Constipation
Use of Laxatives: When, Which And How?

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All backed up and no where to go

Why?

• Common
• Costly
• Confusing
Learning Objectives

• An understanding of the basic pathophysiology and types of chronic constipation (CC)

• ...and develop an systematic approach for the diagnosis and treatment of this common problem

• Judicious and safe use of laxatives

Case

56 y lady, PMHx of HTN, DM, HLD, presents with complaints of having stools only twice a week, and feeling “full.” She’s eating more vegetables, but is unable to take enough fluids, and she recently included fiber to her diet. Her last colonoscopy one year ago was normal. She comes to you for her constipation.

What would you offer her?
A. Lactulose
B. Senna
C. Docusate
D. Weekly tap water enemas
Constipation

Different meaning for different people

Not a disease but a symptom

Patients definition ≠ Clinician definition ≠ EB definition

Common Patient Descriptions

<table>
<thead>
<tr>
<th>Percent of Patients</th>
<th>Straining</th>
<th>Hard or lumpy stools</th>
<th>Incomplete emptying</th>
<th>Stool cannot be passed</th>
<th>Abdominal fullness or bloating</th>
<th>&lt; 3 BM per week</th>
<th>Need to press on anus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>81</td>
<td>72</td>
<td>54</td>
<td>39</td>
<td>37</td>
<td>36</td>
<td>28</td>
</tr>
</tbody>
</table>

What Physicians think: < 3 BM per week

**Rome III Diagnostic Criteria** for Constipation

Chronic constipation must include **2 or more** of the following:

- Straining
- Lumpy or hard stools
- Sensation of incomplete evacuation
- Sensation of anorectal obstruction/blockage
- Manual maneuvers to facilitate defecations
- < 3 defecations per week

Loose stools are rarely present without the use of laxatives

Insufficient criteria for irritable bowel syndrome (IBS-C)

*Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis

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**Pooping Business in Singapore**

- Population-based survey - 2276 (1143 M, 1133 F)
- Overall Prevalence - 25.1%
- Highest Prevalence - 35.8% in men > 70 years
- Commonest symptoms
  - hard stool (95.1%),
  - Straining (90.9%),
  - incomplete evacuation (53.8%)

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Causes of Chronic Constipation

• Primary - Primary Colorectal dysfunction
  
  * Normal-transit constipation
  * Slow-transit constipation
  * Dys-synergic Defecation/Defecatory disorder
  * Irritable Bowel Syndrome with constipation (IBS –C)

• Secondary Constipation
  
  * Multiple causes

• Chronic Idiopathic Constipation (CIC)
  
  * Does not meet IBS-C criteria

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Management

• Thorough history - EXACT symptoms
• Identify Risk factors/Secondary causes
• Assessment for alarm features
• General/abdominal/digital rectal exams
• Evaluate symptoms in terms of diagnostic criteria
• Treatment/Management plan
Secondary Causes

**Psychological**
- Depression
- Eating disorders

**Lifestyle**
- Inadequate fiber/fluid
- Inactivity

**Metabolic/Endocrine**
- Hypercalcemia
- Hyperparathyroidism
- Diabetes mellitus
- Hypothyroidism
- Hypokalemia
- Uremia
- Addison’s
- Porphyria

**Neurological**
- Parkinson’s
- Multiple sclerosis
- Autonomic neuropathy
- Angioplisis (Hirschsprung’s, Chagas)
- Spinal lesions
- Cerebrovascular disease

**Systemic**
- Amyloidosis
- Scleroderma
- Polymyositis
- Pregnancy

**Gastrointestinal**
- Colorectal: neoplasm, ischemia, volvulus, megacolon
- Diverticular disease
- Anorectal: prolapse, rectocele, stenosis, megarectum

**Drugs**
- Opiates
- Antidepressants
- Anticholinergics
- Antipsychotics
- Antacids (Al, Ca)
- Ca channel blockers
- Iron supplements

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**Ask about the Stool Form**

**The Bristol Stool Form Scale**

<table>
<thead>
<tr>
<th>Slow Transit</th>
<th>Fast Transit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type 1</strong></td>
<td>Separate hard lumps</td>
</tr>
<tr>
<td><strong>Type 2</strong></td>
<td>Sausage-like, lumpy</td>
</tr>
<tr>
<td><strong>Type 3</strong></td>
<td>Sausage-like but with cracks in the surface</td>
</tr>
<tr>
<td><strong>Type 4</strong></td>
<td>Smooth and soft</td>
</tr>
<tr>
<td><strong>Type 5</strong></td>
<td>Soft blobs with clear-cut edges</td>
</tr>
<tr>
<td><strong>Type 6</strong></td>
<td>Fluffy pieces with ragged edges, a mushy stool</td>
</tr>
<tr>
<td><strong>Type 7</strong></td>
<td>Watery, no solid pieces</td>
</tr>
</tbody>
</table>

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Clinical Examination

Digital rectal examination

- Stool character
- Anal tone, Pain
- Mass
- Prolapse
- Assess for
  - Anal reflex,
  - Dys-synergic defecation

Diagnostic Testing

- Not recommended in patients without alarm S/S
  - BUT routine colon cancer screening recommended for all patients aged ≥ 50 years
- Thyroid function tests
- Measurements of
  - Calcium
  - Electrolytes

How I Treat Constipation?

