

ACG Clinical Guideline: Diagnosis and Management of Gastroesophageal Reflux Disease

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Corrigendum

1. On page 317, in the fifth paragraph of the “Summary of the Evidence” section, it is stated that certain endoscopic therapies, including radiofrequency augmentation to the lower esophageal sphincter, were removed from the US market. However, radiofrequency therapy was returned to the US market in 2010 and remains available. In stating that the therapy had been removed from the marketplace, the authors of the Guidelines neither implied nor intended to imply that there was any health, efficacy, or safety reasons for the removal.
2. On page 316, recommendation 6 under “Surgical Options for GERD” correctly notes that current endoscopic therapies cannot be recommended as an alternative to medical or traditional surgical therapy, and this was described as a “conditional recommendation” with a “moderate level of evidence.” However, recommendation 6 in the summary table on page 309, under “Surgical Options for GERD,” erroneously described the recommendation as “strong.”

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Introduction

Gastroesophageal reflux disease (GERD) is arguably the most common disease encountered by the gastroenterologist. It is equally likely that the primary care providers will find that complaints related to reflux disease constitute a large proportion of their practice. The following guideline will provide an overview of GERD and its presentation, and recommendations for the approach to diagnosis and management of this common and important disease.

The document will review the presentations of any risk factors for GERD, the diagnostic modalities and their recommendation for use and recommendations for medical, surgical and endoscopic management including comparative effectiveness of different treatments. Extraesophageal symptoms and complications will be addressed as will the evaluation and management of “refractory” GERD. The document will conclude with the potential risks and side effects of the main treatments for GERD and their implications for patient management.

Each section of the document will present the key recommendations related to the section topic and a subsequent summary of the evidence supporting those recommendations. An overall summary of the key recommendations is presented in Table 1. A search of OVID Medline, Pubmed and ISI Web of Science was conducted for the years from 1960–2011 using the following major search terms and subheadings including “heartburn”, “acid regurgitation”, “GERD”, “lifestyle interventions”, “proton pump inhibitor (PPI)”, “endoscopic surgery,” “extraesophageal symptoms,” “Nissen fundoplication,”

and “GERD complications.” We used systematic reviews and meta-analyses for each topic when available followed by a review of clinical trials.

The GRADE system was used to evaluate the strength of the recommendations and the overall level of evidence (1,2). The level of evidence could range from “high” (implying that further research was unlikely to change the authors’ confidence in the estimate of the effect) to “moderate” (further research would be likely to have an impact on the confidence in the estimate of effect) or “low” (further research would be expected to have an important impact on the confidence in the estimate of the effect and would be likely to change the estimate). The strength of a recommendation was graded as “strong” when the desirable effects of an intervention clearly outweigh the undesirable effects and as “conditional” when there is uncertainty about the trade-offs.

It is important to be aware that GERD is defined by consensus and as such is a disease comprising symptoms, end-organ effects and complications related to the reflux of gastric contents into the esophagus, oral cavity, and/or the lung. Taking into account the multiple consensus definitions previously published (3,4,5), the authors have used the following working definition to define the disease: GERD should be defined as symptoms or complications resulting from the reflux of gastric contents into the esophagus or beyond, into the oral cavity (including larynx) or lung. GERD can be further classified as the presence of symptoms without erosions on endoscopic examination (non-erosive disease or NERD) or GERD symptoms with erosions present (ERD).

