Treatment & Management of peptic ulcer

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The goals of pharmacotherapy are

- relieve pain and discomfort
- accelerate healing
- eradicate *H pylori* infection
- reduce morbidity
- prevent recurrence and complications

Diet

- A special diet is not indicated for patients with duodenal ulcers
- It is a common-sense approach to avoid any food or beverages that may aggravate symptoms
- Although the link between duodenal ulcers and alcohol is inconclusive, moderation of alcohol intake may be recommended for other health reasons

Medication Summary

Agent Overview

Classification of drugs used in peptic ulcer

- Drugs that neutralized acid secretion
- Drugs that inhibit acid secretion
- Ulcer protective drugs
- Anti H. pylori drugs

Drugs that neutralized acid secretion

Antacids - Drugs that neutralize gastric acid

Systemic

Sodium bicarbonate, sodium citrate

Non-systemic:

$AL(OH)_3$, $Mg(OH)_2$, $CaCO_3$

Mechanism of action: bases that neutralize protons in gut lumen

Side Effects:

1) Constipation(Al)

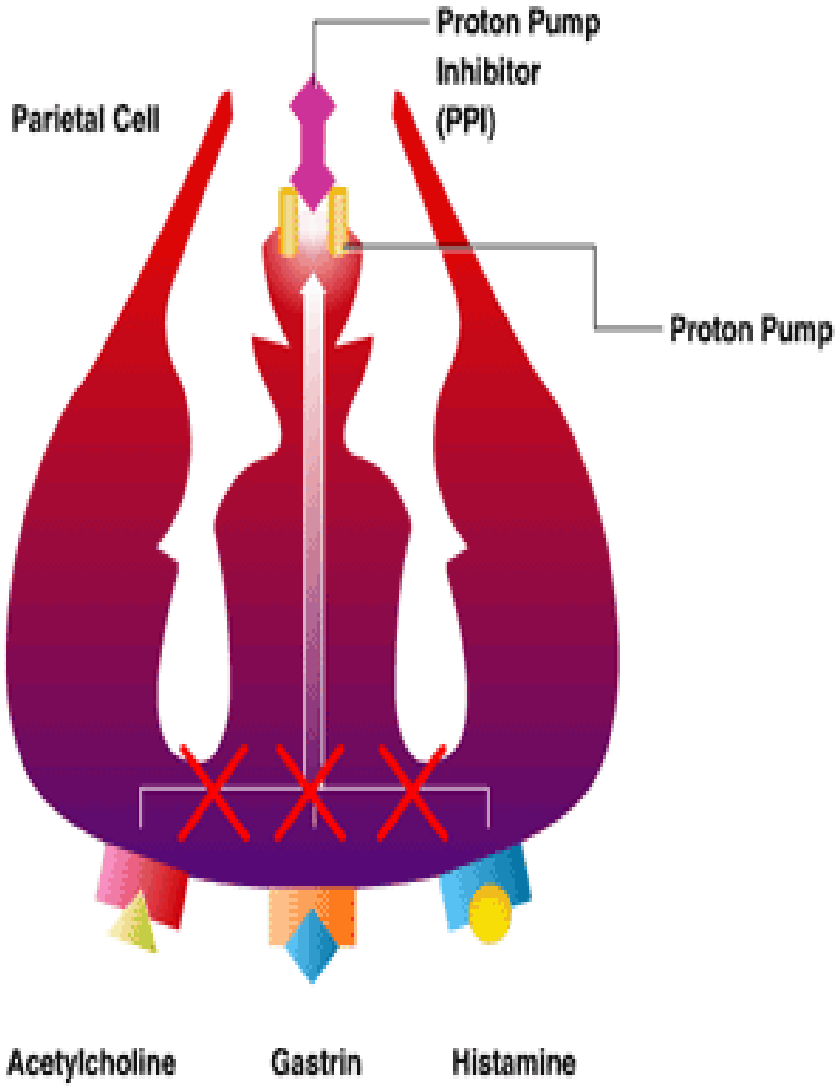
2) Diarrhea(Mg)

