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### Gastroesophageal Reflux Disease (GERD)

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# Gastroesophageal Reflux Disease (GERD)

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## Introduction

According to the International GERD Consensus Working Group, Gastroesophageal Reflux Disease, commonly referred to as GERD, is a pathological disorder that "consists of symptoms and/or end-organ damage resulting from the retrograde movement of gastric content through the esophagogastric junction (EGJ) into the esophagus and beyond" (Gyawali, 2017). The United States and the western world have seen an increase in the number of people diagnosed with GERD, with roughly 1/5 of the general population reporting symptoms associated with GERD (Punjabi, 2015). Of these associated symptoms, acid reflux and heartburn are the most frequent upper GI tract symptoms reported (Pleyer, 2014). Heart burn and acid reflux can appear to be harmless inconveniences in the short term but can lead to potentially fatal diseases. Untreated or undertreated, GERD can significantly impact one's quality of life and can lead to much more severe complications such as Barrett's esophagus, esophageal cancer, and even death (Tatarian, 2016). For the anesthesia provider, the diagnosis of GERD presents the unique complication of an increased risk for aspiration (Nagelhout, 2013). Given the recent surge in the diagnosis of GERD and that I am a new anesthesia provider, I wanted to take a closer look at the pathophysiology of Gastroesophageal Reflux Disease and implications for nursing care, especially as it applies to the patient's quality of life and the implications for surgery.

## Signs and Symptoms

- "Heartburn"
- Acid reflux/regurgitation
- Chest/Cardiac pain
- Airway symptoms
  - Chronic cough, asthma, laryngeal irritation
- Indigestion
  - Including epigastric pain, nausea, bloating, difficulty swallowing, and excessive belching (Katz, 2013)

## Contributing/Risk Factors

- Obesity
- Pregnancy
- Hiatal Hernia
- Type 2 Diabetes Mellitus
- Smoking
- Alcohol use
- Diet high in fat, acid, spices, sugar and caffeine (Katz, 2013) (Punjabi, 2015)

## Diagnostic Findings

The patient's presenting symptoms will determine how the provider will proceed with objective testing. The American Journal of Gastroenterology suggests that a patient who only has symptoms of heart burn and acid reflux and who responds to proton pump inhibitor therapy can be provided a presumptive diagnosis of GERD (Katz, 2013). Any unusual or abnormal presenting symptoms such as chest pain, airway symptoms, or atypical gastrointestinal symptoms require further testing to rule out any other pathologic disease process. A differential diagnosis of GERD can be made with the following findings:

- Endoscopy of the Esophagus
  - Erosive esophagitis- mucosal inflammation and damage due to acid erosion
  - Nonerosive reflux disease- no signs of mucosal irritation (Tatarian, 2016)
- High Resolution Manometry (HRM)
  - Esophageal manometry can test for motility abnormalities within the esophagus. New findings suggest that HRM can accurately assess the morphology of the esophagogastric junction (EGJ), including a "hypotensive EGJ" which may contribute to the pathophysiology of GERD (Gyawali, 2017).
- Ambulatory Reflux Monitoring
  - Monitors for the presence of acid within the esophagus by monitoring pH level (Katz, 2013).

## Underlying Pathophysiology of GERD

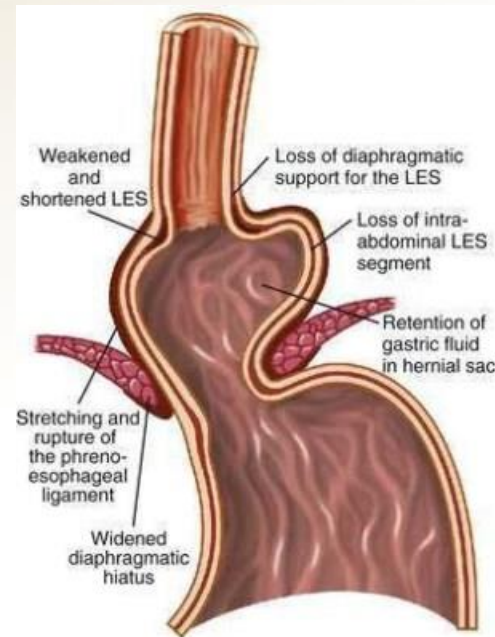
There are many factors to consider when approaching the pathophysiology that underlies a diagnosis of Gastroesophageal Reflux Disease. The reflux of acid into the esophagus is usually due to pathophysiology of the gastroesophageal junction itself. This could either be a motility problem or a structural problem. To understand this, one must first understand the concept of gastric barrier pressure. Gastric barrier pressure is the pressure that prevents stomach contents from flowing retrograde, into the esophagus. Gastric barrier pressure is the pressure created by the lower esophageal sphincter minus the pressure within the stomach. Reflux occurs when the gastric barrier is compromised which is when the pressure within the stomach is higher than the pressure created by the LES (Robinson, 2014).

