant (Secretory) laxatives

- ▶ These include a large group of natural and synthetic compounds

Natural compounds include

- ▶ castor oil
- ▶ senna
- ▶ cascara

Synthetic compound example is include bisacodyl

- ▶ Usually available as oral and suppository formulations

Mechanism of action

- ▶ These agents are stimulative in nature where they act directly on the intestinal mucosa to alter fluid secretion and subsequent stimulation of peristalsis

Indications

- ▶ Evacuating the bowel before surgery or examination

Side effects of stimulant laxatives

- ▶ Abdominal cramping
- ▶ Significant electrolyte and fluid depletion
- ▶ Atonic colony
- ▶ For this reason, stimulant laxatives should be limited to the short term treatment of constipation and bowel evacuation

Other agents

Lubiprostone and Tegaserod

- ▶ These are newer agents reserved for the treatment of chronic idiopathic constipation (CIC) and IBS (Irritable Bowel Syndrome) with constipation

Mechanism of action of lubiprostone

- ▶ Activates the intestinal chloride (ClC-2) channel in the apical (luminal) membrane of the intestinal epithelium
- ▶ This stimulates secretion of chloride rich fluid into the intestinal lumen thereby increasing intestinal motility and relieving constipation

Tegaserod

- ▶ This is a serotonin 5HT₄ receptor antagonists that has been used for treating women with IBS whose predominant symptom is constipation

Brief Guide on progression of treatment

- ▶ Start with dietary modifications which is one component of treatment
- ▶ Bulk forming laxatives can be used on long term basis without noticeable side effects
- ▶ Lactulose and PEG are often effective if a bulk forming laxative is not effective

END