3) Renal failure

Contraindication: not safe in patients with renal failure

Drugs that inhibit acid secretion

Regulation of Gastric Acid Secretion



Gastric acid secretion by parietal cells is stimulated by:

1)Acetylcholine: increase intracellular Ca

2)Gastrin: increase intracellular Ca

3)Histamine: activates adenylyn cyclase

**Binding to these receptors activates the H/K ATPase pump

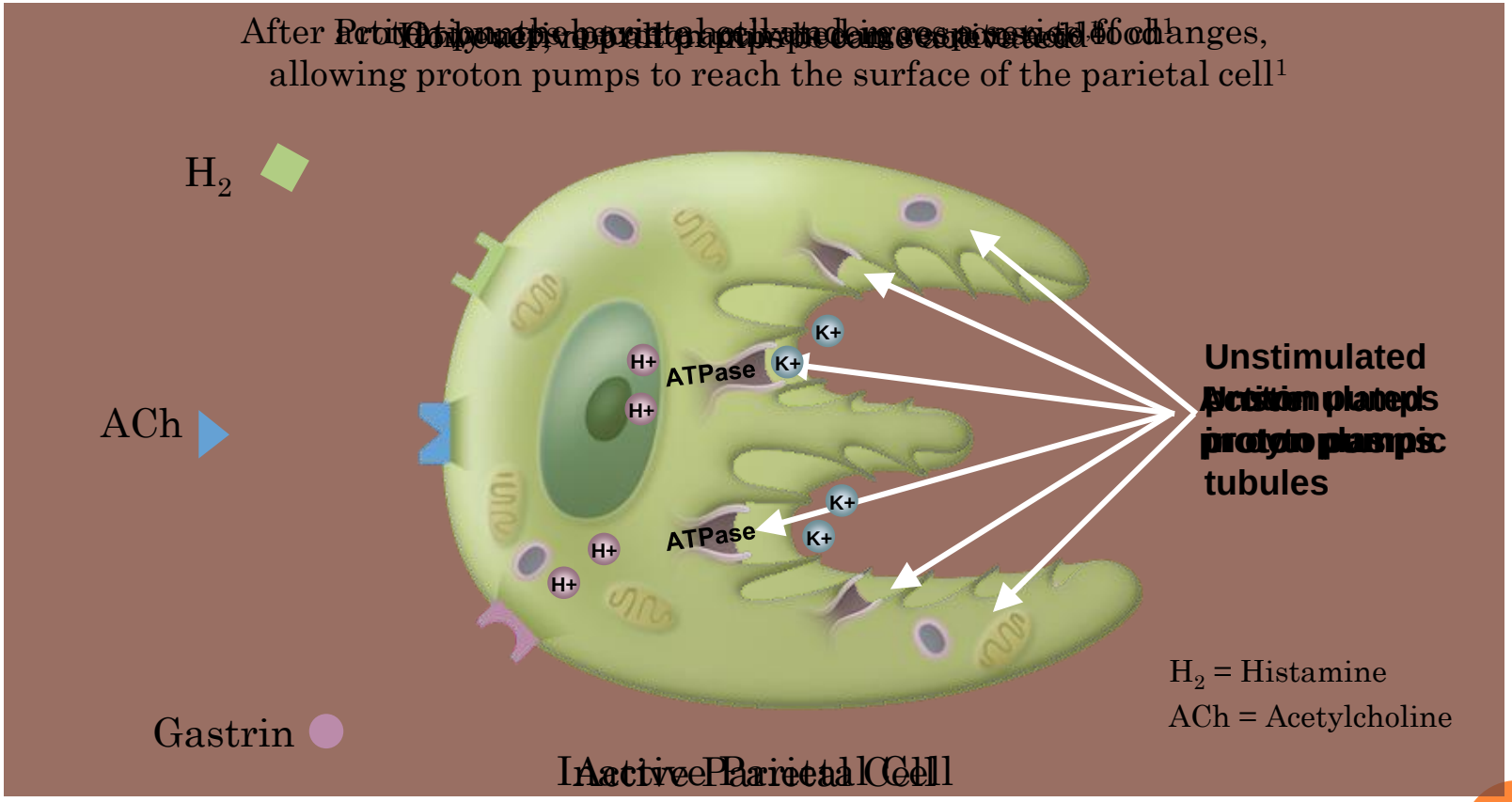
Gastric acid secretion by parietal cells is inhibited by:
1)Prostaglandin E2