Establishing the Diagnosis of GERD

Recommendations

1. A presumptive diagnosis of GERD can be established in the setting of typical symptoms of heartburn and regurgitation. Empiric medical therapy with a PPI is recommended in this setting. (Strong recommendation, moderate level of evidence).
2. Patients with non-cardiac chest pain suspected due to GERD should have diagnostic evaluation before institution of therapy. (Conditional recommendation, moderate level of evidence) A cardiac cause should be excluded in patients with chest pain before the commencement of a gastrointestinal evaluation (Strong recommendation, low level of evidence)
3. Barium radiographs should not be performed to diagnose GERD (Strong recommendation, high level of evidence)
4. Upper endoscopy is not required in the presence of typical GERD symptoms. Endoscopy is recommended in the presence of alarm symptoms and for screening of patients at high risk for complications. Repeat endoscopy is not indicated in patients without Barrett’s esophagus in the absence of new symptoms. (Strong recommendation, moderate level of evidence)
5. Routine biopsies from the distal esophagus are not recommended specifically to diagnose GERD. (Strong recommendation, moderate level of evidence)
6. Esophageal manometry is recommended for preoperative evaluation, but has no role in the diagnosis of GERD. (Strong recommendation, low level of evidence)
7. Ambulatory esophageal reflux monitoring is indicated before consideration of endoscopic or surgical therapy in patients with NERD, as part of the evaluation of patients refractory to PPI therapy, and in situations when the diagnosis of GERD is in question. (Strong recommendation, low level evidence). Ambulatory reflux monitoring is the only test that can assess reflux symptom association (Strong recommendation, low level of evidence).

8. Ambulatory reflux monitoring is not required in the presence of short or long-segment Barrett's esophagus to establish a diagnosis of GERD. (Strong recommendation, moderate level of evidence).
9. Screening for *Helicobacter pylori* infection is not recommended in GERD. Eradication of *H. pylori* infection is not routinely required as part of antireflux therapy (Strong recommendation, low level of evidence)

Table 2. Diagnostic testing for GERD and utility of tests

Diagnostic test	Indication	Highest level of evidence	Recommendation
PPI trial	Classic symptoms, no warning signs,	Meta-analysis	Negative trial does not rule out GERD
Barium swallow	Not for GERD diagnosis. Use for evaluation of dysphagia	Case-control	Do not use unless evaluating for complication (stricture, ring)
Endoscopy	Alarm symptoms, screening of high-risk patients, chest pain	Randomized Controlled Trial	Consider early for elderly, those at risk for Barrett's, noncardiac chest pain, patients unresponsive to PPI
Esophageal biopsy	Exclude non-GERD causes for symptoms	Case-Control	Not indicated for diagnosis of GERD
Esophageal manometry	Preoperative evaluation for surgery	Observational	Not recommended for GERD diagnosis. Rule out achalasia/scleroderma-like esophagus preop
Ambulatory reflux monitoring	Preoperatively for non-erosive disease. refractory GERD symptoms, GERD diagnosis in question	Observational	Correlate symptoms with reflux, document abnormal acid exposure or reflux frequency

GERD, gastroesophageal reflux disease; PPI, proton pump inhibitor.

Management of GERD

Recommendations

1. Weight loss is recommended for GERD patients who are overweight or have had recent weight gain. (Conditional recommendation, moderate level of evidence)
2. Head of bed elevation and avoidance of meals 2–3 h before bedtime should be recommended for patients with nocturnal GERD. (Conditional recommendation, low level of evidence)
3. Routine global elimination of food that can trigger reflux (including chocolate, caffeine, alcohol, acidic and/or spicy foods) is not recommended in the treatment of GERD. (Conditional recommendation, low level of evidence)
4. An 8-week course of PPIs is the therapy of choice for symptom relief and healing of erosive esophagitis. There are no major differences in efficacy between the different PPIs. (Strong recommendation, high level of evidence)
5. Traditional delayed release PPIs should be administered 30–60 min before meal for maximal pH control. (Strong recommendation, moderate level of evidence). Newer PPIs may offer dosing flexibility relative to meal timing (Conditional recommendation, moderate level of evidence)
6. PPI therapy should be initiated at once a day dosing, before the first meal of the day. (Strong recommendation, moderate level of evidence). For patients with partial response to once daily therapy, tailored therapy with adjustment of dose timing and/or twice daily dosing should be considered in patients with night-time symptoms, variable schedules, and/or sleep disturbance. (Strong recommendation, low level of evidence)
7. Non-responders to PPI should be referred for evaluation. (Conditional recommendation, low level of evidence, see refractory GERD section)
8. In patients with partial response to PPI therapy, increasing the dose to twice daily therapy or switching to a different PPI may provide additional symptom relief. (Conditional recommendation, low level of evidence)
9. Maintenance PPI therapy should be administered for GERD patients who continue to have symptoms after PPI is discontinued and in patients with complications including erosive esophagitis and Barrett's esophagus. (Strong recommendation, moderate level of evidence). For patients who require long-term PPI therapy, it should be administered in the lowest effective dose, including on demand or intermittent therapy. (Conditional recommendation, low level of evidence)
10. H₂-receptor antagonist therapy can be used as a maintenance option in patients without erosive disease if patients experience heartburn relief. (Conditional recommendation, moderate level of evidence). Bedtime H₂RA therapy can be added to daytime PPI therapy in selected patients with objective evidence of night-time reflux if needed but may be associated with the development of tachyphylaxis after several weeks of usage. (Conditional recommendation, low level of evidence)
11. Therapy for GERD other than acid suppression, including prokinetic therapy and/or baclofen, should not be used in GERD patients without diagnostic evaluation. (Conditional recommendation, moderate level of evidence)
12. There is no role for sucralfate in the non-pregnant GERD patient. (Conditional recommendation, moderate level of evidence)
13. PPIs are safe in pregnant patients if clinically indicated. (Conditional recommendation, moderate level of evidence)

