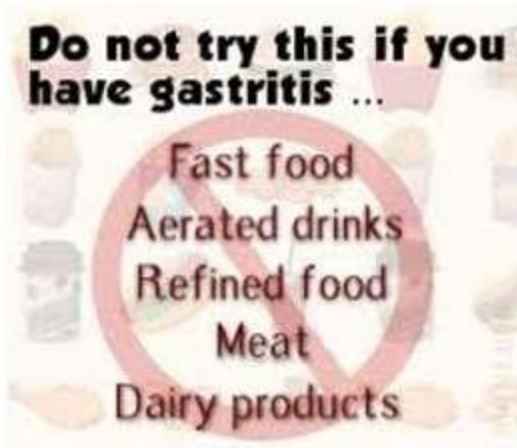


Dyspepsia and Chronic Gastritis

Plan of the Lecture



- Definition
- Epidemiology
- Mechanisms
- Classification
- Clinical presentation
- Diagnosis
- Treatment
- Prognosis
- Prophylaxis
- Abbreviations
- Diagnostic guidelines

Definition

Dyspepsia (Indigestion) is defined as one or more of the symptoms (Rome III criteria) : postprandial fullness (postprandial distress syndrome), early satiation due to inability to finish a normal sized meal (postprandial distress syndrome) and epigastric pain or burning (epigastric pain syndrome).

Gastritis is a result of inflammation, irritation, or erosion of the lining of the stomach that can occur suddenly (acute) or gradually (chronic) and clinically may manifest with symptoms of upper abdominal pain, nausea , vomiting, bloating, loss of appetite and heartburn, sometimes with possible complications in forms of bleeding, stomach ulcers, and stomach tumors, etc.

Epidemiology: Dyspepsia

- Dyspepsia is a common problem worldwide
- In the United States, the point prevalence is approximately 25%, excluding those people who have typical gastroesophageal reflux disease (GERD) symptoms
- Approximately 9% of people who had no symptoms of dyspepsia annually in the prior year reported new symptoms on follow-up
- In Scandinavia, an incidence rate of less than 1% over 3 months has been reported
- Whatever the incidence, the number of subjects who develop dyspepsia is matched by a similar number of subjects who lose their symptoms, explaining the observation that the prevalence remains stable.

Epidemiology: Chronic Gastritis

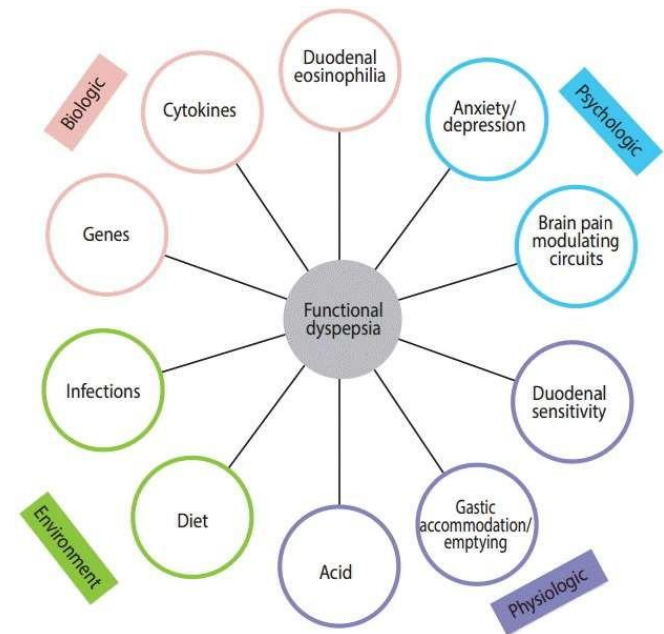
- An estimated 50% of the world population is infected with *H pylori*; consequently, chronic gastritis is extremely frequent
- *H pylori* infection is highly prevalent in Asia and in developing countries, and multifocal atrophic gastritis and gastric adenocarcinomas are more prevalent in these areas
- Autoimmune gastritis is a relatively rare disease, most frequently observed in individuals of northern European descent and black people
- The frequency of pernicious anemia is increased in patients with autoimmune gastritis and other immunologic diseases, including Graves disease, myxedema, thyroiditis, vitiligo and hypoparathyroidism.