2)Somatostatin

Drugs that inhibit gastric acid secretion

- Proton pump inhibitors - omeprazol
- H2 receptors blockers - famotodine
- Anticholinergics - pireserpine
- Prostoglandin analogues - misoprostol
- Somatostatine- octreotide

Proton Pump Functioning



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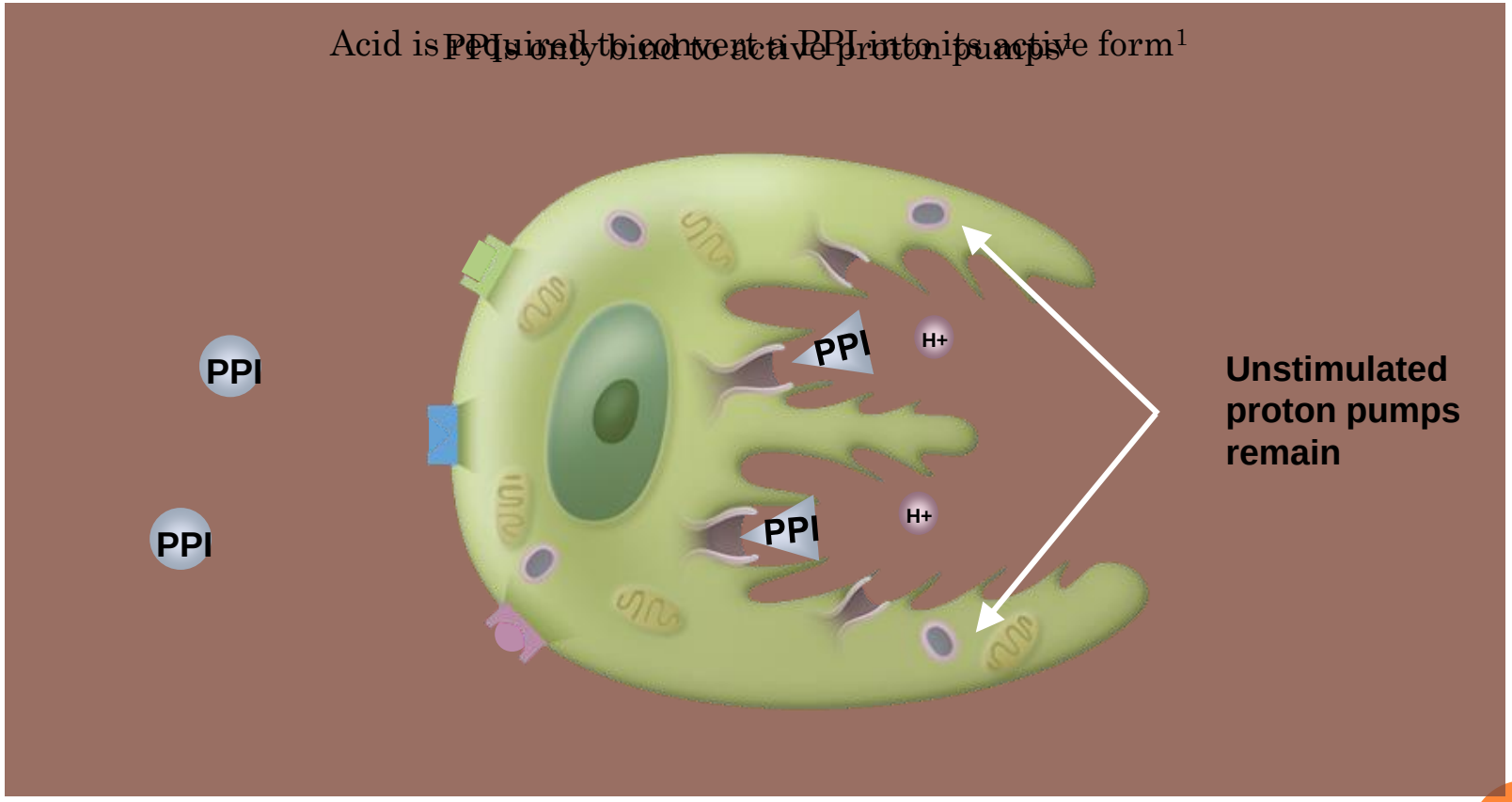
Proton Pump Inhibitors



