

## GIANT HYPERTROPHIC GASTRITIS AND MÉNÉTRIER'S DISEASE—CITED REFERENCES

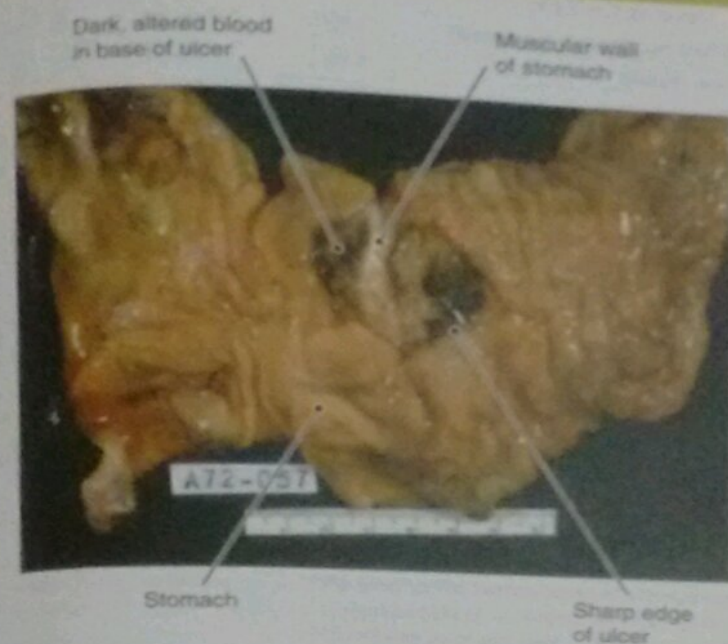
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## PEPTIC ULCER DISEASE

### NUTRITIONAL ACUTY RANKING: LEVEL 2



Adapted from: Thomas H. McConnell, *The Nature Of Disease Pathology for the Health Professions*, Philadelphia: Lippincott Williams & Wilkins, 2007.



### DEFINITIONS AND BACKGROUND

A peptic ulcer suggests an imbalance between digestive fluids in the stomach and duodenum, with erosion by gastric acid and pepsin and exposed nerves. Most ulcers are duodenal, within the first 25–30 cm.

One of 10 Americans suffers from peptic ulcer disease. *H. pylori* bacteria play a role in the etiology of 75% or more of peptic ulcers. *Helicobacter pylori* can be transmitted from person to person through close contact, exposure to vomit, or fecal-oral contamination. It can also be found in well water. Because the bacterium is one of the most genetically diverse bacterial species, more than half of the world population in both developed and developing countries are infected (Dube et al, 2009). It has been implicated in stomach cancer.

Hand washing is an important preventive measure. In addition, sulforaphane (SF) from broccoli is a powerful bactericidal agent against *H. pylori* (Yanaka et al, 2009) and intake of soy products may help reduce the effects of inflammation-related IL-10 genetic polymorphisms (Ko et al, 2009).

Individuals who have cirrhosis, chronic obstructive pulmonary disease, renal failure, and organ transplantation

tend to have a higher risk for peptic ulcer disease (PUD). Bland diets neither heal ulcers nor cause a decrease in gastric acid secretion. Drug therapy is most effective in preventing ulcer recurrence and primarily consists of antibiotics and antacids. A vaccine to prevent *H. pylori* infection is being developed. In the meantime, vitamin B<sub>12</sub> tends to be lower in patients who have peptic ulcers; anemia should be monitored.

The decline in duodenal ulcer disease and the established relation of peptic ulcer to *H. pylori* have eliminated the need for elective ulcer surgery. Options for refractory and complicated PUD include vagotomy and pyloroplasty, vagotomy and antrectomy with gastroduodenal reconstruction (Billroth I) or gastrojejunal reconstruction (Billroth II).



### ASSESSMENT, MONITORING, AND EVALUATION



### CLINICAL INDICATORS

**Genetic Markers:** *H. pylori* infection tends to run in families. This pathogen has been shown to follow the routes of human migration; the global *H. pylori* population has been divided into six ancestral populations, three from Africa, two from Asia, and one from Europe (Tay et al, 2009). In addition, the interleukin 1B gene has been identified as a factor, especially inflammation-related IL-10 genetic polymorphisms.

