

the diagnosis of GERD is almost always symptom-based. Endoscopy and pH monitoring are rarely needed.

New developments

A recently approved device for evaluation of GERD uses a catheter-based balloon lined by sensors that measure mucosal impedance during endoscopy. This technique has shown promise for differentiating GERD from EoE and may develop to be a useful adjunct to endoscopy in the diagnosis of GERD (28).

GERD MEDICAL MANAGEMENT

Recommendations

1. We recommend weight loss in overweight and obese patients for improvement of GERD symptoms (strong recommendation, moderate level of evidence).
2. We suggest avoiding meals within 2–3 hours of bedtime (conditional recommendation, low level of evidence).
3. We suggest avoidance of tobacco products/smoking in patients with GERD symptoms (conditional recommendation, low level of evidence).
4. We suggest avoidance of “trigger foods” for GERD symptom control (conditional recommendation, low level of evidence).
5. We suggest elevating head of bed for nighttime GERD symptoms (conditional recommendation, low level of evidence).
6. We recommend treatment with PPIs over treatment with histamine-2-receptor antagonists (H2RA) for healing EE (strong recommendation, high level of evidence).
7. We recommend treatment with PPIs over H2RA for maintenance of healing from EE (strong recommendation, moderate level of evidence).
8. We recommend PPI administration 30–60 minutes before a meal rather than at bedtime for GERD symptom control (strong recommendation, moderate level of evidence).
9. For patients with GERD who do not have EE or Barrett’s esophagus, and whose symptoms have resolved with PPI therapy, an attempt should be made to discontinue PPIs or to switch to on-demand therapy in which PPIs are taken only when symptoms occur and discontinued when they are relieved (conditional recommendation, low level of evidence).
10. For patients with GERD who require maintenance therapy with PPIs, the PPIs should be administered in the lowest dose that effectively controls GERD symptoms and maintains healing of reflux esophagitis (conditional recommendation, low level of evidence).
11. We recommend against routine addition of medical therapies in PPI nonresponders (conditional recommendation, moderate level of evidence).
12. We recommend maintenance PPI therapy indefinitely or antireflux surgery for patients with LA grade C or D esophagitis (strong recommendation, moderate level of evidence).
13. We do not recommend baclofen in the absence of objective evidence of GERD (strong recommendation, moderate level of evidence).
14. We recommend against treatment with a prokinetic agent of any kind for GERD therapy unless there is objective evidence of gastroparesis (strong recommendation, low level of evidence).
15. We do not recommend sucralfate for GERD therapy except during pregnancy (strong recommendation, low level of evidence).
16. We suggest on-demand or intermittent PPI therapy for heartburn symptom control in patients with NERD (conditional recommendation, low level of evidence).

Key concepts

1. There is conceptual rationale for a trial of switching PPIs for patients who have not responded to one PPI. For patients who have not responded to one PPI, more than one switch to another PPI cannot be supported.
2. Use of the lowest effective PPI dose is recommended and logical but must be individualized. One area of controversy relates to abrupt PPI discontinuation and potential rebound acid hypersecretion, resulting in increased reflux symptoms. Although this has been demonstrated to occur in healthy controls, strong evidence for an increase in symptoms after abrupt PPI withdrawal is lacking.

Management of GERD requires a multifaceted approach, taking into account the symptom presentation, endoscopic findings, and likely physiological abnormalities. Management decisions may differ depending on hiatal hernia type and size, on the presence of EE and/or Barrett’s esophagus, body mass index (BMI), and on accompanying physiologic abnormalities such as gastroparesis or ineffective motility with absence of contractile reserve. Medical management includes lifestyle modifications and pharmacologic therapy, principally with medications that reduce gastric acid secretion. Surgical and endoscopic options are discussed in other sections. Nonpharmacologic lifestyle modifications include recommendations for diet modification (content and timing), body positioning with meals and while sleeping, and weight management (Table 3).

Diet and lifestyle changes

Common recommendations include weight loss for overweight patients, elevating the head of the bed, tobacco and alcohol cessation, avoidance of late night meals and bedtime snacks, staying upright during and after meals, and cessation of foods that potentially aggravate reflux symptoms such as coffee, chocolate, carbonated beverages, spicy foods, acidic foods such as citrus and tomatoes, and foods with high fat content (29). Supporting data for these recommendations are limited and variable, often involving only small and uncontrolled studies, and rarely as the only intervention, making interpretation and definitive recommendations difficult. However, multiple studies, including several randomized controlled trials (RCTs), have demonstrated improvement in nocturnal GERD symptoms and nocturnal esophageal acid exposure with head of bed elevation or sleeping on a wedge. Also, compared with lying left-side down, lying right-side down increases nocturnal reflux and reflux after meals, presumably because right-sided recumbency places the EGJ in a dependent position relative to the pool of gastric contents that favors reflux (30,31). Thus, patients might be advised to avoid sleeping right-side down (32–35).

Several studies have evaluated the effects of various foods on LES pressure to try to determine which items might lead to GERD. In laboratory studies, coffee, caffeine, citrus, and spicy food had little to no effect on LES pressure (36,37). However, some of these items might have irritant effects that could evoke GERD symptoms without influencing reflux. Alcohol consumption, tobacco smoking, chocolate, peppermint, and high-fat foods do reduce LES pressure in the laboratory, but few studies document the benefits of avoiding these foods and practices. Smoking cessation was shown to improve GERD symptoms in a large cohort study (38). Patients in a smoking cessation study had GERD symptoms measured by validated questionnaire, and those who successfully quit smoking for a year had 44%