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H2 Receptor Blockers

H2 blocker antihistamine agents are used in the short-term treatment of an active duodenal ulcer and as prophylaxis in the long term

Cimetidine (Tagamet)

Cimetidine can be used as primary therapy to heal ulcers not associated with H pylori infection. The duration of treatment is 6-8 weeks. A longer treatment course might be required for gastric ulcers

Famotidine (Pepcid)

Famotidine competitively inhibits histamine at H2 receptor of gastric parietal cells, resulting in reduced gastric acid secretion, gastric volume, and hydrogen ion concentrations.

Nizatidine (Axid)

Nizatidine competitively inhibits histamine at H2 receptor of gastric parietal cells, resulting in reduced gastric acid secretion, gastric volume, and hydrogen ion concentrations.

Ranitidine (Zantac)

Ranitidine inhibits histamine stimulation of the H2 receptor in gastric parietal cells, which, in turn, reduces gastric acid secretion, gastric volume, and hydrogen ion concentrations

Antimuscarinic Agents

- Dicylcomine (Cholinergic antagonist)
- Pireserpine

Use:
1)Peptic Ulcer
2) Zollinger–Ellison Syndrome

***mostly used in patients who are resistant to standard therapy because it has lots of side effects

Side Effects:

arrhythmia, dry mouth, constipation, urinary retention

Prostaglandins

- Misoprostol

  Action:
  PGE1 analog which is cytoprotective
  a)increases mucus bicarbonate secretion
  b)decreases HCL secretion(decreases proton production)

  Uses: NSAID induced GI ulcer

  Contraindication: Anything with Prost is contraindicated in pregnancy because prostaglandins will trigger premature labor

  **NSAID antidote

Cytoprotective Agents

Cytoprotective Agents

Cytoprotective agents stimulate mucus production and enhance blood flow throughout the lining of the gastrointestinal tract. These agents also work by forming a coating that protects the ulcerated tissue.

Misoprostol (Cytotec)

Misoprostol is a prostaglandin analog that can be used to decrease the incidence of peptic ulcers and complications in long-term NSAID users at high risk.

Sucralfate (Carafate)

Sucralfate binds with positively charged proteins in exudates and forms a viscous adhesive substance that protects the GI lining against pepsin, peptic acid, and bile salts. It is used for short-term management of ulcers.

Anti H. pylori drugs

Antimicrobials

Antimicrobial agents exert an antibacterial effect on *H pylori*.

- **Amoxicillin**
- **Clarithromycin**
- **Tetracycline**
- **Metronidazole**
- **Bismuth subsalicylate**

H pylori Infection

PPI-based triple therapies are a 14-day regimen as shown below:

Omeprazole (Prilosec): 20 mg PO bid

or

Lansoprazole (Prevacid): 30 mg PO bid

or

Rabeprazole (Aciphex): 20 mg PO bid

or

Esomeprazole (Nexium): 40 mg PO qd

Plus

Clarithromycin (Biaxin): 500 mg PO bid

and

Amoxicillin (Amoxil): 1 g PO bid

H pylori Infection

Quadruple therapy

Quadruple therapies for *H pylori* infection are generally reserved for patients in whom the standard course of treatment has failed

Quadruple treatment includes the following drugs, administered for 14 days:

PPI, standard dose, or ranitidine 150 mg, PO bid

Bismuth 525 mg PO qid

Metronidazole 500 mg PO qid

Tetracycline 500 mg PO qid

THE MAASTRICHT IV/ FLORENCE CONSENSUS

In areas of low clarithromycin resistance, **clarithromycin-containing treatments** are recommended for first-line empirical treatment.

