

**ABSTRACT**

**GERD is defined as a disorder in which gastric contents reflux recurrently into the esophagus, causing troublesome symptoms and/or complications. GERD is becoming more prevalent in Singapore and the diagnosis for most cases is straightforward. Heartburn and regurgitation (or both) that occurs after meals are symptoms highly specific for GERD. For patients with alarm symptoms or recurrent GERD, referral to gastroenterologists is advised. The gold standard for diagnosis of erosive GERD is an upper GI endoscopy. Presently, there is no gold standard for the diagnosis of non-erosive GERD. The role of endoscopy is to define the presence of esophageal mucosal involvement (including erosions, ulceration, stricture, Barrett's metaplasia and esophageal cancer) and to exclude other upper GI pathology. Endoscopy provides a diagnosis (biopsy) and/or therapy (dilation, etc.) for the complications of GERD. First line management of GERD is pharmacological with some lifestyle modifications. Surgical treatment in experienced hands can be considered in selected patients.**

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**INTRODUCTION**

GERD is defined as a disorder in which gastric contents reflux recurrently into the esophagus, causing troublesome symptoms and/or complications<sup>1</sup>.

There are two identifiable groups of GERD patients: those with erosive gastroesophageal reflux disease (erosive esophagitis); and non-erosive reflux disease (NERD), which is also termed endoscopic-negative GERD, or symptomatic GERD<sup>2</sup>.

Extra-esophageal symptoms associated with GERD are recognized:

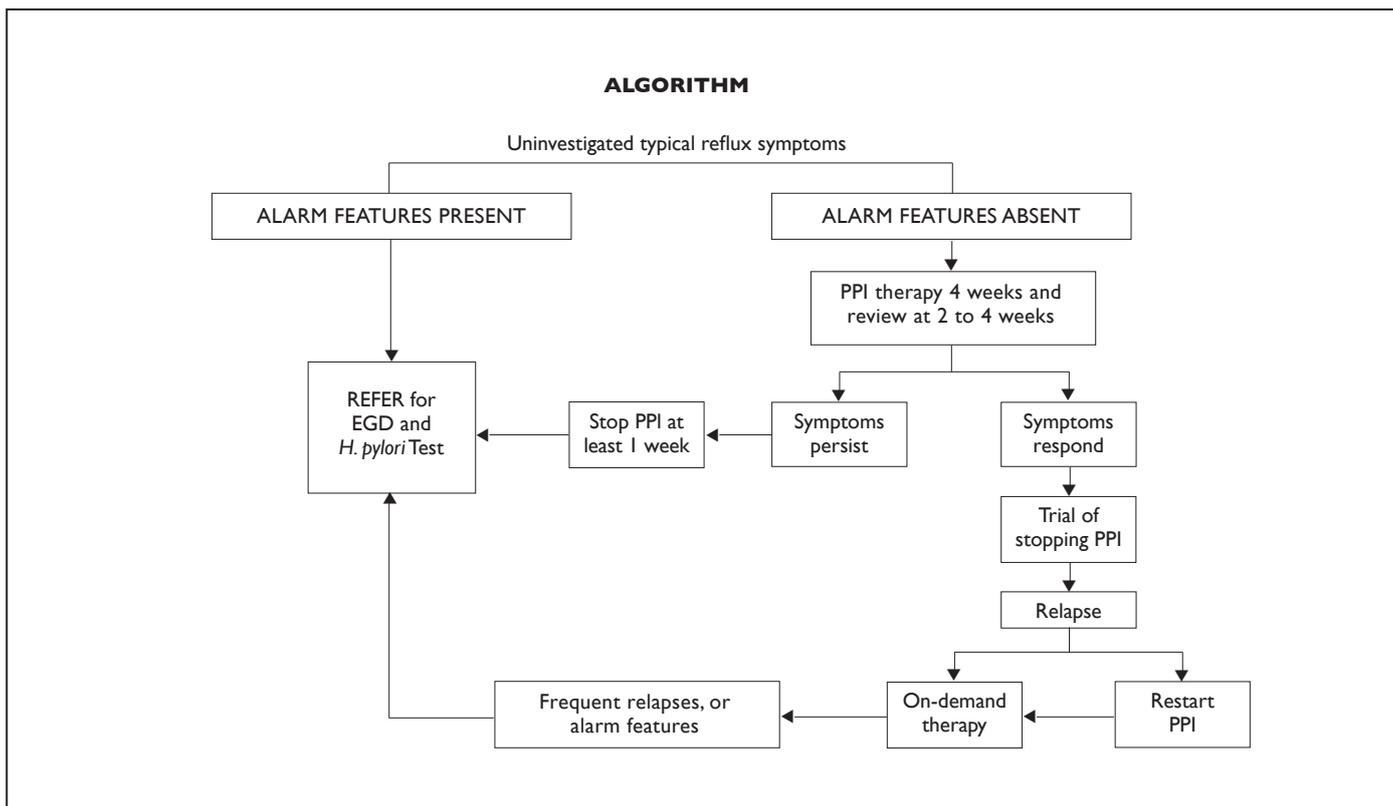
1. Reflux cough syndrome
2. Non-cardiac chest pain
3. Reflux asthma
4. Laryngopharyngeal reflux (LR)
5. Sleep disorder