Risk Factors: Dyspepsia

- Female gender
- Concomitant IBS
- Unemployment
- Alcohol 48
- Smoking 44
- NSAID

IBS: irritable bowel syndrome

NSAID: nonsteroidal anti-inflammatory drug



Risk Factors: Dyspepsia

Some Medications that cause Dyspepsia

Nonsteroidal anti-inflammatory
drugs (NSAIDs)

Cox-2 inhibitors

Bisphosphonates

Erythromycin

Tetracyclines

Iron

Potassium supplements

Acarbose

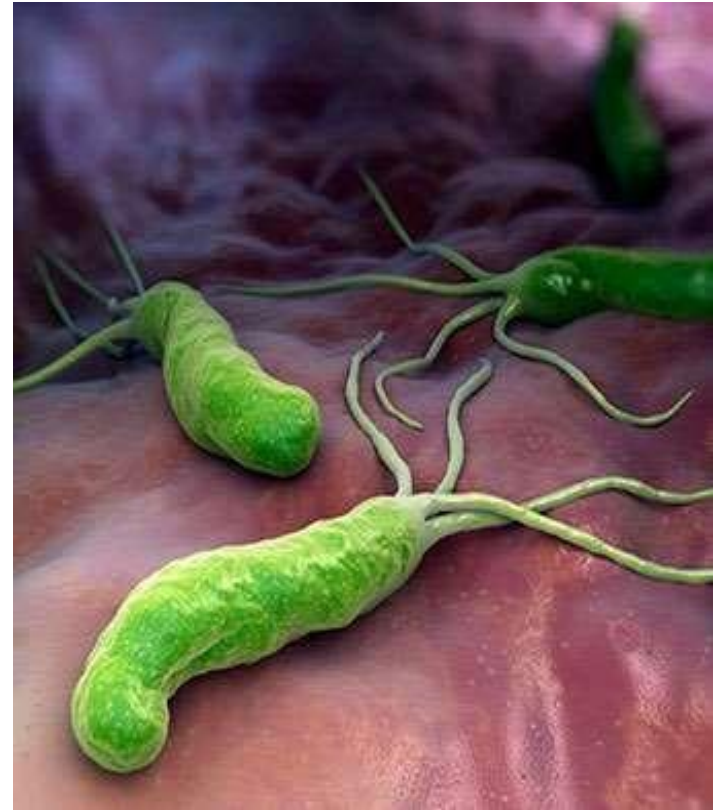
Digitalis

Theophylline Orlistat



Risk Factors: Chronic Gastritis

- African-American, Northern-European, Hispanic or Asian descent
- Infection
- Regular use of pain relievers
- Older age
- Excessive alcohol use
- Smoking
- Distress
- Erosion
- Bile reflux disease
- Major surgery
- Chronic autoimmune conditions