Bismuth-containing quadruple therapy is also an alternative

In areas of high clarithromycin resistance, **bismuth-containing quadruple therapies** are recommended for first-line empirical treatment. If this regimen is not available, **sequential treatment or a non-bismuth quadruple therapy** is recommended

THE MAASTRICHT IV/ FLORENCE CONSENSUS

- **Second-line treatment**

In areas of low clarithromycin resistance after failure of a PPI-clarithromycin-containing treatment, either a bismuth-containing quadruple therapy or levofloxacin-containing triple therapy is recommended

- **Second-line treatment**

In areas of high clarithromycin resistance after failure of bismuth-containing quadruple therapy, levofloxacin containing triple therapy is recommended

THE MAASTRICHT IV/ FLORENCE CONSENSUS

- **Third-line treatment**

In areas of

low clarithromycin resistance after failure of second-line treatment, treatment should be guided by

antimicrobial susceptibility testing whenever possible

- **Third-line treatment**

In areas of high clarithromycin resistance after failure of second-line therapy, treatment should be guided by

antimicrobial susceptibility testing, whenever possible

NSAID Ulcers

Medical Management of NSAID Ulcers

Primary prevention of NSAID-induced ulcers includes the following:

- Avoid unnecessary use of NSAIDs
- Use acetaminophen or nonacetylated salicylates when possible
- Use the lowest effective dose of an NSAID and switch to less toxic NSAIDs, such as the newer NSAIDs or cyclooxygenase-2 (COX-2) inhibitors, in high-risk patients without cardiovascular disease

Medical Management of NSAID Ulcers

Consider prophylactic or preventive therapy for the following patients:

- Patients with NSAID-induced ulcers who require chronic, daily NSAID therapy
- Patients older than 60 years
- Patients with a history of PUD or a complication such as gastrointestinal bleeding
- Patients taking concomitant steroids or anticoagulants or patients with significant comorbid medical illnesses

Medical Management of NSAID Ulcers

Prophylactic regimens that have been shown to dramatically reduce the risk of NSAID-induced gastric and duodenal ulcers include the use of a prostaglandin analog or a PPI according to the following regimens:

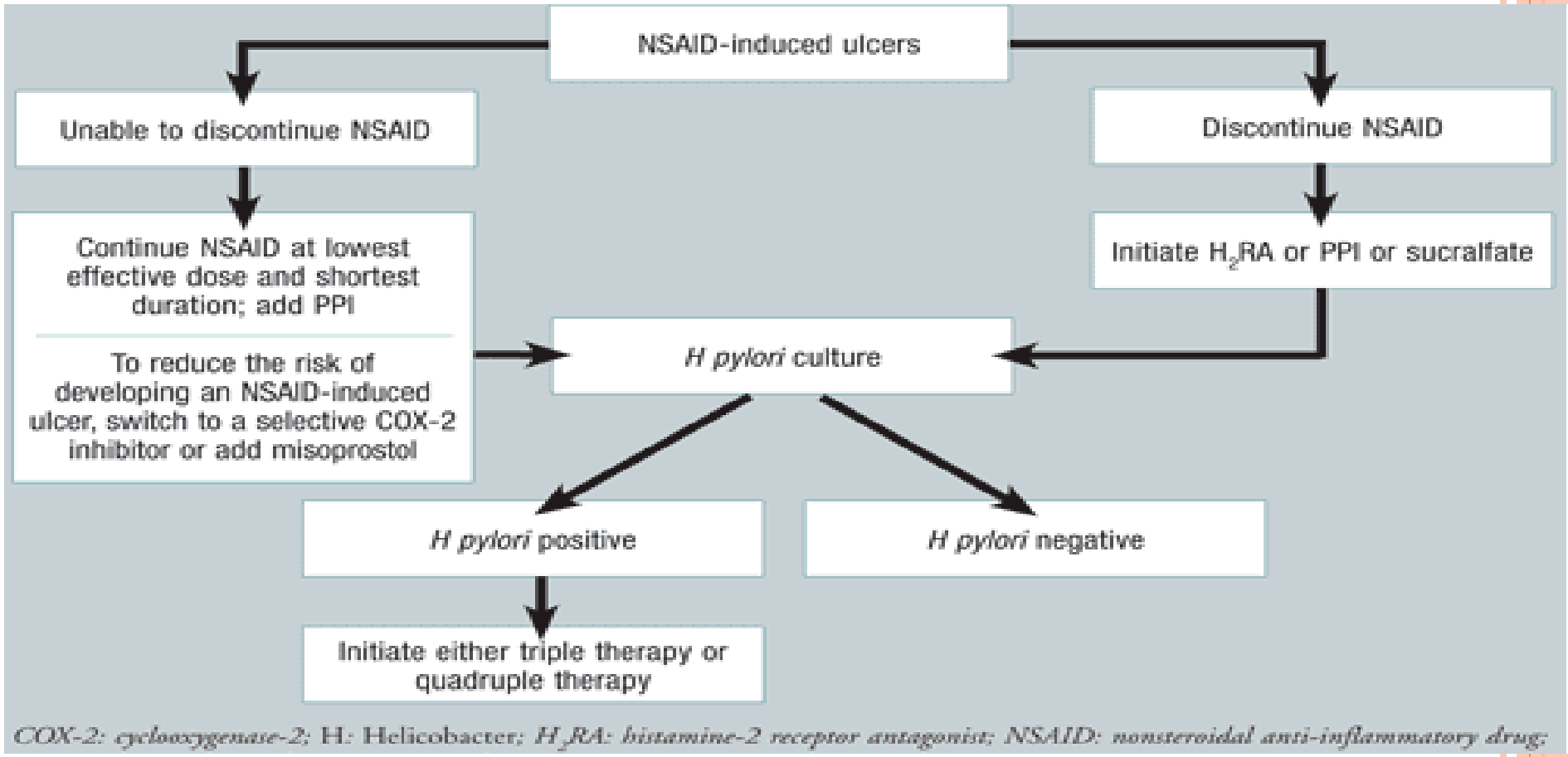
Misoprostol 100-200 mcg PO 4 times per day

Omeprazole 20-40 mg PO every day

or

Lansoprazole 15-30 mg PO every day

NSAID – INDUCED ULCER TREATMENT ALGORITHM



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Bleeding Peptic Ulcers

Bleeding Peptic Ulcers

- Patients can be stratified as having **high or low risk for rebleeding** depending on the presence or absence of stigmata seen on the initial endoscopic examination

High-risk stigmata are the following:

- **Active hemorrhage** (90% risk of rebleeding)
- **A visible vessel** (50% risk of rebleeding)
- **A fresh overlying clot** (30% risk of rebleeding)

- **Ulcers with such stigmata require endotherapy**, while ulcers with a clean base need not be treated endoscopically
- In the **absence of these stigmata**, patients can be **discharged home** on medical therapy within 48 hours

Bleeding Peptic Ulcers

Several modalities of endoscopic therapy are available, such as

- **injection therapy**
- **coagulation therapy**
- **hemostatic clips**
- **argon plasma coagulator**
- **combination therapy**

