

Peptic Ulcer Disease

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Integrated Therapeutics

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Peptic Ulcer Disease

- Peptic ulcer disease is most prevalent among persons under stress.
 - **Fallacy**
 - **When does it occur?**

Peptic Ulcer Disease

- Cigarette smokers are about twice as likely to have ulcers as nonsmokers.
 - **Fact**
 - The fact is that current research indicates an association between smoking cigarettes and peptic ulcer disease.
 - Applies to both gastric (stomach) and duodenal ulcers and to both men and women.

Aspirin

- People who take aspirin regularly increase their risk of getting a gastric ulcer.
 - **Fact:**
 - People who take aspirin 4 or more days a week for 3 or more months **increase** their risk of getting a gastric ulcer.
 - Bleeding Increased

Diet

- Peptic ulcers should be treated with a bland diet.
- **Fact:** The fact is that there is little agreement about what the term "bland" means.
- Also, there is little indication that any particular diet is helpful for all peptic ulcer patients.

Peptic Ulcer Disease

- Peptic ulcer disease affects approximately 25 million Americans and has a \$6 billion impact on the nation's health care costs.
- Most ulcers are caused by an infection with the bacterium, *Helicobacter pylori*
- *Treatment?*

Treatment Cost and Duration

- Curing an ulcer takes less time and costs less than **one-tenth** the amount of treating it over a lifetime:
- Vagotomy or ulcer surgery, costs approximately \$17,000 and requires 307 days of treatment over a 15-year period.
- Drug therapy- to block acid production costs approximately \$11,000 and requires 187 days of treatment over 15 years. This approach merely treats the symptoms rather than curing the ulcer.
- Antibiotic therapy -takes 17 days and costs less than \$1,000. In 90 percent of patients, the ulcer is cured and does not recur

History--CDC Overview

– Early 20th Century

- Ulcers are believed to be caused by stress and dietary factors. Treatment focuses on hospitalization, bed rest, and prescription of special bland foods. Later, gastric acid is blamed for ulcer disease. Antacids and medications that block acid production become the standard of therapy. Despite this treatment, there is a high recurrence of ulcers.

– 1982

- Australian physicians Robin Warren and Barry Marshall first identify the link between *Helicobacter pylori* (*H. pylori*) and ulcers, concluding that the bacterium, not stress or diet, causes ulcers. The medical community is slow to accept their findings.

– 1994

- A National Institutes of Health Consensus Development Conference concludes that there is a strong association between *H. pylori* and ulcer disease, and recommends that ulcer patients with *H. pylori* infection be treated with antibiotics.

History(cont)

- **1995**

- Data show that about 75 percent of ulcer patients are still treated primarily with antisecretory medications, and only 5 percent receive antibiotic therapy.
- Consumer research by the American Digestive Health Foundation finds that nearly 90 percent of ulcer sufferers are unaware that *H. pylori* causes ulcers. In fact, nearly 90 percent of those with ulcers blame their ulcers on stress or worry, and 60 percent point to diet.

- **1996**

- The Food and Drug Administration approves the first antibiotic for treatment of ulcer disease.

History(cont2)

- **1997**
- The Centers for Disease Control and Prevention (CDC), with other government agencies, academic institutions, and industry, launches a national education campaign to inform health care providers and consumers about the link between *H. pylori* and ulcers. This campaign reinforces the news that ulcers are a curable infection, and the fact that health can be greatly improved and money saved by disseminating information about *H. pylori*.
- Medical researchers sequence the *H. pylori* genome. This discovery can help scientists better understand the bacterium and design more effective drugs to fight it.

What is *H. pylori*?

- *Helicobacter pylori* (*H. pylori*) is a spiral shaped bacterium that is found in the gastric mucus layer or adherent to the epithelial lining of the stomach.
- *H. pylori* causes more than 90% of duodenal ulcers and more than 80% of gastric ulcers.

How common is *H. pylori* infection?

- Approximately two-thirds of the world's population is infected with *H. pylori*.
- United States, *H. pylori* is more prevalent among older adults, African Americans, Hispanics, and lower socioeconomic groups.

What illnesses does *H. pylori* cause?