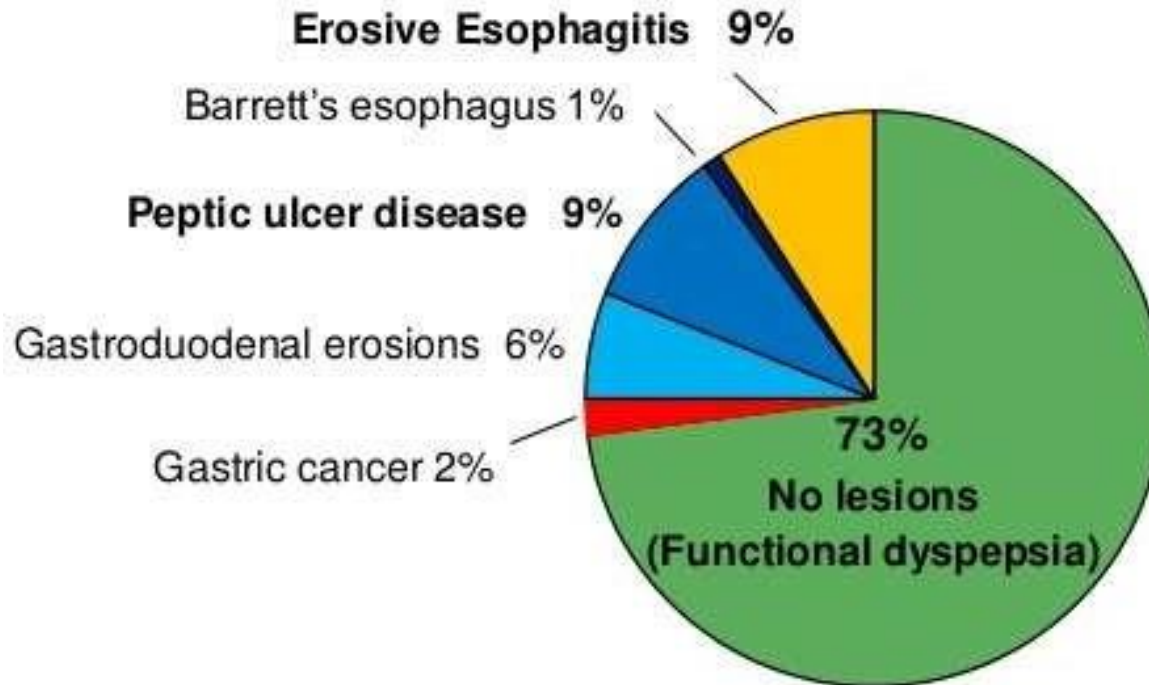


Etiology: Dyspepsia

- Eating too much
- Eating too rapidly
- Consuming fatty or greasy foods
- Consuming spicy foods
- Consuming too much coffee
- Consuming too much alcohol
- Consuming too much chocolate
- Consuming too many fizzy drinks
- Emotional trauma
- Gallstones
- Gastritis)
- Hiatus hernia
- Infection, especially with *H pylori*
- Nervousness
- Obesity
- Pancreatitis
- Peptic ulcers
- Smoking
- Some medications, such as antibiotics and NSAIDs
- Stomach cancer