Education & Life style modifications

Judicious use of empirical Laxatives

Specialist Diagnostic Evaluation

Reinforce Laxative use

Wean down or off therapy

Biofeedback - in select patients

Surgical

• Fluid
• Fiber
• Feet
• Follow
• Follow
Laxatives

I) Bulk forming laxatives: Fybogel
   Increase volume of non absorbable solid fecal residue

II) Osmotic laxatives: Sugars or Salts like Lactulose, Na or Mg salts, PEG
   Non absorbable, draw water into colon by osmosis

III) Stimulant or irritant laxatives: Bisacodyl, Senna
   Stimulation of nerve endings in colonic mucosa to enhance peristalsis

IV) Stool softeners (lubricants): Docusate, Glycerin
   Alter the consistency of feces → easier to pass

V) Newer Agents
   Lubiprostone - stimulate secretion of Cl and Na along with water into lumen
   Prucalopride - High selectivity and affinity for 5 HT4 receptors

<table>
<thead>
<tr>
<th>Laxative</th>
<th>Site of action</th>
<th>Onset time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk</td>
<td>Small &amp; large intestine</td>
<td>12-72 h Delayed</td>
</tr>
<tr>
<td>Saline</td>
<td>Small &amp; large intestine</td>
<td>1-3 h Rapid</td>
</tr>
<tr>
<td>Lactulose</td>
<td>Large intestine</td>
<td>12-72 h Delayed</td>
</tr>
<tr>
<td>Softeners</td>
<td>Small and large intestine</td>
<td>Enema 5-20 minutes Oral 12 – 72 hours</td>
</tr>
<tr>
<td>Stimulants</td>
<td>Small and large intestine</td>
<td>Enema 1-2 h Oral 8 – 12 hours</td>
</tr>
</tbody>
</table>
Laxative Selection

Choice of laxative should be determined by:
- Degree of constipation
- Type of constipation
  - acute or chronic constipation
- Subgroup
  - Slow transit
  - Normal transit
  - Dyssynergic Defecation
  - IBS - C
- Individual preferences and tolerability
- Cost

Acute constipation

- Clear Rectum first
  - Suppositories, Enema or Osmotic laxative
- Prevent recurrence
  - Remember F’s
- Refer, if
  - Unresponsive,
  - new onset,
  - severe constipation
Fecal Impaction

**Impacted Stools in Rectum**

Liquid Stools

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**Chronic constipation**

- Aim regular bowel habit rather than intermittent ‘clean out’
  - use small regular doses of laxatives

- **Presenting symptoms**
  - Hard / lumpy stools
    - Osmotic laxatives
  - Defecating < once or twice a week
    - Stimulant & softener laxatives
  - Manual digitation
    - Enema and osmotic laxatives
Rectal laxatives

- Include
  - Suppositories
  - Enema
- Use when
  - Need rapid relief
  - Oral therapy is not producing bowel motion

Suppositories

Choice depends on type of stool in rectum

- Soft stools – Stimulant like bisacodyl suppository
- Hard stools – Softener like glycerol suppository

<table>
<thead>
<tr>
<th>Lubricant suppositories</th>
<th>Stimulant suppositories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>Bisacodyl</td>
</tr>
<tr>
<td>Insert into faecal mass</td>
<td>Insert against mucus membrane</td>
</tr>
<tr>
<td>Insert pointed end first</td>
<td>Insert blunt end first at least 4cm into rectum</td>
</tr>
<tr>
<td>20 minutes for effect</td>
<td></td>
</tr>
</tbody>
</table>
Enema

• Limit use to acute situations
• Small volume tap water enemas are preferred
• Osmotic e.g. Fleet Phosphate Enema
• Stool softeners e.g. docusate, liquid paraffin
• Adverse effects
  • Large volume enema: hyponatraemia, fluid overload
  • Phosphate enema: hyperphosphataemia in renal impairment
  • Risk of abuse
  • Risk of colonic perforation

Long-term Laxative Concerns...

• No evidence for addiction
• No evidence for tolerance
• No evidence for dependence
• No evidence for harm from stimulant use
• Melanosis coli may develop, but it is a benign condition
When to Refer?

