

## Non-drug Therapy of constipation (الإمساك):-

- Ingestion of adequate amounts of fiber in the diet, as well as sufficient liquid intake.(fiber without sufficient liquid is not enough!!, it might make things worse actually!!)
- Reduce emotional stress (adrenergic sympathetic stimulus can disturb intestinal motility)
- Healthy lifestyle (healthy weight and exercise level).

Elimination of any constipating drugs (e.g. opioids)

. Dealing with the underlying medical problem causing constipation

## Drug Therapy for constipation (Laxatives):-

**Laxatives** are drugs used for constipation.

Most of them cause dependence in the patient (laxative abuse), so they need to be used as infrequently as possible and terminated as soon as possible.

Laxatives increase the potential loss of pharmacological effect of poorly absorbed, delayed acting, and extended-release oral preparation by accelerating their transit/passage through the intestine.

start with the mildest type of laxative (bulk laxatives) because they are safe and convenient and use the lowest effective dose.

Chronic use of laxatives may cause electrolyte imbalances

Irritant and stimulants	Bulk laxatives	Saline drugs and osmotic laxatives	Stool Softeners	Lubricant laxatives	Chloride channel activators
<p><b>Stimulants(senna and bisacodyl):</b> these stimulate intestinal motility by:-</p> <p>1. Enhancing water and electrolyte secretion into the bowel (change in stool consistency) or 2. Acting directly on mucosal nerve fibers to enhance peristalsis.</p> <p><b>Stimulants: Senna:-</b></p> <ul style="list-style-type: none"> <li>• Widely used.</li> <li>• Active ingredient: sennosides (naturally occurring from Senna fruit or leaves).</li> <li>• It increases motility as well as water and electrolyte secretion into the bowel.</li> <li>• Causes evacuation of bowel within 6-12 hrs.</li> <li>• Main indication: treatment of opioid-induced constipation, in combination with docusate-containing stool softener.</li> <li>• Remember: opioids decrease peristalsis by inhibiting Ach release, so Senna counteracts this effect.</li> </ul> <p><b>Stimulants: Bisacodyl</b></p> <ul style="list-style-type: none"> <li>• Potent stimulant of the colon. (mnemonic:colon is a big sax→bisacodyl)</li> <li>• It acts directly on nerve fibers in the mucosa of the colon.</li> <li>• Available as: enteric-coated tablets and suppositories.</li> </ul>	<ul style="list-style-type: none"> <li>• Hydrophilic colloid from indigestible parts of fruits and vegetables.</li> <li>• They form gels in the large intestine causing water retention and intestinal distention, thereby increasing peristaltic activity.</li> <li>1. <b>Psyllium</b> →from seed husk, crushed and used as either powder or tablets. <u>It is important to drink lot of water with them.</u></li> <li>2. <b>Methylcellulose</b> (known as Citrucel) →derivative from plant cellulose →most commonly as powder and mixed with cold water(NOT HOT!)</li> <li>• <u>Bulk laxatives are First line of treatment.</u> Indications are many which include chronic, long lasting constipation (safe for long-term use, because they are natural and cause no dependence).</li> </ul>	<p><b>Saline drugs:</b> - <u>Magnesium citrate</u> and <u>Magnesium hydroxide</u>.</p> <p>• They are nonabsorbable salts that hold water in the intestine by osmosis. This distends the bowel, increasing intestinal activity and producing defecation in a few hours.</p> <p>• They are both taken orally . Onset: 30 mins - 6 hours.</p> <p>NOTE: Not used for prolonged periods in patients with renal insufficiency due to hypermagnesemia</p> <p><b>Osmotic drugs:</b> <u>Polyethylene glycol (PEG)</u> and <u>Lactulose</u> (semisynthetic disaccharide sugar)</p> <p>• Onset: 1 – 3 days</p> <p>General mechanism of action</p> <ol style="list-style-type: none"> <li>1. Inability to be absorbed (Both PEG and lactulose)</li> </ol>	<p><b>Stool softeners also know as emollient laxatives.</b></p> <p>Surface active agents that become emulsified with stool and produce softer feces and ease stool passing.</p> <p>The main stool softening drug is <b>DOCUSATE</b>.</p> <p>Relief is usually achieved in 1-3 days.</p> <p>The active ingredients are: <b>DOCUSATE SODIUM</b> (Colace) and <b>DOCUSATE CALCIUM</b>.</p> <p>Stool softeners are the first line of prophylaxis (post surgery, post delivery).</p> <p>Compare with bulk laxatives, which are 1<sup>st</sup> line for treatment but</p>	<p><b>Mineral oil and glycerin suppositories.</b></p> <p>Mineral oil can be taken orally or rectally.</p> <p>Used for acute constipation or after surgeries to prevent constipation.</p> <p>Best taken 2 hours following the last meal.</p> <p>It decreases water absorption hence facilitates better flow</p> <p>Must be taken in an upright position and with large amounts of water ( for oral administration) to avoid its aspiration and potential for lipid or lipid pneumonia.</p> <p>Should not be given to bedridden</p>	<p><b>(Lubiprostone)</b></p> <p><b>Mechanism of action:</b> It acts by activating chloride channel → efflux of chloride, followed by sodium, this leads to water following the sodium into the lumen. This promotes bowel movements through increase in stool frequency, volume, and consistency and induces peristalsis (through stretch mechanism).</p> <p>indications:</p> <ol style="list-style-type: none"> <li>1. Chronic idiopathic constipation (because lubiprostone because it has no trace of tolerance or dependence.)</li> <li>2. Opioid induced constipation.</li> </ol> <p><b>Irritable bowel syndrome with constipation</b></p>