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**DIAGNOSIS**

- Heartburn and regurgitation (or both) that occurs after meals are symptoms highly specific for GERD.
- Sensitivity 92%, (PPV 87%) for GERD compared with endoscopy / 24-hour pH monitoring but Specificity is only 19%.
- Questionnaires have been designed to improve the specificity.
- The gold standard for diagnosis of erosive GERD is an upper GI endoscopy. Presently, there is no gold standard for the diagnosis of non-erosive GERD.
- The role of endoscopy is to define the presence of esophageal mucosal involvement (including erosions, ulceration, stricture, Barrett's metaplasia and esophageal cancer) and to exclude other upper GI pathology. Endoscopy provides a diagnosis (biopsy) and/or therapy (dilation, etc.) for the complications of GERD.
- Patients with alarm symptoms should undergo endoscopy. The sensitivity and specificity of alarm symptoms (including dysphagia, weight loss, and anemia) varies depending on definitions, duration of symptoms, and the cohort studied. A clinical diagnosis made by a physician in a patient with alarm symptoms is very specific (range, 97–98%), but lacks sensitivity. Prompt endoscopy in patients with alarm symptoms results in a significant yield of cancer (approximately 4% in one series) and of serious benign disease such as peptic ulcer, stricture, and severe esophagitis (13%).
- Symptomatic response to a trial of PPI is sufficient for a presumptive diagnosis of GERD in a patient with typical symptoms (in the absence of alarm symptoms) in the primary care setting.
- 24 hour pH test can establish the diagnosis of reflux disease. A positive test is defined as DeMeester score of >4% and symptom index 50%.
- A negative ambulatory pH study off therapy helps to exclude GERD after a failed PPI test.
- GERD is rarely the sole cause of chronic cough, chronic laryngitis, or asthma.
- Management of uninvestigated typical reflux symptoms. EGD, esophagogastroduodenoscopy; *H. pylori*, *helicobacter pylori*; PPI, proton pump inhibitor.

**Table 1: Algorithm – Uninvestigated typical reflux symptoms**

## MANAGEMENT OF GERD

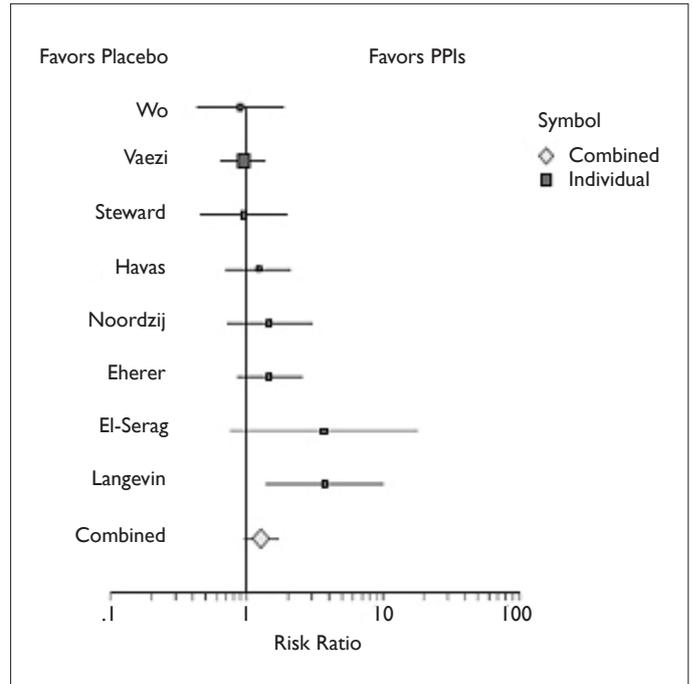
- Lifestyle modifications are commonly used as first line of therapy in patients presenting with GERD-related symptoms. In a recent systematic review that evaluated the value of the different lifestyle modifications in GERD, the authors demonstrated that only weight loss and elevation of the head of the bed are effective in improving GERD-related parameters. Elevation of the head of the bed and left lateral decubitus positioning improved the overall time pH < 4.0, and weight loss improved pH profiles and GERD-related symptoms. There was no evidence that lifestyle interventions such as dietary measures and tobacco or alcohol cessation were effective in reducing esophageal acid exposure or ameliorating GERD symptoms.
- PPIs are the most efficacious medical intervention for GERD. Studies have shown repeatedly and consistently that PPIs are superior to histamine 2 receptor antagonists (H2RAs) in healing the esophageal mucosa and relieving GERD-related symptoms of patients with ERD. In a meta-analysis, the authors demonstrated that after 12 weeks of treatment, healing rates were 83.6% with PPIs, 51.9% with H2RAs, 39.2% with sucralfate, and 28.2% with placebo. In addition, treatment with PPIs resulted in healing rates of esophageal inflammation and relief of heartburn symptoms that were two-fold higher than what was observed in patients receiving H2RAs. Similarly, PPIs demonstrate superiority in relieving heartburn symptoms in patients with NERD when compared to H2RAs.
- The onset of action of antacids on esophageal acid concentration is 30 mins after dosing and inhibition persists for 1 hour. However, studies reported that meaningful heartburn relief can already be achieved 19 mins after consumption. In contrast, H2RAs have been shown to provide symptom relief within 30 mins of dosing that can last up to 12 hours. When consumed 30 mins prior to a meal, H2RAs are effective in completely or partially preventing postprandial heartburn.
- The use of prokinetic agents either as monotherapy or adjunctive therapy to PPIs may have a role in the treatment of GERD in Asia. In one study from India, 68 patients suffering from heartburn twice a week were randomized to either pantoprazole 40 mg twice daily or pantoprazole 40 mg twice daily plus mosapride 5 mg thrice daily for a period of 8 weeks. The authors found that the PPI + mosapride regimen provided significantly better symptom control in patients with ERD as compared to the PPI alone.
- NERD patients will require a minimum of 4 weeks of initial continuous therapy with a PPI.
- ERD patients will require a minimum of 4–8 weeks of initial continuous therapy with a PPI.
- On-demand therapy is an appropriate ongoing management strategy in NERD patients. The one that has been studied the most is on-demand therapy defined as PPI consumption (up to once daily) when needed and for the duration desired. This patient-driven therapeutic strategy has been shown to be clinically efficacious and cost effective.