- Red Flags
- Changing/adding laxatives does not help
- Not getting better with good trial of treatment
- If they have had it since birth
- If you find a serious pathology

Specialist Diagnostic Evaluation

- Chronic Constipation
  - Severe/Unresponsive

  I. Colonic transit Study
  II. Anorectal manometry
  III. Balloon expulsion test
Normal Transit Constipation

DAY 1
No or < 5 markers

DAY 5

Slow Transit Constipation

DAY 1
Retention of > 20% markers

DAY 5
Dys-synergic Defecation

Most markers gather at rectosigmoid

ANORECTAL MANOMETRY
BALLOON EXPULSION TEST

RAIR

NORMAL RAIR

DYSSYNERGIC RAIR
Chronic Constipation
Severe/Unresponsive

Colonic transit Study
Anorectal manometry
Balloon expulsion test

Slow transit
Normal pelvic floor function

Normal transit
Normal Pelvic floor function

Normal transit
Abnormal pelvic Floor function

Abdominal pain +

Abdominal pain -

Slow-transit Constipation
IBS with Constipation
Chronic Idiopathic Constipation
Dyssynergic Defecation

Primary Constipation

<table>
<thead>
<tr>
<th>Type/Prevalence</th>
<th>Clinical Presentation</th>
<th>Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Transit 60%</td>
<td>Difficult EVACUATION of HARD stools</td>
<td>Use Fiber with caution Fluids Osmotic Laxatives</td>
</tr>
<tr>
<td>Dys-synergic defecation 25%</td>
<td>Difficult EVACUATION of even SOFT stools h/o DIGITATION</td>
<td>Pelvic Floor Muscle Training Biofeedback</td>
</tr>
<tr>
<td>Slow Transit “Colonic inertia” 15%</td>
<td>INFREQUENT bowel movements INFREQUENT URGE</td>
<td>Fiber &amp; Fluid not helpful Stimulant Laxatives</td>
</tr>
<tr>
<td>IBS- C</td>
<td>Presence of ABDOMINAL DISCOMFORT RELIEF after defecation</td>
<td>Stress Management Antispasmodics &amp; Laxatives Newer Laxatives</td>
</tr>
</tbody>
</table>
Case

56 year old lady, PMHx of HTN, DM, HLD, presents with complaints of having stools only twice a week, and feeling “full.”
She’s eating more vegetables, but is unable to take enough fluids, and she recently included fiber to her diet.
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She comes to you for her constipation.

What would you offer her?
A. Lactulose
B. Senna
C. Docusate
D. Weekly tap water enemas
Summary

• Constipation is a common problem
• Aim of management is to
  • identify the type
  • use appropriate laxatives
• Judicious use of laxatives will lead to
  • safe administration
  • minimal side effects
  • effective prevention
  • reduced incidence of emergency situations
• Appropriate referrals

THANK YOU
Lactulose - Osmotic

• Sugar: semisynthetic disaccharide of fructose and galactose
• Non absorbable
• Metabolized by colonic bacteria into fructose and galactose
• These sugars are fermented into lactic acid and acetic acid that function as osmotic laxatives
• Delayed onset of action (2-3 days)
• Side Effects:
  – Abdominal cramps and flatulence,
  – Electrolyte disturbances
• More effective than placebo, less effective than senna/fibre combination
Polyethylene Glycol (PEG)

- Isotonic solution of polyethylene glycol & electrolytes (NaCl, KCl, Na bicarbonate)
- Is a colonic lavage solution
- Used for bowel prep. prior to colonoscopy or surgery (4L over 2 to 4 hours)
- Advantages
  - Limited fluid or electrolyte imbalance
  - less flatulence and cramps
- Effective at improving stool frequency and stool consistency

Senna & Bisacodyl (Dulcolax) - Stimulants

- Powerful laxatives to be used with care
- Act via direct stimulation of enteric nervous system in colon → increased peristalsis & purgation
- Senna is hydrolyzed by colonic bacteria into sugar + emodin
- Absorbed emodin has direct stimulant action
- Emodin may pass into milk.
- Bowel movements in
  - 8 to 12 h (orally) or 1 to 2 h (rectally)
- Given at night
Emerging Laxatives

Prucalopride

- Selective 5-HT₄ agonist, less affinity for 5-HT₃ or 5-HT₁₈ receptors
- Increases colonic motility and transit
- Efficacy in severe chronic constipation (1-2mg/day)
- Adverse events: headache, abdominal pain, nausea, diarrhea

Lubiprostone

- Activates ClC-2 chloride channels
- Movement of Cl⁻, Na⁺, H₂O follow
- Increased luminal fluid secretion
- Shortened colonic transit time

- Indicated for:
  - Chronic idiopathic constipation (24 µg BD) in the adults
  - IBS-C (8 µg BD) in women ≥ 18 years