DRUGS USED IN ESOPHAGEAL REFLUX DISEASE (GERD)

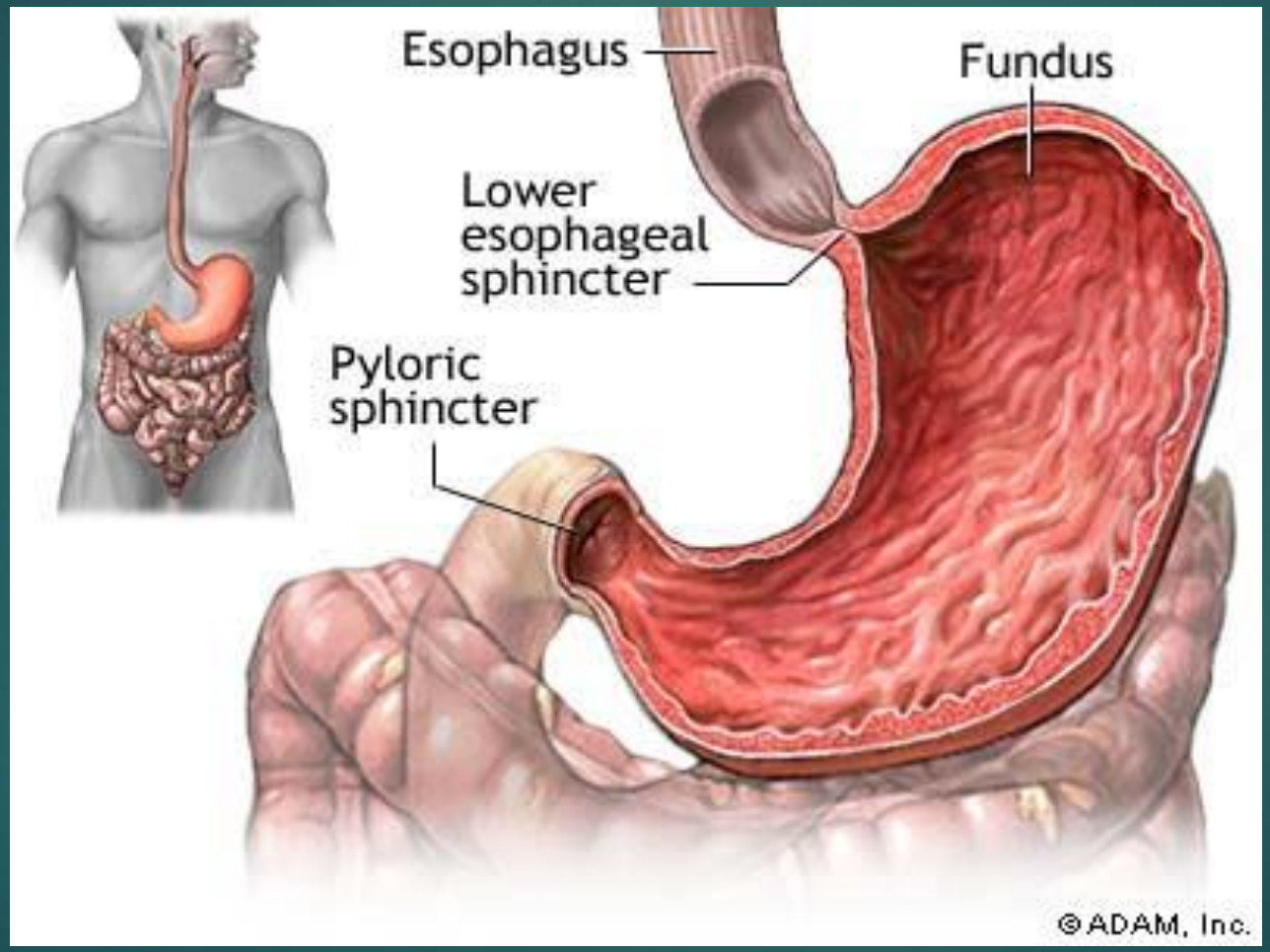
BIETE LUNDAU LUKE

DipPharm, Bpharm, Mclinpharm

Definition of GERD

- Gastroesophageal reflux disease (GERD) involves reflux or regurgitation of the gastric (stomach) content into the esophagus
- This leads to esophagitis and pain
- The gastric content may involve gastric acid, acid pepsin or bile reflux into esophagus from the stomach

Anatomy Review



Pathophysiology

- Key factor is the abnormal reflux of gastric contents from the stomach into the esophagus
- In some cases, associated with defective lower esophageal sphincter (LES) pressure or function
  - Spontaneous transient LES relaxations
  - Transient increases in intra-abdominal pressure
  - An atonic LES
- Problems with mucosal defense mechanisms
- Anatomic factors, esophageal clearance, mucosal resistance, gastric emptying, epidermal growth factor, salivary buffering

Pathophysiology Cont'd

- Factors that may promote esophageal damage when refluxed
  - Gastric acid, pepsin, bile acids, pancreatic enzymes
- The concentration and volume of refluxate
- Duration of exposure

Conditions that complicate GERD

The following conditions can complicate GERD;

- Strictures (abnormal narrowing of a bodily canal or passageway)
- Ulceration
- Aspiration (refluxate in the airway)
- Barrett's esophagus
- Adenocarcinoma

MNEMONIC: **ABUSA**

Clinical presentations of GERD

Typical symptoms: May be aggravated by activities that worsen gastroesophageal reflux such as recumbent position, bending over, or eating a meal high in fat.

- Heartburn
- Water brash (hypersalivation)
- Belching
- Regurgitation

Atypical symptoms: In some cases, these extraesophageal symptoms may be the only symptoms present, making it more difficult to recognize GERD as the cause, especially when endoscopic studies are normal.