- Antireflux surgery is an effective therapeutic strategy for a subset of patients with GERD. Long-term maintenance studies comparing medical therapy for GERD with antireflux surgery have demonstrated either similar clinical efficacy or significantly better control of GERD symptoms postsurgery. Patients’ satisfaction with antireflux surgery has been reported to be exceptionally high. However, several recent publications have tempered the enthusiasm for antireflux surgery. Long-term follow-up of patients who underwent antireflux surgery (up to 13 years post-surgery) demonstrated a high rate of symptoms relapse requiring continuing antireflux medications. This phenomenon can be seen soon after surgery and appears to increase in prevalence over the years, affecting up to 62% of patients more than 10 years postsurgery.
- Endoscopic treatment of GERD should not be offered outside well-designed clinical trials.
- Patients with chronic cough and laryngitis and typical GERD symptoms should be offered twice daily PPI therapy after exclusion of non-GERD etiologies.

A meta-analysis of randomized controlled trials showed that PPI therapy may offer a modest but statistically non-significant clinical benefit over placebo in suspected GERD-related chronic laryngitis<sup>3</sup>.

In conclusion, GERD is becoming more prevalent in Singapore and the diagnosis for most cases is straightforward. For patients with alarm symptoms or recurrent GERD, referral to gastroenterologists is advised. First line management of GERD is pharmacological with some lifestyle modifications. Surgical treatment in experienced hands can be considered in selected patients.

**Table 2: Forest plot displaying the RR of each individual study and the pooled RR by random effects method.**



**REFERENCES**

1. Fock KM, Talley NJ, Hunt RH et al. Asia-Pacific Consensus on the management of gastroesophageal reflux disease - update. *J Gastroenterol Hepatol* 2008; 23(1):8-22.
2. Fock KM, Talley NJ, Hunt RH et al. Report of the Asia-Pacific consensus on the management of Gastroesophageal reflux disease. *J. Gastroenterol. Hepatol.* 2004; 19: 357-67.
3. Qadeer M, Phillips C, Rocio Lopez A et al. Proton pump inhibitor therapy for suspected GERD-related chronic laryngitis: a meta-analysis of randomized controlled trials. *Am. J. Gastroenterol.* 2006; 101: 2646-54.

**LEARNING POINTS**

- **GERD is defined as a disorder in which gastric contents reflux recurrently into the esophagus, causing troublesome symptoms and/or complications.**
- **GERD is becoming more prevalent in Singapore and the diagnosis for most cases is straightforward.**
- **Heartburn and regurgitation (or both) that occurs after meals are symptoms highly specific for GERD.**
- **For patients with alarm symptoms or recurrent GERD, referral to gastroenterologists is advised.**
- **The gold standard for diagnosis of erosive GERD is an upper GI endoscopy. Presently, there is no gold standard for the diagnosis of non-erosive GERD. The role of endoscopy is to define the presence of esophageal mucosal involvement (including erosions, ulceration, stricture, Barrett’s metaplasia and esophageal cancer) and to exclude other upper GI pathology.**
- **Endoscopy provides a diagnosis (biopsy) and/or therapy (dilation, etc.) for the complications of GERD.**
- **First line management of GERD is pharmacological with some lifestyle modifications. Surgical treatment in experienced hands can be considered in selected patients.**