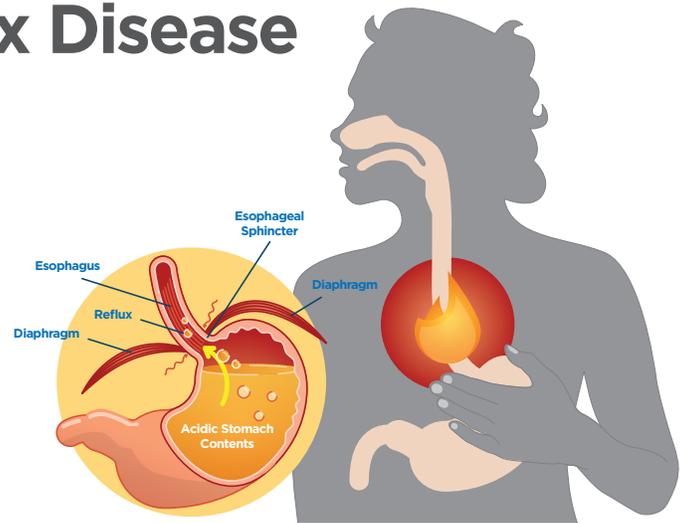


Gastroesophageal Reflux Disease

GERD

Optimizing Patient Treatment Using Nonprescription Medication



Step 1:

Determine if the patient is experiencing symptoms of GERD

Symptoms Consistent with a Diagnosis of GERD:

Heartburn + Acid Regurgitation = Greater than 80% positive predictive value in GERD diagnosis

Heartburn	Acid regurgitation	Severity of symptoms
<p>Ask 'Is there a burning sensation behind the breastbone?'</p>	<p>Ask 'Where do you feel the regurgitation?'</p> <p>(Distinguish between back flow of gastric contents into mouth/hypopharynx vs back flow into the lower esophagus, which is common/inconsequential).</p>	<p>Ask 'How often do you experience symptoms, what are they like?'</p> <p>(Mild/Episodic: <2X week, not nocturnal, short duration, low intensity, do not interfere with daily life;</p> <p>Severe/Frequent: frequent, nocturnal, high intensity, persistent (>6 months), regularly interfere with daily life).</p>

Red Flag Symptoms

- Chest pain
- Severe abdominal pain or early satiety
- Exercise related symptoms
- Vomiting (frequent/forceful)
- GI bleeding (coffee ground/blood emesis in vomit, blood in stool)
- Difficulty breathing or choking attacks
- Involuntary weight loss (>5%)
- Difficulty or pain in the mouth/throat when swallowing or eating
- Anemia
- Family history of esophageal or gastric cancer

Refer to Physician or Nurse Practitioner

Step 2:

Consider lifestyle modifications

Lifestyle Factor	Prevalence of GERD Symptoms	Impact of Lifestyle Modification
BMI >30	BMI >30: 21.8% BMI <25: 8.2%	Weight loss: <ul style="list-style-type: none"> • Prevalence of GERD Symptoms reduced up to 22% • Up to 75% improvement from baseline symptom score
Sleeping Position	Case/Anecdotal reports that lying flat worsens GERD symptoms	Head of bed elevation: <ul style="list-style-type: none"> • i.e., Blocks under head of bed OR foam wedge under upper torso/head vs. lying flat • Has been shown to alleviate nocturnal GERD symptoms, may reduce esophageal acid exposure
Alcohol use	5+ alcoholic drinks/week: 43% Non-alcohol drinkers: 16% Note: Evidence is inconsistent as some studies show no impact on GERD or varied results	Alcohol cessation (6+ months): <ul style="list-style-type: none"> • Physiology improved; little benefit on esophageal pH or GERD symptoms
Cigarette Smoking	<ul style="list-style-type: none"> • Minimal evidence smoking increases GERD symptoms • 20+ year smoking history may increase odds of experiencing GERD symptoms 	Smoking Cessation: <ul style="list-style-type: none"> • Inconclusive evidence will improve GERD symptoms

■ Most Impact
 ■ Some/little Impact
 ■ Lack of Impact

No clear impact on GERD symptoms:

Consuming caffeine, carbonated beverages, chocolate, citrus fruits, high-fat foods, peppermint/ spearmint, onions, spicy foods
 (however, a trial elimination could be beneficial if patient associates a specific food with worsening symptoms)



Lying down after eating, eating before bedtime

(however eating smaller sized meals might have some benefit)



While there is little evidence to support the effectiveness of lifestyle changes aside from weight loss and elevating the head of the bed; lifestyle and dietary measures provide broad health-care benefits and carry no risk.

