



# PROMISING NEW GERD APPROACHES

**A. Nandini\*, Dr. A.Srinivas Rao, Dr.AV Kishore Babu**

A.Nandini pharm D.IV year, Bhaskar Pharmacy College, Telangana

**Abstract:** Gastroesophageal Reflux disease is the most common clinical condition affecting many people all over the world, Generally, people are suffering either from symptom-based esophageal GERD or tissue-injury-based esophageal GERD. Pharmacological therapy provides symptomatic relief and helps to reduce the incidence of complications associated with GERD, Advances in diagnostic procedures and Improvements in therapy helped identify the disease and treat it as well as prevent the emergence of complications. Here, we discuss epidemiology, aetiology, pathophysiology, diagnosis, and advances in the treatment and management of GERD.

**Index Terms – Epidemiology, Pathophysiology**

## Introduction

Gastroesophageal reflux disease is a condition in which the abnormal reflux of gastric contents from the stomach into the oesophagus thereby leads to trouble with some symptoms or complications. Based on the Symptoms GERD is classified into two types symptom-based and tissue-injury oesophageal GERD and if GERD is not treated it leads to complications like strictures and Barrett Oesophagus or adenocarcinoma of the Oesophagus. Both the pharmacological and non-pharmacological treatments help to reduce the symptoms and reduce the incidence of complications and surgical therapies like fundoplication and Linx magnetic ring are helpful in case of failure of pharmacological treatment in certain cases lifestyle modifications and Endoluminal therapies may help reduce the symptoms of GERD and to improve the patient quality of life and reoccurrence of the disease.

## Epidemiology and pathophysiology:

GERD occurs in people of all age groups, but it is most common in people older than 40 years. Although mortality associated with GERD is rare, the symptoms of GERD have a large impact on patient quality of life. About 10-20% of adults in Western countries suffer from GERD Symptoms, the prevalence of GERD is highest in Western countries mostly due to food habits and lifestyle, except in pregnant woman, there is no significant difference in incidence rate in men and women, many risk factors and comorbidities may contribute to the occurrence of GERD symptoms including obesity, smoking, family history, alcoholic consumption, food, certain medications, respiratory disease, etc. Major causes of GERD are decreased efficacy of oesophageal anti-reflux mechanisms, particularly lower- esophageal sphincter (LES) tone, hypothyroidism, pregnancy, systemic sclerosis, CNS depressants, alcohol consumption, tobacco chewing, presence of naso-gastric tube, presence of sliding hiatal hernia, delayed gastric emptying, increased gastric volume in corresponding to the volume of reflux material, inadequate, or slowed oesophageal clearance of refluxed material. Prolonged exposure of gastric juices to oesophageal mucosa important cause of GERD is the reflux

of gastric contents into the lower oesophagus in some cases GERD associated with defective oesophageal sphincter (LES) pressure this is related to spontaneous transient LES relaxation

In some cases, GERD is associated with defective oesophageal sphincter (LES) pressure these are related to a) spontaneous transient LES relaxations b) transient increase in intra-abdominal pressure (or) c) an atonic LES

Lower oesophageal sphincter pressure when it is decreased causes GERD and it is decreased due to reflux that may occur following transient LES relaxations that are not associated with swallowing, oesophageal distension, vomiting, botching causing relaxation of the LES pressure, or increase in intra-abdominal pressure.

**Anatomic factors:** - Disruption of the normal anatomic barriers by a hiatal hernia is a major cause of GERD, esophagitis and oesophageal clearance.

**Oesophageal clearance:** - swallowing contributes to esophageal clearance by increasing salivary flow, saliva contains bicarbonate that buffers the residual gastric material on the surface of oesophagus.

**Mucosal resistance:** - when there are any defects in normal mucosal defenses like bicarbonates, PG's (prostaglandins), then H<sup>+</sup> ions diffuse into the mucosa leading to more acidification it causes esophagitis, mucosal blood flow and acid-base status of tissue.

Gastric emptying and composition of refluxate are important in pathophysiology of GERD.

### Symptoms:

- System-based oesophageal GERD syndrome (with or without oesophageal tissue injury).
- Heartburn.
- water brash (Hypersalivation), Belching, Regurgitation, Dysphagia, odynophagia.
- Tissue-injury-based oesophageal GERD syndrome. (With or without oesophageal symptoms).
- Oesophagitis, strictures, Barrett's esophagus, esophageal adenocarcinoma.
- Extraoesophageal GERD syndrome: Chronic Cough, laryngitis, Asthma, Dental enamel-erosion.

### Diagnosis:

- Endoscopy is the most preferred technique for observing the mucosa for oesophagitis, identifying Barrett oesophagus and diagnosing complications.
- A Camera-containing capsule swallowed by the patient can visualise the oesophageal mucosa. This process takes less than 15 minutes to perform in the clinician's office.
- Images of the oesophagus are downloaded through sensors placed on the patient's chest that are connected to a data Collector.
- Ambulatory pH monitoring helps to correlate symptoms with abnormal oesophageal and exposure. A small pH probe is passed transnasally and placed about approximately 5 cm above LES.
- Oesophageal manometry is used to evaluate oesophageal peristalsis and motility.