Etiology: Dyspepsia

Total subjects with endoscopic findings = 27%



Endoscopic findings in individuals with dyspepsia in the Italian population

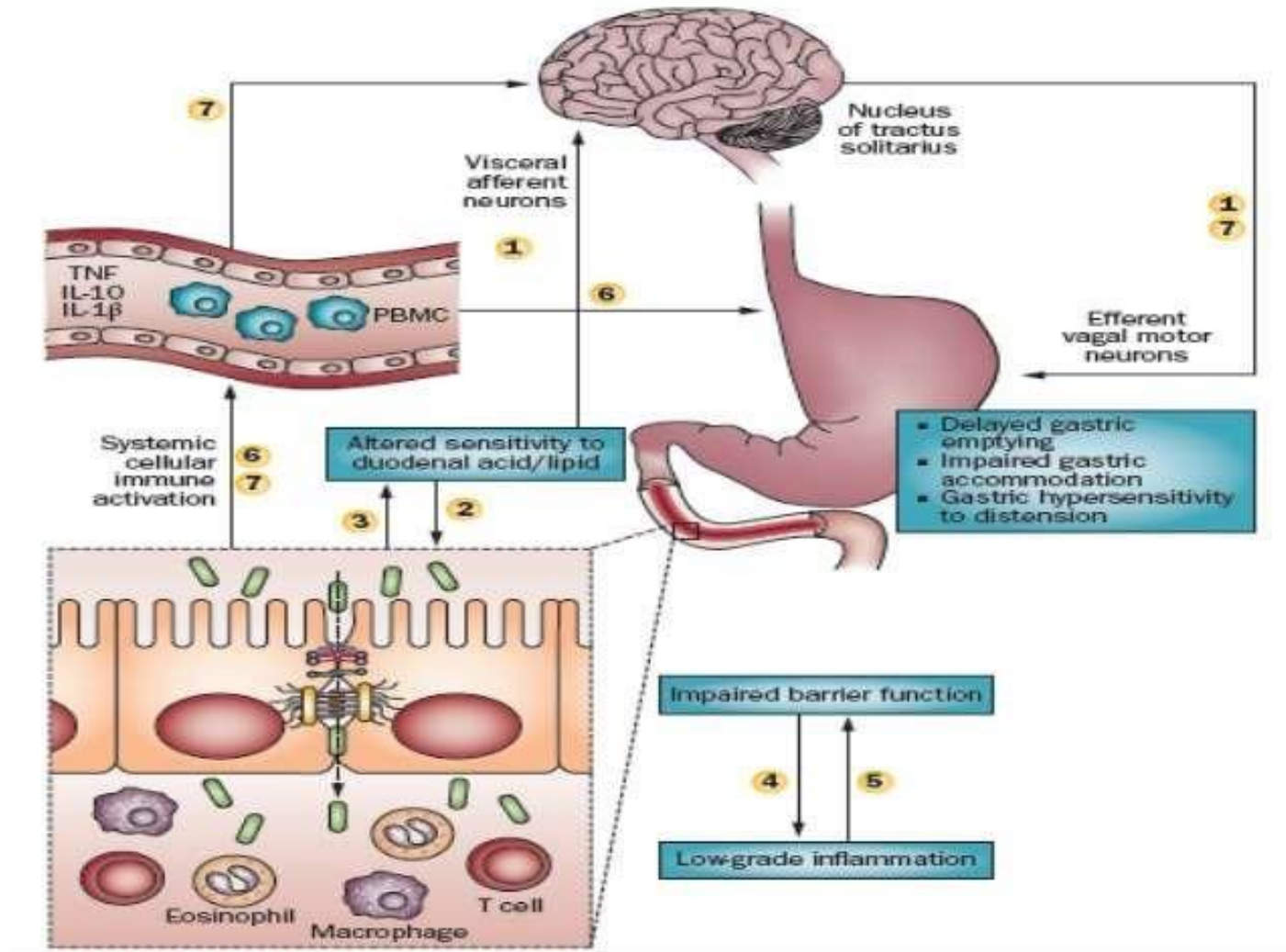
Etiology: Chronic Gastritis

- Chronic gastritis may be caused by either infectious or noninfectious conditions
- Infectious forms include gastritis caused by *H pylori* and *Helicobacter heilmannii* infection; mycobacteriosis, syphilis, histoplasmosis, mucormycosis, South American blastomycosis, anisakiasis, or anisakidosis (granulomatous gastritis); *Strongyloides* species, schistosomiasis, or *Diphyllbothrium latum* (parasitic gastritis); viral (e.g., CMV or herpesvirus) infection, etc.
- Noninfectious forms include autoimmune gastritis, chemical gastropathy (chronic bile reflux, NSAID and aspirin intake), uremic gastropathy, chronic noninfectious granulomatous gastritis (Crohn disease, sarcoidosis, Wegener granulomatosis, foreign bodies, cocaine use, rheumatoid nodules, gastric lymphoma), radiation injury to the stomach , etc.).

Mechanisms: Dyspepsia

- Patients may have abnormal motor function of the proximal stomach
- Increased perception of physiological or minor noxious stimuli has been demonstrated in both the fasting and postprandial states
- Although gastric sensorimotor dysfunction is the main pathophysiological finding, the relationship and relevance of these disorders to symptoms is largely unknown
- Studies attempting to identify a relation between *H pylori* infection and functional dyspepsia have yielded inconsistent and often confusing results.