<p><b>Irritants:</b> these cause <u>mild</u> irritation of the stomach and promptly increase peristalsis</p> <p><b>Irritants :Castor oil</b> زيت خروع</p> <p>Castor oil is broken down in the small intestine to <b>ricinoleic acid</b>, which irritates the stomach and causes increased peristalsis.</p> <ul style="list-style-type: none"> <li>• It is <b>CONTRAINDICATED</b> in pregnant patients because it may stimulate uterine contractions, leading to abortion.</li> <li>• Generally, not recommended due to poor palatability and potential GI adverse effects.</li> </ul>  <p><b>Stimulants and irritants are not prescribed as a first line</b> management of constipation and are generally used to treat constipation which has not responded to taking bulk and osmotic laxatives.</p> <p><b>Sides effects of stimulants and irritants:</b></p> <ol style="list-style-type: none"> <li>1. Diarrhea and cramping</li> <li>2. Stomach upset and vomiting.</li> <li>3. <b>Heavy menstruation.</b></li> </ol>	<p><b>Bulk laxatives are Contraindicated in patients with swallowing difficulties.</b></p> <p><b>Used cautiously in immobile patients because can cause intestinal obstruction.</b></p> <p><b>Side effects of bulk laxatives:</b></p> <ol style="list-style-type: none"> <li>1. Abdomen cramps. (mainly with psyllium due to fermentation by microbiota) but is less than stimulants and irritants</li> <li>2. Decrease absorption of other oral drugs. so given at least 2 hours apart.</li> <li>3. If not ingested with enough water, they can aggravate constipation.</li> </ol>	<p><b>2. Not digested by intestinal enzymes (both).</b></p> <p>(Lactulose) can be degraded by bacteria in colon into lactic, formic and acetic acids.</p> <p><b>3. Increase osmotic pressure</b></p> <p>4. This distends the bowel Increasing intestinal activity</p> <p><b>Indications of salines and osmotics:-</b></p> <ol style="list-style-type: none"> <li>1. <b>Not first line for constipation (other medications such as bulk laxatives are better)</b></li> <li>2. <b>Clear the gut prior to surgery and radiologic or endoscopic procedures. (mainly PEG as gastric lavage solution)</b></li> <li>3. Lactulose has been used in hepatic encephalopathy because it reduces ammonia levels</li> </ol>	<p>not prophylaxis</p> <p>They are gentle enough to prevent constipation but are the <b>least effective option for treating it</b>. So, they are usually used for mild cases.</p> <p>Should not be taken with <b>mineral oil</b> because of potential absorption of mineral oil.</p>	<p>patients as it can cause lipid pneumonia.</p> <p>Should not be used for old adults (&gt;65 or children &lt;6) because they are more prone to aspiration</p>	<p><b>Notes : This drug is contraindicated in pregnant women.</b></p> <p>The main adverse effects of Lubiprostone are nausea, <b>diarrhea</b>, and headache.</p> <p>Oral administration with food or water lowers the side effect of nausea. T</p> <p><b>this drug has very limited drug-drug interactions because metabolism occurs quickly in the stomach and jejunum</b></p>
---	---	--	--	--	---

		<p>The side effects of salines and osmotics are generally:</p> <ol style="list-style-type: none"><li>1. Nausea</li><li>2. Abdominal cramping</li><li>3. Gas/ Bloating</li><li>4. Diarrhea</li><li>5. Dehydration</li></ol>			