- Nonallergic asthma
- Chronic cough
- Hoarseness
- Pharyngitis
- Chest pain
- Dental erosions

Alarm symptoms: These symptoms may be indicative of complications of GERD such as Barrett's esophagus, esophageal strictures, or esophageal cancer.

- Continual pain
- Dysphagia
- Odynophagia
- Unexplained weight loss
- Choking

Diagnosis of GERD

- Classic GERD symptoms are often enough to make diagnosis
  - Invasive testing is not indicated in uncomplicated cases. That is, invasive tests like endoscopy need not be employed if it is clear that a patient has esophageal signs or symptoms of GERD
  - Cardiac etiologies may be explored
- Endoscopy can be used to identify complications
  - Biopsies can be performed
- Manometry to determine quality of peristalsis
- pH testing to determine pH and duration at that pH
- *H. pylori* testing

Foods and medication that may worsen GERD symptoms

Decreased lower-esophageal sphincter pressure	
Foods	
Fatty meal	Garlic
Carminatives (peppermint, spearmint)	Onions
Chocolate	Chili peppers
Coffee, cola, tea	
Medications	
Anticholinergics	Ethanol
Barbiturates	Nicotine (smoking)
Caffeine	Nitrates
Dihydropyridine calcium channel blockers	Progesterone
Dopamine	Tetracycline
Estrogen	Theophylline
Direct irritants to the esophageal mucosa	
Foods	
Spicy foods	Tomato juice
Orange juice	Coffee
Medications	
Alendronate	Iron
Aspirin	Quinidine
Nonsteroidal antiinflammatory drugs	Potassium chloride

Treatment of GERD

Pharmacological therapy

- Generally the following drugs are considered for use;
- Anti –acids
- H2 receptor blockers
- PPIs
- Motility stimulants

Mechanism of action is just as shred in the treatment of PUD

Pro-motility agents – (Motility stimulants/Pro-kinetics)

Examples – Metoclopramide, domperidone

Mechanism of action

- These are dopamine antagonists which enhance the gastric motility and hence are also called motility stimulants
- This stimulated gastric emptying leads to reduced transit time
- There is also eventual improvement in the gastroesophageal sphincter control and esophageal clearance of refluxed acid

Side effect

- Tardive dyskinesia

GERD treatment

Patient presentation	Recommended treatment	Comments
Intermittent mild heartburn	**Lifestyle modification and patient directed therapy** Anti acids; - Magnesium /aluminium combined products - Calcium carbonate **And /or** Non prescription H2 receptor blockers - Cimetidine - Ranitidine - Nizaditidine - Famotidine **Or** Non prescription - Omeprazole	Lifestyle modifications should be started initially and continued through out the course of treatment If symptoms remain unrelieved with lifestyle modification and non prescription medicines, patients should seek medical attention

GERD treatment

Patient presentation	Recommended treatment	Comments
Symptomatic relief of GERD	**Lifestyle modifications** **plus** prescription strength acid suppression therapy H2 receptor blockers - Cimetidine - Ranitidine - Nizaditidine - Famotidine **Or** Non prescription PPI - Omeprazole - Esomeprazole - Lansoprazole - Pantoprazole - Rabeprazole	For typical symptoms, treat empirically with prescription strength suppression therapy If symptoms recur, consider maintenance therapy Mild GERD can usually be treated effectively with H2 receptor antagonists Patients with moderate to severe symptoms should receive a PPI as initial therapy

GERD treatment

Patient presentation	Recommended treatment	Comments
Healing of erosive esophagitis or treatment of patients presenting with moderate to severe symptoms or complications	**Lifestyle modifications plus** PPIS up 4-16 weeks Omeprazole Esomeprazole Lansoprazole Pantoprazole Rabeprazole **Or** H2 receptor blockers Cimetidine Ranitidine Nizaditidine Famotidine	For atypical or alum symptoms, obtain endoscopy PPIs are the most effective maintenance therapy in patients with atypical symptoms, complications and erosive disease
Interventional therapies	Anti reflux surgery or endoscopic therapies	Patients not responding to pharmacologic therapy including those with persistent atypical symptoms should be evaluated to confirm diagnosis of GERD

Indications of Motility stimulants

- GERD
- Functional dyspepsia unresponsive to PPIs or H2 receptor antagonists

Non-Pharmacological Treatment

Non pharmacological GERD intervention

- Elevate the head of the bed (increases esophageal clearance). Use 6- to 8-inch blocks under the head of the bed. Sleep on a foam wedge.
- Dietary changes
  - Avoid foods that may decrease lower esophageal sphincter pressure (fats, chocolate, alcohol, peppermint, and spearmint)
  - Avoid foods that have a direct irritant effect on the esophageal mucosa. (spicy foods, orange juice, tomato juice, and coffee)
  - Include protein-rich meals in diet (augments lower esophageal sphincter pressure)
  - Eat small meals and avoid eating immediately prior to sleeping (within 3 hours if possible; decreases gastric volume)
  - Weight reduction (reduces symptoms)
- Stop smoking (decreases spontaneous esophageal sphincter relaxation)
- Avoid alcohol (increases amplitude of the lower esophageal sphincter, peristaltic waves, and frequency of contraction)
- Avoid tight-fitting clothes
- Discontinue, if possible, drugs that may promote reflux (calcium channel blockers, β-blockers, nitrates, theophylline)
- Take drugs that have a direct irritant effect on the esophageal mucosa with plenty of liquid if they cannot be avoided (bisphosphonates, tetracyclines, quinidine, and potassium chloride, iron salts, aspirin, nonsteroidal antiinflammatory drugs)

Surgical intervention

- Surgery may be performed after medication therapy has been adequately trialed

END