The motility of the esophagus, or lack thereof, can lead to unsuccessful passage of food into the stomach itself. The esophageal sphincter muscle may be impaired as well, permitting a retrograde flow of stomach contents into the esophagus. This is sometimes referred to as a "hypotensive" sphincter muscle. Or, perhaps the sphincter typically has good tone but occasionally relaxes at a time that it should be contracted, known as transient lower esophageal sphincter relaxation (Gyawali, 2017).

Though the main pathology lies in the gastroesophageal junction itself, there is evidence to believe that there are contributing factors associated with pathology prior to and after this junction of the GI tract. Prior to the gastroesophageal sphincter, impaired swallowing can prevent saliva from neutralizing acids within the stomach, resulting in a more acidic environment in the esophagus. After the gastroesophageal junction, delayed stomach emptying (such as that seen in type 2 diabetes mellitus) can lead to a backflow of stomach contents into the esophagus. Increased intraabdominal pressure (caused by obesity, pregnancy, hernia, etc) can also lead to a backflow of acidic stomach contents (Gyawali, 2017).

## Significance of Pathophysiology

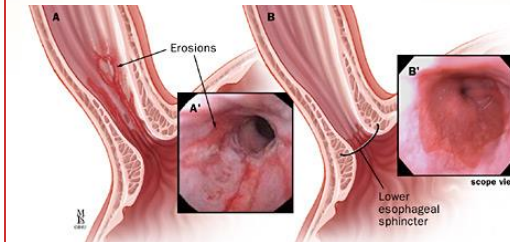
- Quality of life
  - The symptoms associated with GERD greatly affect quality of life. However, medical (proton pump inhibitor) and surgical management (such as fundoplication) have been shown to greatly improve quality of life (Nusrat, 2014).
- Surgery Risk
  - Anesthetic agents can both decrease lower esophageal sphincter tone and increase intragastric pressure, leading to significant risk for aspiration perioperatively. This risk is greatly enhanced in patients with an underlying pathophysiology of GERD (Robinson, 2014).
- Barrett's Esophagus
  - The frequent and continued acid erosion of the distal esophagus that occurs with GERD can lead to metaplasia of the epithelium, known as Barrett's Esophagus. This occurs in up to 15% of GERD patients (Shaheen, 2015).
- Esophageal Cancer
  - Metaplasia of the lining of the esophagus with continued reflux can lead to malignancy and death (Tatarian, 2016).



(Image retrieved from <http://thefoodmd.com/gastroesophageal-reflux-disease-awareness-week-2016>)

## Implications for Nursing Care

- Recognition and Diagnosis of GERD
  - The advanced practice nurse is responsible for the early recognition and diagnosis of GERD as well as ruling out other possible disease processes that could contribute to subjective findings.
- Education should include:
  - Lifestyle alteration for modifiable risk factors; weight loss and smoking cessation.
  - Symptom management related to increased intraabdominal pressure such as waiting to lie down after a meal.
  - A diet plan that suggests reducing intake of alcohol, fat, acid, spices, sugar and caffeine.
  - Importance of adherence to medication regimen.
  - Potential complications such as Barrett's Esophagus and Esophageal Cancer.
- Medical Management
  - Histamine 2- receptor antagonists
  - Proton Pump Inhibitors
- Surgical Management
  - Hiatal hernia repair
  - Fundoplication (Tatarian, 2016)



(Image retrieved from <https://www.jhmicall.org>)

## Conclusion

Gastroesophageal reflux disease is a commonly diagnosed disease process, affecting nearly 20% of the population. GERD can greatly hinder one's quality of life. "Routine" surgical procedures can become potentially life threatening to those affected by this disease. Gastroesophageal reflux disease can lead to Barrett's esophagus, and esophageal malignancy. The advanced practice nurse is responsible for accurately diagnosing a patient with GERD to avoid these potentially fatal consequences. The APN must recognize and acknowledge risk factors for GERD, assisting the patient in altering modifiable risk factors. Treatment options must be individualized to each patient and may include solely medical management or a variety of surgical options. Through early and continued intervention, the advanced practice nurse could delay or prevent potentially life threatening complications of gastroesophageal reflux disease.

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