Clinical/History	GI bleeding or black, tarry stools	Lab. Work
Height	Nausea, vomiting	Red blood cell (RBC) count
Weight	Frequent bloating	Anti- <i>H. pylori</i> immunoassay
BMI	Chronic idiopathic urticaria or atopic dermatitis	globulin C-antibody titer
Diet history	Sharp and sudden abdominal pain	Urea breath test for <i>H. pylori</i>
Weight and appetite changes	Burning or gnawing pain (better with meals but returns)	Chol, Trig
Stool test for <i>H. pylori</i>		BUN, Creat
Endoscopy		Alb, transchytin

Alanine amino-transferase (ALT)	perforated ulcers)	Serum folate
Aspartate aminotransferase (AST)	Serum gastrin (increased)	PT or INR
Blood guaiac Amylase (increased in	Alk phos (increased)	Transferrin
	H & H	Ca <sup>++</sup> , Mg <sup>++</sup>
	Serum Fe, ferritin	Serum B <sub>12</sub>
		TIBC
		Na <sup>+</sup> , K <sup>+</sup> , Cl <sup>-</sup>
		Ca <sup>++</sup> , Mg <sup>++</sup>

**INTERVENTION**



**OBJECTIVES**

- Eradicate any *H. pylori* infection where present. Take medications as directed. Rest during healing stages.
- Reduce pain. Avoid distention from large meals.
- Dilute stomach contents and provide buffering action.
- Correct anemia, if present. Vitamin B<sub>12</sub> deficiency may be corrected after effective *H. pylori* treatment.
- Monitor and prevent steatorrhea, bone disease, dumping syndrome, and complications such as perforation and obstruction.



**FOOD AND NUTRITION**

- Use small feedings, frequently if preferred. Include high-protein foods and vitamin C to speed healing.
- Avoid personal intolerances. Citrus and acidic juices may cause pain during exacerbations. If a particular food bothers an individual, it should be avoided.
- Use broccoli and cruciferous vegetables often to enhance chemoprotection of the gastric mucosa against *H. pylori*-induced oxidative stress (Yanaka et al, 2009).
- Encourage soybean intake (Ko et al, 2009).
- Limit gastric stimulants if not tolerated, such as caffeine, alcohol, peppermint, black pepper, garlic, cloves, and chili powder. This is a "liberal bland" diet. See Table 7-7 regarding caffeine in beverages and medications.

**TABLE 7-7 Typical Caffeine Content of Beverages and Medications**

Beverages/Medications	Measure	Caffeine (mg)
Coffee, brewed	5 oz	65-120 (average, 85)
Coffee, instant	5 oz	60-85 (average, 75)
Coffee, Starbucks Frappuccino	8 oz	83
Espresso coffee	1 oz	30-50 (average, 40)
Decaffeinated coffee	5 oz	2-4
Black tea, brewed (most U.S. brands)	5 oz	20-50
Black tea, brewed (imported)	5 oz	25-60
Tea, instant	6 oz	28-30
Mountain Dew	12 oz	54
Cola drinks	12 oz	36-47
Coffee ice cream	4 oz	28
Baker's chocolate	1 oz	26
Dark chocolate	1 oz	5-35 (average, 20)
Milk chocolate	1 oz	1-15 (average, 6)
Cocoa beverage	8 oz	3-32 (average, 6)
Chocolate milk	8 oz	2-7 (average, 5)
Analgesic	1 tablet	30-66
Cold preparation	1 tablet	30
Chocolate syrup	1 oz	4
7-Up or Sprite	12 oz	0
Ovaltine	8 oz	0

Data from Leonard T, et al. The effects of caffeine on various body systems: a review. *J Am Diet Assoc.* 87:1048, 1987.

- Use fewer saturated fats and more polyunsaturated fats if increased lipid levels are found. AA metabolites may play a role in peptic ulcer disease.
- Monitor water supply as a potential source of *H. pylori*.

**Common Drugs Used and Potential Side Effects (see Table 7-8)**

- Most patients with PUD should avoid NSAIDs. Analgesics and corticosteroids, when taken over a long time, may cause GI bleeding and ulceration and should be taken with food. High doses of Advil or Motrin (ibuprofen), even for a few days, can significantly increase the risk of GI bleeding.
- For eradication of *H. pylori*, 2 weeks of treatment with an acid-suppressing drug (once daily), Pepto-Bismol (four times daily), and antibiotics (three to four times daily) are prescribed. A 1- to 2-week course of *H. pylori* eradication therapy is an effective treatment (Ford et al, 2006); triple therapy often must be used more than once. Quadruple therapy is also being tested (Feng et al, 2005). Some FDA-approved combinations include the antibiotics omeprazole, clarithromycin, and ranitidine bismuth (Tritec). Other antibiotics include amoxicillin, metronidazole, and tetracycline. Suggest use of probiotics, such as yogurt with live and active cultures.