## **Treatment:**

### **Non-pharmacological treatment:**

**Lifestyle modifications:** Weight loss, Elevation of the head of the bed (Increase in esophageal clearance, Dietary changes like avoidance of fats & chocolates which can decrease LES pressure whereas citrus juice, tomato juice, coffee & pepper may irritate damaged endothelium, Avoidance of medications that exacerbate GERD like anticholinergics, barbiturates, calcium channel blockers, quinidine, etc. Eating smaller meals & avoid eating 3 hours before sleep, Smoking Cessation (decreased esophageal sphincter relaxation), and Avoid alcohol

### **Interventional approaches:**

**Anti-reflux surgery:** The goal of Antireflux Surgery is to re-establish the antireflux barrier & to close any associated hiatal defects. It should be considered in patients who fail to respond to pharmacological treatment.

Treatment, who opt for surgery despite successful treatment because of the expense of age, time & expense of medicine, who have complications of GERD, who have typical symptoms & reflux documented by ambulatory pH monitoring. Surgical procedures include Nissen, Belsey and Toupet operation.

### **Endoluminal therapies: - These techniques include:**

- a) Endoscopic suturing to produce the folding of Gastroesophageal Junction.
- b) Endoluminal application of radiofrequency heat energy resulting in nerve ablation leading to increased collagen deposition & scarring at GE (gastroesophageal) junction thereby increasing LES pressure, reducing Gastroesophageal reflux.

### **NEW TECHNIQUES:**

Fundoplication, Linx magnetic ring.

1. Fundoplication: The top part of the stomach fundus is folded around the lower oesophageal sphincter.

2. Linx magnetic ring: A tiny bracelet of magnetic titanium beads surrounds and compresses the lower oesophageal sphincter. This valve normally prevents the stomach fluids from refluxing into the oesophagus.

### **Pharmacological treatment:**

Therapy is directed at decreasing the acidity of the refluxate, decreasing the gastric volume available to be refluxed, improving gastric emptying, increasing LES pressure, enhancing esophageal acid clearance and protecting oesophageal mucosa.

- **Antacids - Alginic acid products:**

These products in the market are available as Gaviscon agent is the acid neutralising agent it does not enhance LES pressure but forms a viscous protective barrier (or) solution that floats on the surface of gastric contents which serves as the protective factor for the oesophagus against reflux of gastric contents & reduces frequency of reflux episodes.

Antacids have a shorter duration so they require frequent intake, generally given after meals & at bed time which can increase the duration time approximately 1-3 hours.

- **H2-receptor antagonists:** Ranitidine, Cimetidine, they bind to the H2-receptor present in parietal Cells and decreases acid production, efficacy of H2-receptor antagonist is highly variable.
- **Adverse effects;** Headache, Dry mouth, bowel upset, rashes, confusion, convulsions, and coma.
- **Proton-pump inhibitors:** Pantoprazole is the more effective proton-pump inhibitors, oral route of administration is mostly preferred rather than the Intravenous route.

### **Promotility agents:**

Cisapride, Meto chloramide, bethanechol, these may be useful in patients with motility defects and decreased LES pressure, decreased oesophageal clearance and decreased Gastric emptying. Cisapride is not an effective acid suppression therapy but it is useful when compared to H2-receptor antagonists in reducing oesophagitis.

- **Adverse effects:** - tiapride causes severe Arrhythmia.
- **Metoclopramide:** - Antiemetic decreases the reflux of stomach contents into the oesophagus thereby preventing frequent reflux episodes. It increases LES pressure, increases gastric emptying.
- **Adverse effects:** - Tachycardia, nervousness, headache, dizziness, Weakness, depression, diarrhoea, rashes.
- **Mucosal protectants:** Sucralfate is generally used.
- Combination therapy is the major drawback due to less efficacy of treatment.

### **Conclusion:**

GERD is a most commonly occurring disease and it can be treated both pharmacological and non-pharmacologically along with lifestyle modifications and interventional techniques can provide effective treatment for GERD and decrease the incidence of complications and recurrence of the

### **References:**

1. Katz PO, Gerson LB, Vela MF. Guidelines for the diagnosis and management of gastroesophageal reflux disease. *Am J Gastroenterol* 2013; 108:308-328.
2. Fass R, Ofman JJ. Gastroesophageal reflux disease: should we adopt a new conceptual framework? *Am J Gastroenterol* 2002; 97:1901-1909.
3. El-Serag HB, Sweet S, Winchester CC, Dent J. Update on the epidemiology of gastro-oesophageal reflux disease: a systematic review. *Gut* 2014; 63:871-880.
4. Nasrollah L, Maradey-Romero C, Jha LK, Gadam R, Quan SF, Fass R. Naps are associated more commonly with gastroesophageal reflux, compared with nocturnal sleep. *Clin Gastroenterol Hepatol* 2015; 13:94-99.
5. Fass R. Non-erosive reflux disease (NERD) and erosive esophagitis: a spectrum of disease or special entities? *Z Gastroenterol* 2007; 45:1156-1163. 6. Poh CH, Navarro-Rodriguez T, Fass R. Review: treatment of gastroesophageal reflux disease in the elderly. *Am J Med* 2010; 123:496-501.

7. Kaltenbach T, Crockett S, Gerson LB. Are lifestyle measures effective in patients with gastroesophageal reflux disease? An evidence-based approach. Arch Intern Med 2006; 166:965-971.

8. Jacobson BC, Somers SC, Fuchs CS, Kelly CP, Camargo CA Jr. Body-mass index and symptoms of gastroesophageal reflux in women. N Engl J Med 2006; 354:2340-2348.