Bleeding Peptic Ulcers

Acid suppression

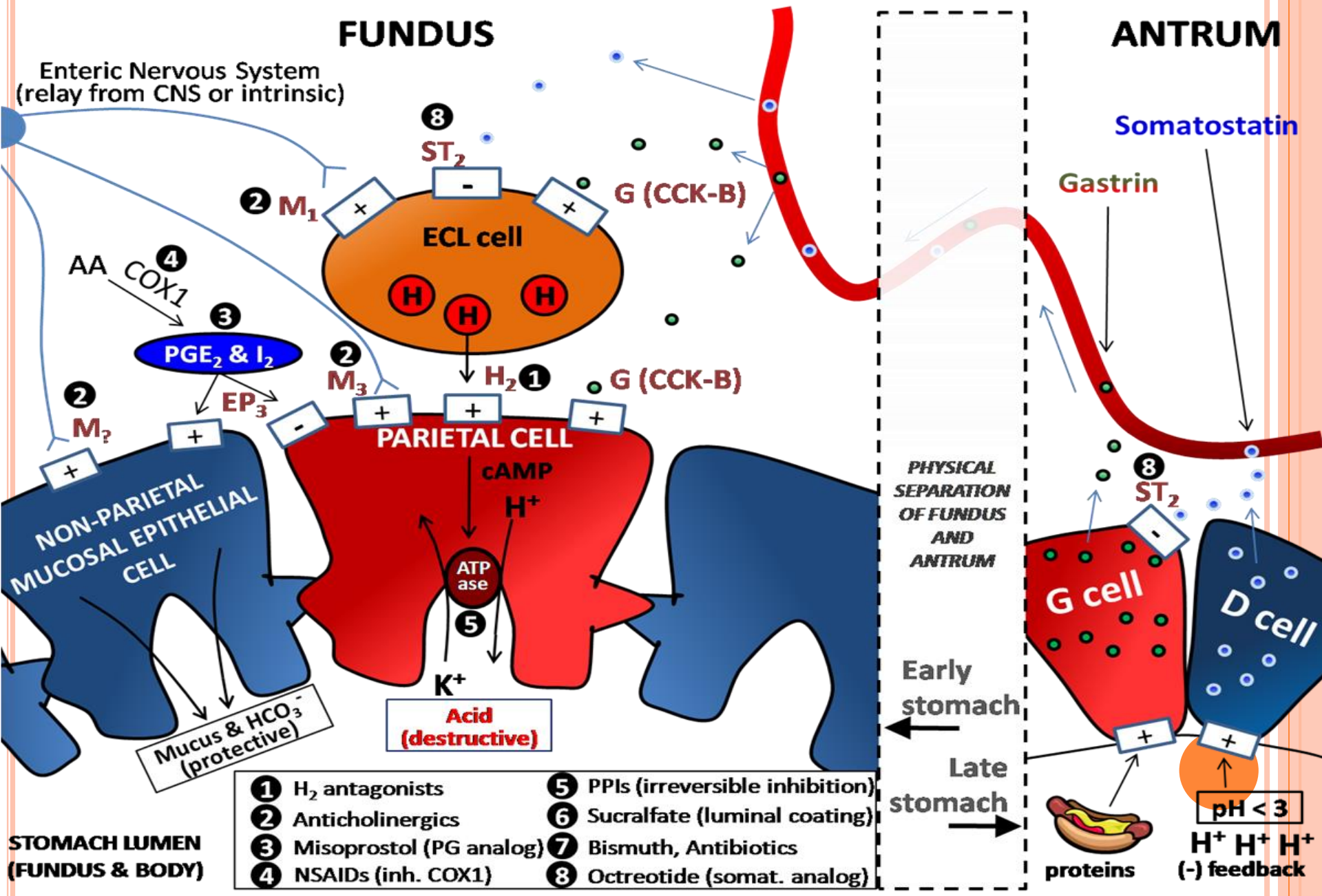
- **Acid suppression** is the general pharmacologic principle of medical management of acute bleeding from a peptic ulcer
- **Reducing gastric acidity is believed to improve hemostasis** primarily through the decreased activity of pepsin in the presence of a more alkaline environment
- **Pepsin** is believed to antagonize the hemostatic process by degrading fibrin clots
- By suppressing acid production and maintaining a pH above 6, pepsin becomes markedly less active
- Concomitant *H pylori* infection in the setting of bleeding peptic ulcers should be eradicated, as this lowers the rate of rebleeding