**SAMPLE NUTRITION CARE PROCESS STEPS**

**Undesirable Food Choices**

**Assessment:** Food and symptoms diary. Positive stool guaiac test. Altered GI lab results. No *H. pylori* present.

**Nutrition Diagnosis (PES):** Undesirable food choices related to chronic alcohol intake (beer and wine, 10 drinks/wk) as evidenced by nausea, sharp stomach pains, abdominal discomfort, black tarry stools and altered GI labs.

**Intervention:** Teach about role of alcohol in GI mucosal damage. Counsel about alternative lifestyle changes that will help alleviate GI pain. Encourage intake of broccoli for its chemoprotective effects.

**Monitoring and Evaluation:** Report of decreased alcohol consumption and less GI discomfort and pain. Resolution of peptic ulcer symptoms; improved lab results. No further tarry stools.

TABLE 7-8 Medications Used in Peptic Ulcer Disease

Medication Type	Description	Specific Drugs
Antacids	<p>Aluminum-containing and magnesium-containing antacids can be helpful in relieving symptoms of gastritis by neutralizing gastric acids. These agents are inexpensive and safe.</p> <p>Aluminum ions inhibit smooth muscle contraction, thus inhibiting gastric emptying. Use aluminum-containing antacids cautiously with upper GI hemorrhage.</p> <p>Magnesium and aluminum antacid mixtures are used to avoid bowel function changes.</p>	<p>Gaviscon contains magnesium as well as aluminum and may decrease absorption of thiamine, phosphate, and vitamin A.</p> <p>Gelusil contains magnesium, aluminum, and simethicone; it may have side effects similar to those of Gaviscon.</p> <p>MyLanta and Amphogel (aluminum hydroxide) may cause nausea, vomiting, and lowered vitamin A, calcium, and phosphate absorption. Take between meals, followed by water. Milk of magnesia (magnesium hydroxide) is a laxative-antacid and can deplete phosphorus and calcium over time. Magaldrate (Riopan) decreases serum vitamin A but can be used on a low-sodium diet.</p>
H <sub>2</sub> -receptor antagonists	<p>These drugs inhibit the action of histamine on the parietal cell, which inhibits acid secretion. The drugs in this class are all equally effective and are available over the counter in half prescription strength for heartburn treatment.</p> <p>Histamine H<sub>2</sub> blockers should be taken with food. Since acid secretion and ulcer pain are most prevalent at night, taking Zantac or Tagamet before bed may be helpful.</p> <p>These drugs can elevate AST/ALT and creatinine, cause confusion in elderly individuals, and cause diarrhea, constipation, or urticaria.</p>	<p>Cimetidine (Tagamet) inhibits histamine at H<sub>2</sub> receptors of the gastric parietal cells, resulting in reduced gastric acid secretion, gastric volume, and hydrogen ion concentrations.</p> <p>Famotidine (Pepcid) competitively inhibits histamine at the H<sub>2</sub> receptor of the gastric parietal cells, resulting in reduced gastric acid secretion, gastric volume, and reduced hydrogen concentrations.</p> <p>Nizatidine (Axid) competitively inhibits histamine at H<sub>2</sub> receptors of gastric parietal cells, resulting in reduced gastric acid secretion, gastric volume, and reduced hydrogen concentrations.</p> <p>Ranitidine (Zantac) competitively inhibits histamine at the H<sub>2</sub> receptors of gastric parietal cells, resulting in reduced gastric acid secretion, gastric volume, and hydrogen concentrations. Ranitidine can cause nausea, constipation, and vitamin B<sub>12</sub> malabsorption; may alter serum levels of serum iron.</p>
Proton pump inhibitors (PPIs)	<p>PPIs bind to the proton pump of parietal cell, inhibiting secretion of hydrogen ions into gastric lumen. PPIs relieve pain and heal peptic ulcers more rapidly than H<sub>2</sub> antagonists do. Drugs in this class are equally effective.</p> <p>All PPIs decrease serum concentrations of drugs that require gastric acidity for absorption, such as ketoconazole or itraconazole.</p> <p>PPIs are used for up to 4 weeks to treat and relieve symptoms of active duodenal ulcers. Physicians may prescribe for up to 8 weeks to treat all grades of erosive esophagitis.</p>	<p>Lansoprazole (Prevacid) decreases gastric acid secretion by inhibiting the parietal cell H<sup>+</sup>/K<sup>+</sup> ATP pump.</p> <p>Omeprazole (Prilosec) decreases gastric acid secretion by inhibiting the parietal cell H<sup>+</sup>/K<sup>+</sup> ATP pump. Omeprazole is now available over the counter.</p> <p>Esomeprazole (Nexium) is the S-isomer of omeprazole. It decreases gastric acid secretion by inhibiting the parietal cell H<sup>+</sup>/K<sup>+</sup> ATP pump. May increase absorption of digoxin; may decrease absorption of iron.</p> <p>Rabeprazole (Aciphex, Alfence, Pariet) decreases gastric acid secretion by inhibiting the parietal cell H<sup>+</sup>/K<sup>+</sup> ATP pump. It is used for short-term (4–8 weeks) treatment and symptomatic relief of gastritis.</p> <p>Pantoprazole (Protonix) decreases gastric acid secretion by inhibiting the parietal cell H<sup>+</sup>/K<sup>+</sup> ATP pump. It is used for short-term (4–8 weeks) treatment and symptomatic relief of gastritis.</p>
Gastrointestinal agents	<p>These agents are effective in the treatment of peptic ulcers and in preventing relapse. Their mechanism of action is not clear. Multiple doses are required, and they are not as effective as the other options.</p>	<p>Sucralfate (Carafate) 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. Used for short-term management of ulcers. Sucralfate may cause constipation as one side effect.</p>
Stomach acid protector	<p>Bismuth subsalicylate</p>	<p>Bismuth is a component of Pepto-Bismol and is used to protect the stomach lining from acid; it kills <i>Helicobacter pylori</i>.</p>