Table 3. Efficacy of lifestyle interventions for GERD			
Lifestyle intervention	Effect of intervention on GERD parameters	Sources of data	Recommendation
Weight loss (46,47,48)	Improvement of GERD symptoms and esophageal pH	Case-Control	Strong recommendation for patients with BMI>25 or patients with recent weight gain
Head of bed elevation (50–52)	Improved esophageal pH and symptoms	Randomized Controlled Trial	Head of bed elevation with foam wedge or blocks in patients with nocturnal GERD
Avoidance of late evening meals (180,181)	Improved nocturnal gastric acidity but not symptoms	Case-Control	Avoid eating meals with high fat content within 2–3 h of reclining
Tobacco and alcohol cessation (182–184)	No change in symptoms or esophageal pH	Case-Control	Not recommended to improve GERD symptoms
Cessation of chocolate, caffeine, spicy foods, citrus, carbonated beverages	No studies performed	No evidence	Not routinely recommended for GERD patients. Selective elimination could be considered if patients note correlation with GERD symptoms and improvement with elimination
BMI, body mass index; GERD, gastroesophageal reflux disease.			

Surgical Options for GERD

Recommendations

1. Surgical therapy is a treatment option for long-term therapy in GERD patients. (Strong recommendation, high level of evidence)
2. Surgical therapy is generally not recommended in patients who do not respond to PPI therapy. (Strong recommendation, high level of evidence)
3. Preoperative ambulatory pH monitoring is mandatory in patients without evidence of erosive esophagitis. All patients should undergo preoperative manometry to rule out achalasia or scleroderma-like esophagus. (Strong recommendation, moderate level of evidence)
4. Surgical therapy is as effective as medical therapy for carefully selected patients with chronic GERD when performed by an experienced surgeon. (Strong recommendation, high level of evidence)
5. Obese patients contemplating surgical therapy for GERD should be considered for bariatric surgery. Gastric bypass would be the preferred operation in these patients. (Conditional recommendation, moderate level of evidence)
6. The usage of current endoscopic therapy or transoral incisionless fundoplication cannot be recommended as an alternative to medical or traditional surgical therapy. (Conditional recommendation, moderate level of evidence)

Potential Risks Associated with PPIs

Recommendations

1. Switching PPIs can be considered in the setting of side effects. (Conditional recommendation, low level of evidence)
2. Patients with known osteoporosis can remain on PPI therapy. Concern for hip fractures and osteoporosis should not affect the decision to use PPI long-term except in patients with other risk factors for hip fracture. (Strong recommendation, moderate level of evidence)
3. PPI therapy can be a risk factor for *Clostridium difficile* infection and should be used with care in patients at risk. (Strong recommendation, moderate level of evidence)
4. Short-term PPI usage may increase the risk of community-acquired pneumonia. The risk does not appear elevated in long-term users. (Conditional recommendation, moderate level of evidence)
5. PPI therapy does not need to be altered in concomitant clopidogrel users as clinical data does not support an increased risk for adverse cardiovascular events. (Strong recommendation, high level of evidence)