Long-Term Monitoring

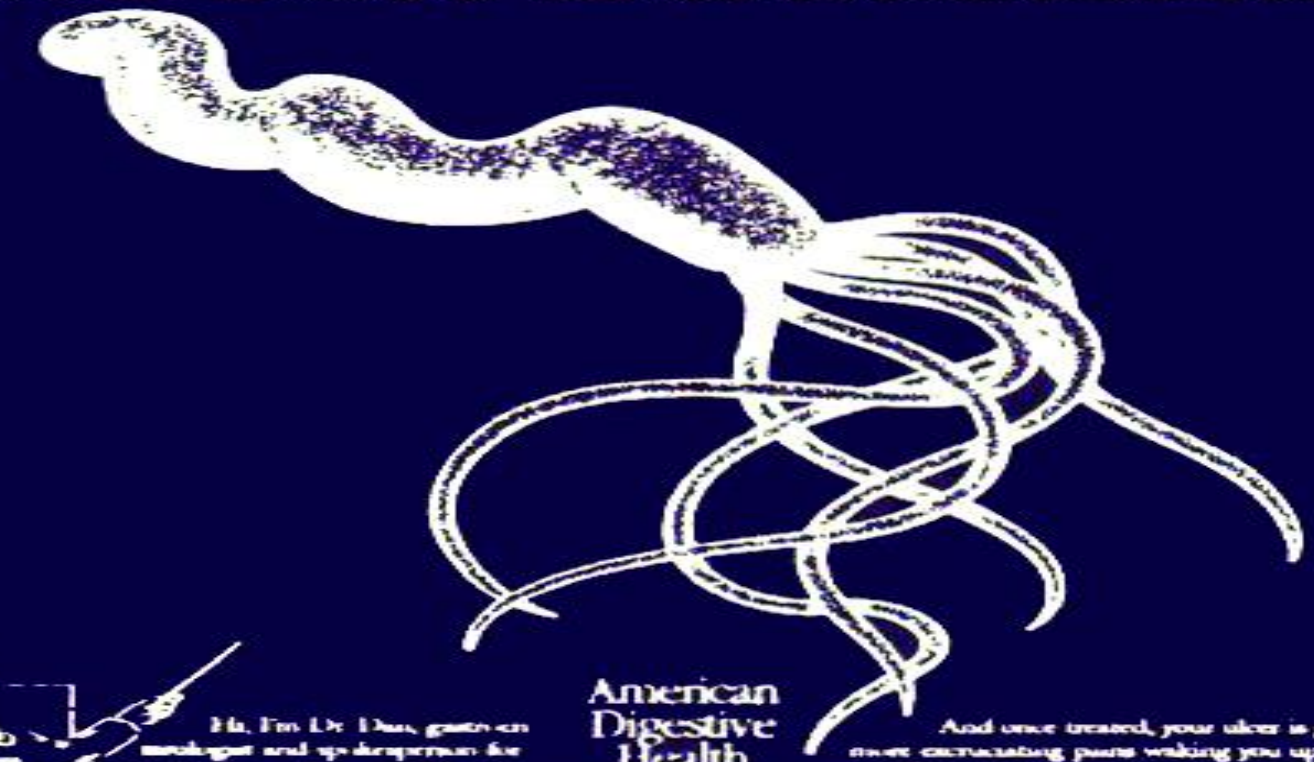
Long-Term Monitoring

- **Maintenance therapy with antisecretory medications** (eg, H2 blockers, PPIs) for 1 year is indicated in high-risk patients
- High-risk patients include those with recurrent ulcers and those with complicated or giant ulcers
- If *H pylori* eradication is not achieved despite repeat treatment, maintenance antisecretory therapy should be recommended

DRUGS USED IN PEPTIC ULCER



Contrary to popular belief, most ulcers are not caused by your boss. Unless, of course, your boss is a bacterium.



Hi. I'm Dr. Dan, gastroenterologist and spokesperson for the American Digestive Health Foundation.™

Research has discovered that nearly all ulcers are caused by this guy, the bacteria, *H. pylori* – not stress or spicy foods as previously thought. More importantly, *H. pylori* can be treated using common medications.

American Digestive Health Foundation

Digestive Health Institute

And once treated, your ulcer is gone! Just think, no more excruciating pains waking you up in the middle of the night. That's got to be worth looking into!

If you've been diagnosed with an ulcer, experience sharp or burning stomach pain, or frequent indigestion, ask your doctor about *H. pylori* and call for more information.

1-800-NO-ULCER. No more ulcer, no more pain.

1-800-466-1237