

MCP Gastrointestinal & Genitourinary Drugs

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Learning Objectives

- Identify OTC* vs. Rx therapies
- Determine when to recommend OTC therapy vs. refer
- Learn counseling points for lifestyle modifications/medications
- Understand stepwise approaches to pharmacological treatment

Outline

- Upper GI Disorders and Drugs
- Lower GI Disorders and Drugs
- Urinary Conditions and Drugs



Upper GI Disorders and Drugs Heartburn & Dyspepsia

- **What are they?**
 - Heartburn
 - Acid Reflux
 - Lower esophageal sphincter (LES) incorrectly allows stomach acid to enter the esophagus
 - Symptom of gastroesophageal reflux disease (GERD)
 - Dyspepsia
 - Upset Stomach
 - Indigestion
 - Can accompany heartburn

Upper GI Disorders and Drugs Heartburn & Dyspepsia

- **Common Symptoms**
 - Burning Sensation
 - Discomfort behind breastbone
 - Belching, bloating
 - Nausea/vomiting
 - Acid regurgitation

Upper GI Disorders and Drugs Heartburn & Dyspepsia

- **When to refer**
 - Severe, recurrent, persistent symptoms
 - Dysphagia
 - Painful swallowing
 - Chest pain
 - Bleeding
 - Unexplained weight loss
 - Elderly

Upper GI Disorders and Drugs Heartburn & Dyspepsia

- **Non pharmacological recommendations**

- Don't eat before bedtime/lying down
- Elevate head of bed (~6 inches)
- Weight loss
- Reduce portion sizes
- Smoking cessation
- Avoid trigger foods:

- Fatty
- Spicy
- Chocolate
- Citrus
- EtOH
- Caffeine



Upper GI Disorders and Drugs Overview of Pharmacological Treatment

	ANTACIDS	H2 BLOCKERS	PROTON PUMP INHIBITORS
LINE OF THERAPY	1	2	3
INDICATIONS	Mild, infrequent heartburn/dyspepsia	Mild-moderate episodic heartburn/dyspepsia	Frequent heartburn/dyspepsia 2+ days per week, GERD, peptic ulcers
ONSET	Instant	30-45 min	2-3 hours, several days for complete relief
DURATION	20-30 min	4-10 hours	12-24 hours

Upper GI Disorders and Drugs Antacids

Calcium Carbonate*, Magnesium Hydroxide*
(Tums*, Rolaids*, Maalox*, Mylanta*)

- **MOA:** Neutralizes stomach acid by increasing gastric pH
- **Indications:** Short term relief of heartburn, dyspepsia



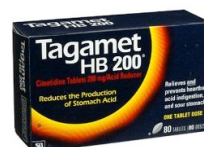
Upper GI Disorders and Drugs Antacids

- **Administration:**
 - Swallow or chew 1-2 tablets or 5-10mL liquid when symptoms occur
 - Repeat hourly if symptoms return
 - Maximum: 7000mg calcium carbonate/24 hours, do not use max dose for > 2 weeks
- **Side Effects:** constipation, bloating, gas, diarrhea with Mg
- **Cautions/Contraindications:** hypercalcemia

Upper GI Disorders and Drugs

H2 Blockers

famotidine (Pepcid), ranitidine (Zantac),
cimetidine (Tagamet)
(all OTC and Rx)



- **MOA:** Reversibly binds histamine 2 receptors on parietal cells,
↓ acid secretion
- **Indications:** Short-term treatment of mild to moderate heartburn/dyspepsia

Upper GI Disorders and Drugs

H2 Blockers

- **Administration:**
 - Take with or without food
 - Long term *prevention*: qhs or daily ac
 - Short term *treatment*: take 15 min – 1 hour before a heartburn inducing event
- **Side Effects:** Pain, N/V/D, constipation, HA, dizziness
- **Cautions/Contraindications:**
 - cimetidine – oldest in class, many drug interactions
 - ↓ activity of drugs that require acidic pH for absorption
 - ↓ dose in renal or hepatic impairment
 - Caution in pregnant/breastfeeding/elderly patients