Adapted from: Shayne P. Gastritis and peptic ulcer disease, <http://www.emedicine.com/emerg/topic820.htm>, accessed February 28, 2005.

### Herbs, Botanicals, and Supplements

- Herbs and botanical supplements should not be used without discussing with the physician.
- Ginger may be used as an antiemetic. Do not use large doses with warfarin, aspirin, or other antiplatelet drugs, antihypertensive drugs, and hypoglycemic drugs. Additive effects can cause unpredictable changes in BP and decreases in blood glucose levels and may decrease platelet aggregation and thus increase bleeding. Ginger ale is commonly used with few side effects.
- Licorice root may be recommended for gastric and duodenal ulcers. Do not take with digoxin, because it may cause potassium loss and digoxin toxicity. Licorice root may potentiate the effects of steroids, especially hydrocortisone, progesterone, and estrogens. Also avoid taking with thiazide diuretics and antihypertensive medications because of increased sodium and water retention, along with potential hypokalemia; spironolactone is especially antagonized by licorice root.
- Banana, garlic, cabbage, and yellow root have no clinical trials proving efficacy. Broccoli and soy products may be beneficial.



### NUTRITION EDUCATION, COUNSELING, CARE MANAGEMENT

- As needed by the individual, offer guidance about dietary alterations that may be useful.
- Discuss the need to complete treatments for eradication of *H. pylori* bacteria, where present. One treatment is usually not sufficient. Suggest increasing intake of broccoli and soy products.
- Reduce intake of alcoholic beverages; stop smoking; and monitor any family history of ulcer disease to address it as quickly as possible.

- As a preventive measure, recommend endoscopy early in patients older than 45–50 years who have dysphagia, recurrent vomiting, weight loss, or bleeding.

### Patient Education—Foodborne Illness

- Careful food handling will be important. Hand washing is important to reduce the spread of *H. pylori*. Always wash hands after using the bathroom and before eating.
- If home TF is needed, teach appropriate sanitation and food handling procedures.

### For More Information

- Centers for Disease Control and Prevention—Peptic Ulcer  
<http://www.cdc.gov/ulcer/md.htm>
- Foundation for Digestive Health  
<http://www.fdh.org/html/education/ulcer/facts.html>
- Helicobacter Foundation  
<http://www.helico.com/>
- Medline—Peptic Ulcer  
<http://www.nlm.nih.gov/medlineplus/pepticulcer.html>
- Web MD—Peptic Ulcer  
<http://www.webmd.com/digestive-disorders/digestive-diseases-peptic-ulcer-disease>

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