Extraesophageal Presentations of GERD: Asthma, Chronic Cough, and Laryngitis

Recommendations

1. GERD can be considered as a potential co-factor in patients with asthma, chronic cough, or laryngitis. Careful evaluation for non-GERD causes should be undertaken in all of these patients. (Strong recommendation, moderate level of evidence).
2. A diagnosis of reflux laryngitis should not be made based solely upon laryngoscopy findings (Strong recommendation, moderate level of evidence).
3. A PPI trial is recommended to treat extraesophageal symptoms in patients who also have typical symptoms of GERD. (Strong recommendation, low level of evidence)
4. Upper endoscopy is not recommended as a means to establish a diagnosis of GERD-related asthma, chronic cough, or laryngitis. (Strong recommendation, low level of evidence)
5. Reflux monitoring should be considered before a PPI trial in patients with extraesophageal symptoms who do not have typical symptoms of GERD. (Conditional recommendation, low level of evidence).
6. Non-responders to a PPI trial should be considered for further diagnostic testing, and are addressed in the refractory GERD section below. (Conditional recommendation, low level of evidence)
7. Surgery should generally not be performed to treat extraesophageal symptoms of GERD in patients who do not respond to acid suppression with a PPI. (Strong recommendation, moderate level of evidence)

GERD Refractory to Treatment with PPIs

Recommendations

1. The first step in management of refractory GERD is optimization of PPI therapy. (Strong recommendation, low level of evidence)
2. Upper endoscopy should be performed in refractory patients with typical or dyspeptic symptoms principally to exclude non-GERD etiologies. (Conditional recommendation, low level of evidence)
3. In patients in whom extraesophageal symptoms of GERD persist despite PPI optimization, assessment for other etiologies should be pursued through concomitant evaluation by ENT, pulmonary, and allergy specialists (Strong recommendation, low level of evidence)

4. Patients with refractory GERD and negative evaluation by endoscopy (typical symptoms) or evaluation by ENT, pulmonary, and allergy specialists (atypical symptoms), should undergo ambulatory reflux monitoring (Strong recommendation, low level of evidence)
5. Reflux monitoring off medication can be performed by any available modality (pH or impedance-pH) (Conditional recommendation, moderate level of evidence). Testing on medication should be performed with impedance-pH monitoring in order to enable measurement of nonacid reflux. (Strong recommendation, moderate level of evidence)
6. Refractory patients with objective evidence of ongoing reflux as the cause of symptoms should be considered for additional antireflux therapies that may include surgery or TLESR inhibitors. (Conditional recommendation, low level of evidence). Patients with negative testing are unlikely to have GERD and PPI therapy should be discontinued. (Strong recommendation, low level of evidence)