Upper GI Disorders and Drugs

Proton Pump Inhibitors

rabeprazole (Aciphex), lansoprazole (Prevacid), omeprazole (Prilosec*), esomeprazole (Nexium), pantoprazole (Protonix)

- **MOA:** Irreversibly inhibits proton pumps in parietal cells,
 ↓ acid secretion



- **Indications:**
 - Frequent (>2x/week) heartburn/dyspepsia, peptic ulcer disease, GERD
 - In combo with antibiotics to treat ulcers (*H. pylori*) – PrevPac (lansoprazole, amoxicillin, clarithromycin)

Upper GI Disorders and Drugs

Proton Pump Inhibitors

- **Administration:**
 - Take 30 minutes before eating first meal of day
 - May open capsules and sprinkle on soft foods/liquids
 - Applesauce, Ensure, yogurt
 - Duration: GERD 4-8 wks, gastric/duodenal ulcer 8-12 wks
 - Note: Prilosec OTC not for long term use, not to exceed 14 days every 4 months
- **Side Effects:** HA, nausea, diarrhea, dizziness

Upper GI Disorders and Drugs Proton Pump Inhibitors

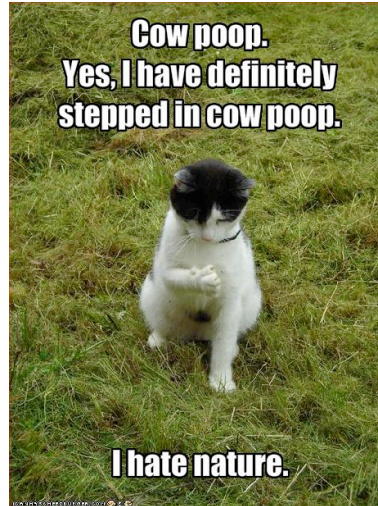
- **Cautions/Contraindications:**
 - Long term use may result in Vitamin B-12 deficiency
 - Symptoms: weakness, tiredness, increased HR
 - ↓ activity of drugs that require acidic pH for absorption
 - Renal or hepatic impairment
 - Caution in pregnant/breastfeeding/elderly patients
 - Potential drug interactions due to CYP450 enzyme metabolism

Upper GI Disorders and Drugs Overview of Pharmacological Treatment

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Outline

- Upper GI Disorders and Drugs ✓
- Lower GI Disorders and Drugs
- Urinary Conditions and Drugs



Lower GI Disorders and Drugs Common Conditions

- Constipation
- Diarrhea

Lower GI Disorders and Drugs Constipation & Diarrhea

- **When to refer:**
 - Blood in feces
 - Nausea/vomiting
 - Acute abdominal pain/cramps
 - Temperature > 101 F
 - Dehydration
 - Lasting longer than 3-5 days
 - Children, elderly, pregnant

Lower GI Disorders and Drugs Constipation & Diarrhea

Non-pharmacological recommendations:

- | | |
|---|--|
| <ul style="list-style-type: none"> • Constipation <ul style="list-style-type: none"> • Add fiber, whole grains to diet • Drink more liquids • Exercise regularly • Avoid stress | <ul style="list-style-type: none"> • Diarrhea <ul style="list-style-type: none"> • Drink caffeine free, clear liquids • Avoid dairy • Replace electrolytes - Pedialyte, Gatorade • BRAT Diet <ul style="list-style-type: none"> • Bananas • Rice • Applesauce • Toast |
|---|--|



Lower GI Disorders and Drugs Overview of Pharmacological Treatment

CONSTIPATION	DIARRHEA
STOOL SOFTENERS	OPIOID RECEPTOR INHIBITORS
LAXATIVES	

Lower GI Disorders and Drugs Stool Softeners

docosate sodium (Colace, DOSS-Relief)
(Rx and OTC)