Step 3:

Identify medication(s) with a potential to exacerbate GERD symptoms



Odds Ratio (OR)* of Medication for Causing GERD Symptoms

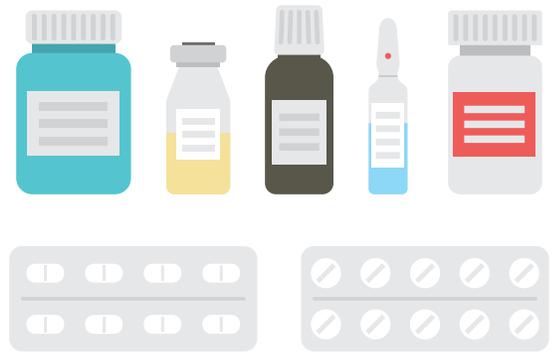
	Actions
OR >1.5 <ul style="list-style-type: none">• Non-Steroidal Anti-inflammatory Drugs (NSAIDS)• ASA• Calcium Channel Blockers (Dihydropyridine > non-dihydropyridine)• Nitrates• Tricyclic Antidepressant use >3 months (highest with amitriptyline)	<ul style="list-style-type: none">• Review patient's medication use to identify any that could potentially be contributing to GERD symptoms.• Medications with a higher OR are associated with a greater likelihood of causing GERD symptoms.• Consider reducing the dose of, or discontinuing (if clinically possible), medications likely to cause GERD symptoms
OR 1-1.5 <ul style="list-style-type: none">• Hormone Replacement Therapy (estrogen > combined therapy)• Tricyclic Antidepressant use <3 months• Statins	
Theoretical or frequency not defined <ul style="list-style-type: none">• Benzodiazepines• Anticholinergic agents• Theophylline• Antibiotics (i.e., tetracycline, clindamycin, metronidazole)• Oral Iron Supplements, Potassium supplements• Prednisone	

■ Most Impact ■ Some/little Impact ■ Lack of Impact

*OR = Odds Ratio: Comparison of the odds a medication causes GERD symptoms vs the odds a placebo causes GERD symptoms

Step 4:

Select nonprescription acid suppressant therapy

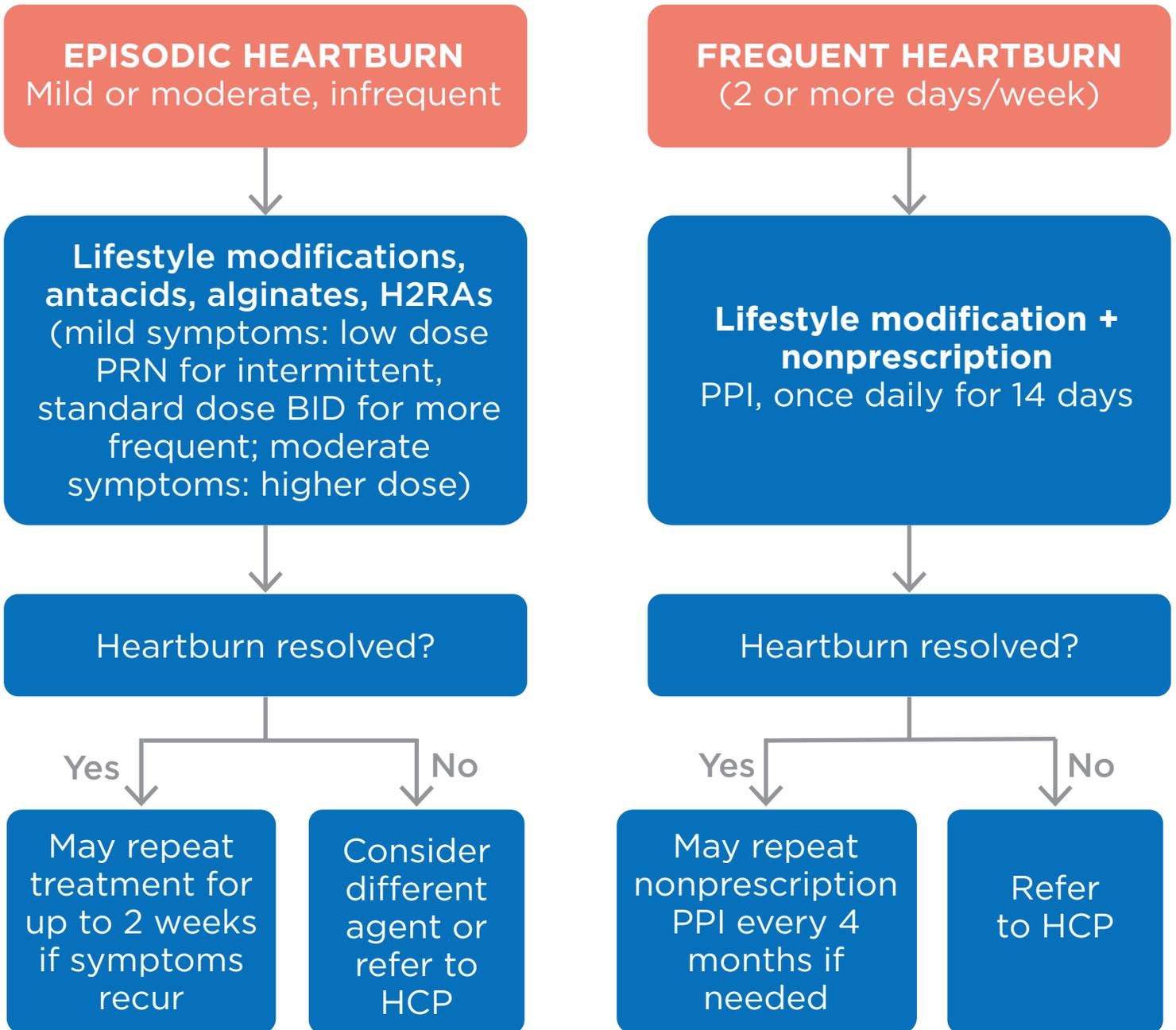


Medication	Products Available	Kinetics	Effectiveness	Clinical Pearls
Proton Pump Inhibitors (PPI)	Esomeprazole Omeprazole	Onset: 1-2 h, maximal effect 3-5 days Duration: up to 72 h Use: once daily	<ul style="list-style-type: none"> Symptom Remission 45% vs placebo Up to 25-30% increase in heartburn free days vs placebo (during 14 d treatment) 	<ul style="list-style-type: none"> PPIs should be taken 30 minutes pre meal, ideally breakfast. (PPIs are prodrugs that require an acidic environment for conversion to their active form). PPIs are the most effective acid suppressive therapy in moderate/severe GERD (2+ days/week). Because PPIs take 3-5 days for maximal effect, they are not indicated for use on an as needed basis.
Histamine H2-receptor Antagonists (H2RA)	Famotidine Ranitidine	Onset: ~60 min Duration: 4-10 h Use: once daily, BID or as needed	<ul style="list-style-type: none"> Symptom Remission 14% vs Placebo (moderate/severe GERD; 2+ days/week) Symptom Intensity Reduction (mild GERD <2 days/week) 40% vs Placebo 	<ul style="list-style-type: none"> H2RAs are most effective in mild/episodic GERD (<2 days/week). H2RAs can be used occasionally on an as-needed basis due to their relatively rapid onset.
Gastric Acid Barrier	Alginic Acid	Onset: Not clearly defined Duration: up to 4 h Use: as needed	<ul style="list-style-type: none"> Symptom Reduction 9-26% vs Placebo 	<ul style="list-style-type: none"> Alginic Acid/Antacid combination products are more effective than antacids alone for occasional, as needed, relief of GERD symptoms.
Antacids	Aluminum Calcium Magnesium Sodium Bicarbonate	Onset: 5-15 min Duration: up to 3 h Use: as needed	<ul style="list-style-type: none"> Symptom Remission 8% vs placebo 	Antacids are unlikely to improve GERD symptoms in a clinically meaningful way.

■ Most Impact
 ■ Some/little Impact
 ■ Lack of Impact

Step 5:

Nonprescription GERD treatment algorithm



Prescription PPI therapy treatment for GERD is typically up to 8 weeks.

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