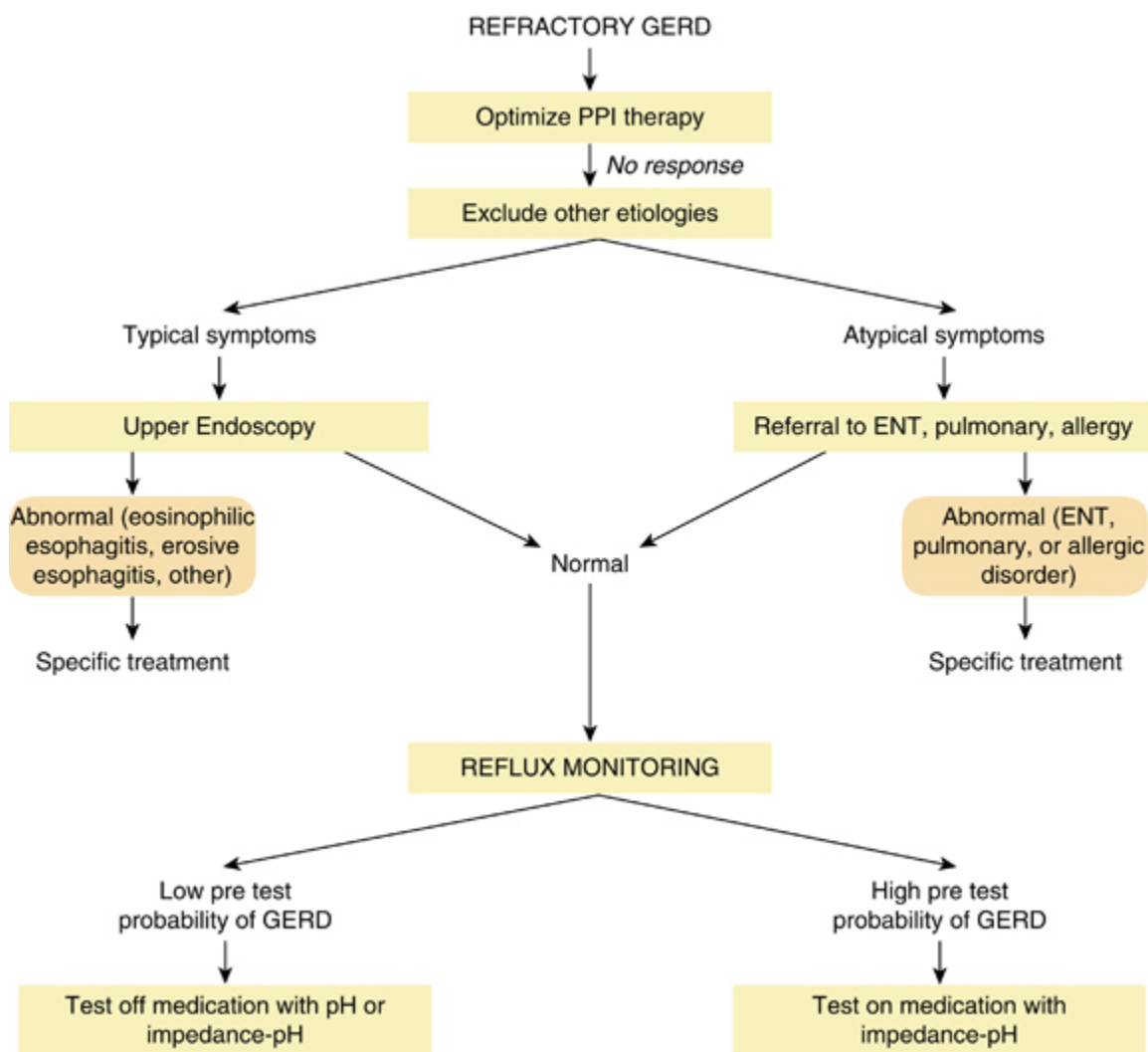


Figure 1. Algorithm for the evaluation of refractory gastroesophageal reflux disease (GERD). ENT, ear, nose, and throat; PPI, proton pump inhibitor

What are the Complications Associated with GERD?

Recommendations

1. The Los Angeles (LA) classification system should be used when describing the endoscopic appearance of erosive esophagitis (Strong recommendation, moderate level of evidence). Patients with LA Grade A esophagitis should undergo further testing to confirm the presence of GERD. (Conditional recommendation, low level of evidence)
2. Repeat endoscopy should be performed in patients with severe ERD after a course of antisecretory therapy to exclude underlying Barrett's esophagus. (Conditional recommendation, low level of evidence)
3. Continuous PPI therapy is recommended following peptic stricture dilation to improve dysphagia and reduce the need for repeated dilations. (Strong recommendation, moderate level of evidence)
4. Injection of intralesional corticosteroids can be used in refractory, complex strictures due to GERD. (Conditional recommendation, low level of evidence)
5. Treatment with a PPI is suggested following dilation in patients with lower esophageal ring (Schatzki) rings. (Conditional recommendation, low level of evidence).
6. Screening for Barrett's esophagus should be considered in patients with GERD who are at high risk based on epidemiologic profile. (Conditional recommendation, moderate level of evidence)
7. Symptoms in patients with Barrett's esophagus can be treated in a similar fashion to patients with GERD who do not have Barrett's esophagus. (Strong recommendation, moderate level of evidence)
8. Patients with Barrett's esophagus found at endoscopy should undergo periodic surveillance according to guidelines. (Strong recommendation, moderate level of evidence)