- **MOA:** Draws water into the stool to mix with and soften stool

- **Indications:**

- Constipation
- To prevent straining in pts with anorectal conditions



Lower GI Disorders and Drugs Stool Softeners

- **Administration:**
 - Take 1-4 times daily as needed
 - Take with a full glass of water
 - Use for up to 1 week unless otherwise advised by PCP
 - Time to effect 1-3 days
- **Side Effects:** Diarrhea, cramps, bitter taste in mouth
- **Cautions/Contraindications:**
 - GI obstruction, nausea or vomiting
 - Contraindicated in inflammatory bowel disorders
 - Crohn's disease, ulcerative colitis
 - Caution in pregnant/breastfeeding/children

Lower GI Disorders and Drugs Laxatives

polyethylene glycol electrolytes (Miralax, Golytely),
lactulose (Enulose), senna (Senokot, Exlax)

- **MOA:**
 - PEG/lactulose: draws water into stool via electrolyte and osmotic effects, causing peristalsis and bowel movement
 - Senna: stimulates peristaltic activity by direct action on intestinal mucosa or nerve plexus
- **Indications:**
 - Treatment of occasional constipation
 - Bowel prep/cleansing before intestinal procedures (ex: colonoscopy)

Lower GI Disorders and Drugs Laxatives

- **Administration:**

- PEG laxative: dissolve 1 capful in liquid and drink 1-2 times daily, use up to 2 weeks
- PEG bowel prep: fill jug with water, drink every 10 minutes until 4L is consumed, or rectal effluent is clear. Chilling drink helps taste.
- Lactulose: take max 60ml liquid/day
- Senna: recommended 15mg daily, once daily doses should be taken at night.



Lower GI Disorders and Drugs Laxatives

- **Time to effect:**

- PEG laxative: 24-72 hours
- PEG bowel prep: 30-60 minutes
- Lactulose: 24-48 hours
- Senna: 6-10 hours



Lower GI Disorders and Drugs

Laxatives

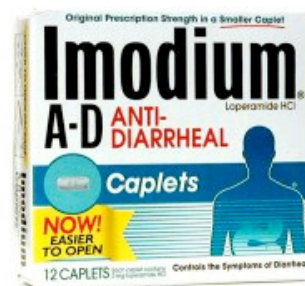
- **Side Effects:** Diarrhea, bloating, cramps, flatulence, nausea
- **Cautions/Contraindications:**
 - GI obstruction, nausea or vomiting
 - Inflammatory bowel disorders
 - Crohn's disease, ulcerative colitis
 - Caution in pregnant/elderly
 - Overuse or excessive use may result in laxative dependence
 - Lactulose: caution in patients with diabetes who require a low galactose diet

Lower GI Disorders and Drugs

Antidiarrheal

loperamide (Imodium*), diphenoxylate/atropine (Lomotil)

- **MOA:** Directly binds intestinal opioid receptors to inhibit peristalsis
- **Indications:** Diarrhea (acute and chronic)



Lower GI Disorders and Drugs Antidiarrheal

- **Administration:**
 - Immodium: Max 16mg/day
 - Lomotil: 5mg diphenoxylate/0.05mg atropine per day
 - Drink lots of: caffeine-free clear liquids during first 24 hours
 - Time to effect: 45min to 1 hour, lasts 3-4 hours
- **Side Effects:** Abdominal discomfort, N/V, constipation, dizziness, drowsiness
- **Cautions/Contraindications:**
 - Not for use >10 days
 - Not for use in children < 2yo
 - Caution with pregnant/children
 - Antibiotic related diarrhea – risk of pseudomembranous colitis
 - Severe liver disease

Lower GI Disorders and Drugs Overview of Pharmacological Treatment

CONSTIPATION	DIARRHEA
STOOL SOFTENERS	OPIOID RECEPTOR INHIBITORS
LAXATIVES	

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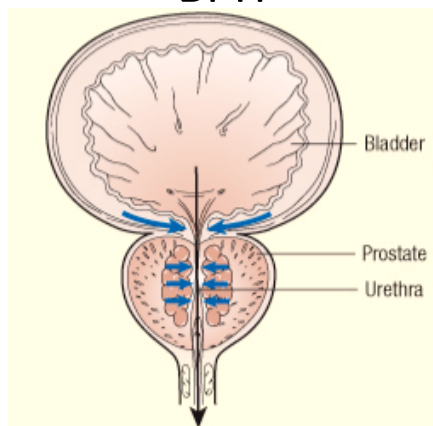
Urinary Conditions and Drugs

