

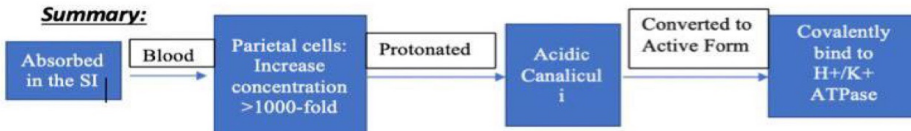
# Lecture 1

## 1. Proton pump inhibitors :

- \* Omeprazole > oral, capsule of sodium bicarbonate.
- \* Rabeprazole > oral.
- \* Esoprazole (Nexium) > oral and IV, capsule of enteric coated granules.
- \* Lansoprazole > oral and IV.
- \* Pantoprazole > oral and IV, pH sensitive coating.

All of them are prodrugs and weak lipophilic bases.

They have short half-lives, but their effect lasts for 24 hours.



## 2. H<sub>2</sub>-Receptor Antagonists :

- \* Cimetidine
- \* Famotidine
- \* Ranitidine
- \* Nizatidine

Effects : nocturnal acid (inhibits 90%, mainly histamine), daytime acid (inhibits 60%) and meal stimulated acid secretion (modest).

Uses : • GERD > prophylactically before meals and used in erosive esophagitis H<sub>2</sub>.

• Non ulcer dyspepsia > treatment of intermittent dyspepsia not caused by peptic ulcer.

• Prevention of bleeding from stress related gastritis > IV H<sub>2</sub> antagonists are preferred over IV PPI due to their efficacy and lower costs.

Uses : • **Peptic ulcer disease** > They are not effective in the presence of H.Pylori and if NSAIDs are continued.

**Adverse effects (Cimetidine):**

**in males > Gynecomastia and impotence.**

**in females > Galactorrhea and menstrual disturbances.**

**Drug interactions :**

**Cimetidine** inhibits cytochrome p450 > increases  $t_{1/2}$  of other drugs .

**Ranitidine** binds 4 to 10 times less than cimetidine.

**Nizatidine and Famotidine > binding is negligible.**

### **3. Antacids :**

are non-prescription drugs used to treat heartburn and dyspepsia.

\* **Aluminum Antacids > constipation, interference with drug absorption, No CO<sub>2</sub> produced, No bloating or distention.**

\* **Magnesium Antacids > diarrhea, acid rebound, No CO<sub>2</sub> produced, No bloating or distention.**

Magnesium Trisilicate: Slow-acting Antacid (Effect lasts for a longer period of time).

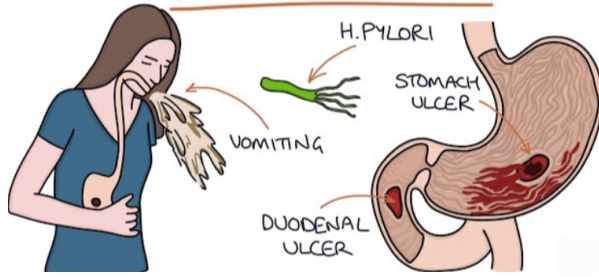
\* **Calcium Carbonate > should be avoided ( acid rebound, chronic use leads to Milk-alkali syndrome, CO<sub>2</sub> produced , bloating and distention).**

\* **Sodium Bicarbonate > should be avoided ( aggregates chronic heart failure, metabolic alkalosis, counteracts diuretic therapy of hypertension, CO<sub>2</sub> produced, bloating and distention and acid rebound)**

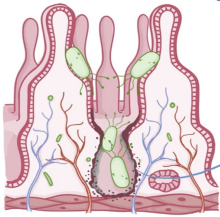
Short duration of action.

### **4. Antibiotics to eradicate the bacteria (H.pylori)**

# PEPTIC ULCERS



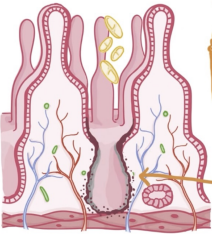
## CAUSES



- ~ H. PYLORI BACTERIA
  - ↳ LOW INCOME COUNTRIES + SETTINGS
  - ↳ GRAM NEGATIVE
  - ↳ COLONIZE IN GASTRIC MUCOSA
    - ↳ RELEASE ADHESIONS → FOVEOLAR CELLS
    - ↳ PROTEASES → DAMAGE MUCOSAL CELLS
- ~ STARTS IN ANTRUM → DUODENUM

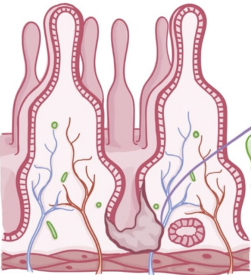


## CAUSES



- ~ NONSTEROIDAL ANTI-INFLAMMATORY DRUGS (NSAIDS)
  - ↳ INHIBIT ENZYME CYCLOOXYGENASE
    - ↳ SYNTHESIS OF INFLAMMATORY PROSTAGLANDINS
  - ↳ LEAVES GASTRIC MUCOSA SUSCEPTIBLE TO DAMAGE

## CAUSES



- ~ ZOLLINGER-ELLISON SYNDROME
  - ↳ TUMOR → GASTRINOMA
    - ↳ NEUROENDOCRINE TUMOR IN DUODENAL WALL OR PANCREAS
    - ↳ SECRETES ABNORMAL AMOUNTS OF GASTRIN
      - ↳ PARIETAL CELLS RELEASE EXCESS HYDROCHLORIC ACID
  - ↳ ULCERS DEVELOP IN FIRST PORTION OF DUODENUM, DISTAL DUODENUM OR JEJUNUM