- Asymptomatic--Most persons who are infected with *H. pylori*
- *H. pylori* causes chronic active, chronic persistent, and atrophic gastritis in adults and children.
- Infected persons have a 2- to 6-fold increased risk of developing gastric cancer and mucosal-associated-lymphoid-type (MALT) lymphoma compared with their uninfected counterparts.

How do people get infected with *H. pylori*?

- Not known how *H. pylori* is transmitted or why some patients become symptomatic while others do not.
- Bacteria are most likely spread from person to person through fecal-oral or oral-oral routes.
- Possible environmental reservoirs include contaminated water sources.
- Iatrogenic spread through contaminated endoscopes

What are the symptoms of ulcers?

Approximately 25 million Americans suffer from peptic ulcer disease.

- Each year there are 500,000 to 850,000 new cases of peptic ulcer disease and more than one million ulcer-related hospitalizations.
- Symptoms-the most common ulcer symptom is gnawing or burning pain in the epigastrium.
- This pain typically occurs when the stomach is empty, between meals and in the early morning hours, but can also occur at other times.

Who should be tested and treated for *H. pylori* ?

- Persons with active gastric or duodenal ulcers or documented history of ulcers should be tested for *H. pylori*,
- To date, there has been no conclusive evidence that treatment of *H. pylori* infection in patients with non-ulcer dyspepsia is warranted.
- Retesting after treatment may be prudent for those with bleeding or otherwise complicated peptic ulcer disease..

How is *H. pylori* infection diagnosed?

- Serological tests that measure specific *H. pylori* IgG antibodies can determine if a person has been infected. The sensitivity and specificity of these assays range from 80% to 95% depending upon the assay used.
- Breath test-Patient is given either ^{13}C or ^{14}C -labeled urea to drink. *H. pylori* metabolizes the urea rapidly, and the labeled carbon is absorbed. This labeled carbon can then be measured as CO_2 in the patients expired breath to determine whether *H. pylori* is present.
- Upper esophagogastroduodenal endoscopy-considered the reference method of diagnosis.

How is *H. pylori* infection diagnosed?(cont)

- Endoscopy- biopsy specimens of the stomach and duodenum obtained and the diagnosis of *H. pylori* made by:
 - The biopsy urease test- colorimetric test based on the ability of *H. pylori* to produce urease-fast!!
 - Histologic identification of organisms- gold standard

What are the treatment regimens used for *H. pylori* eradication?

- Therapy for *H. pylori* infection consists of 1-2 weeks of one or **two effective** antibiotics, such as amoxicillin, tetracycline (not to be used for children <12 yrs.), metronidazole, or clarithromycin, **plus** either ranitidine bismuth citrate, bismuth subsalicylate, or a proton pump inhibitor.
- Eradication rates range from 70% to 90% depending on the regimen used.
- Currently, five *H. pylori* treatment regimens are approved by FDA.
- Antibiotic resistance and patient noncompliance-failures

FDA-Approved Treatment Options

- Omeprazole 40 mg QD + clarithromycin 500 mg TID x 2 wks, then omeprazole 20 mg QD x 2 wks
- Ranitidine bismuth citrate (RBC) 400 mg BID + clarithromycin 500 mg TID x 2wks then RBC 400 mg BID x 2 wks

FDA-Approved Treatment Options(cont)

- Bismuth subsalicylate (Pepto Bismol®) 525 mg QID + metronidazole 250 mg QID + tetracycline 500 mg QID* x 2 wks + H2 receptor antagonist therapy as directed x 4 wks
- Lansoprazole 30 mg BID + amoxicillin 1 g BID + clarithromycin 500 mg BID x 14 days
- Lansoprazole 30 mg TID + amoxicillin 1 g TID x 14 days

Long-term consequences of *H. pylori* infection?

- Association between long-term infection with *H. pylori* and the development of gastric cancer.
- Gastric cancer is the second most common cancer worldwide--China/Far East

What can people do to prevent *H. pylori* infection?

- Since the source of *H. pylori* is not yet known, recommendations for avoiding infection have not been made.
- In general- wash hands thoroughly, eat food that has been properly prepared and water

Case Study

- AJ is a 35 year-old female who comes to clinic today complaining of abdominal pain for the last three weeks, which awakens her at night and is relieved by food and antacids.