Common Conditions

- Benign Prostatic Hyperplasia (BPH)
- Urinary Incontinence/Frequent Urination
- Urinary Pain

Urinary Conditions and Drugs

BPH



In untreated BPH, pressure at the bladder neck and on the urethra as it passes through the prostate causes urinary symptoms

Urinary Conditions and Drugs

Overview of Pharmacological Treatment

BPH	URINARY INCONTINENCE	DYSURIA
ALPHA-1 BLOCKER	ANTICHOLINERGIC AGENTS	TOPICAL ANALGESIC

Urinary Conditions and Drugs

BPH

tamsulosin (Flomax)

- **MOA:** blocks alpha-1 adrenergic prostate receptors, relaxing smooth muscle, ↑ urine flow
- **Indications:** BPH

FLOMAX[®]
TAMSULOSIN HCl CAPSULES 0.4 MG



Urinary Conditions and Drugs

BPH

- **Administration:**
 - Daily
 - 30 minutes after same meal
 - Long term effects within 2 weeks
- **Side Effects:** HA, dizziness, ↓ libido, nausea, blurred vision, priapism (contact prescriber)
- **Cautions/Contraindications:**
 - Patients with cataract surgery, prostate cancer, history of fainting
 - Patients taking other alpha blockers or sildenafil (Viagra)

Urinary Conditions and Drugs Incontinence/Frequent Urination

tolterodine (Detrol, Detrol LA), oxybutynin (Ditropan),
solifenacin (Vesicare)

- **MOA:** anticholinergic agents that block acetylcholine receptors, ↓ smooth muscle and bladder contraction, ↓ urine flow
- **Indications:** Urinary incontinence or frequent urination



Urinary Conditions and Drugs Incontinence/Frequent Urination

- **Administration:**
 - tolterodine – max 4mg/day
 - oxybutynin – max 15mg/day
 - solifenacin – Max 10mg/day
 - Time to effect: acute 1-2 days, long term 1-2 weeks
- **Side Effects:** anticholinergic effects, tachycardia, hallucinations, dementia exacerbation
 - Note: management of anticholinergic effects
 - Take smallest effective dose
 - Increase water intake
 - Use saline eye drops
 - Hard candy
 - Change to another drug



Urinary Conditions and Drugs Incontinence/Frequent Urination

- **Cautions/Contraindications:**
 - Patients aggravated by anticholinergic effects
 - Taking potassium salts
 - Pregnant/breast feeding
 - With a history of QT prolongation
 - Impaired renal/hepatic function
 - Poor CYP2D6 metabolizers

Urinary Conditions and Drugs Dysuria

phenazopyridine (Pyridium, Urogesic, Uristat, Azo)

- **MOA:** Produces topical analgesia on bladder smooth muscle
- **Indications:** Relief of UTI symptoms



Urinary Conditions and Drugs

Dysuria

- **Administration:**
 - Take 100-200mg TID X 2 days
 - Take after meals
 - Time to effect: 1-2 days
 - Often taken with an antibiotic to treat both symptoms and infection
- **Side Effects:** dizziness, anemia, rash, nausea, dyspepsia
 - * Changes urine color reddish-orange.
 - * Will stain contact lenses
- **Cautions/Contraindications:**
 - Patients with renal or hepatic impairment or conditions (ex: hepatitis C)
 - Patients with diabetes or G6PD deficiency

Urinary Conditions and Drugs

Overview of Pharmacological Treatment

BPH	URINARY INCONTINENCE	DYSURIA
ALPHA-1 BLOCKER	ANTICHOLINERGIC AGENTS	TOPICAL ANALGESIC

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- I appreciate your feedback!
- Questions?
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