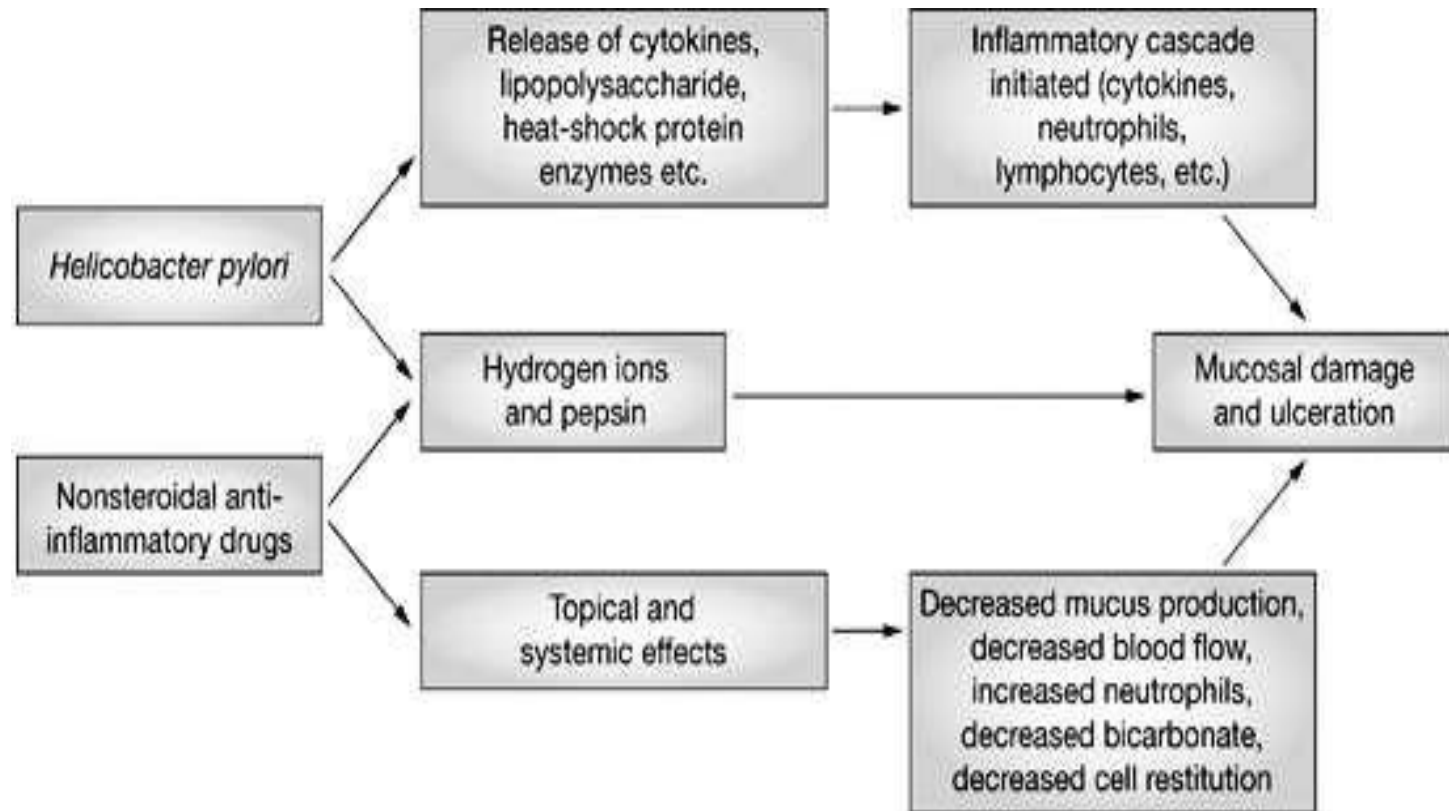
Mechanisms: Dyspepsia



Mechanisms: Chronic Gastritis

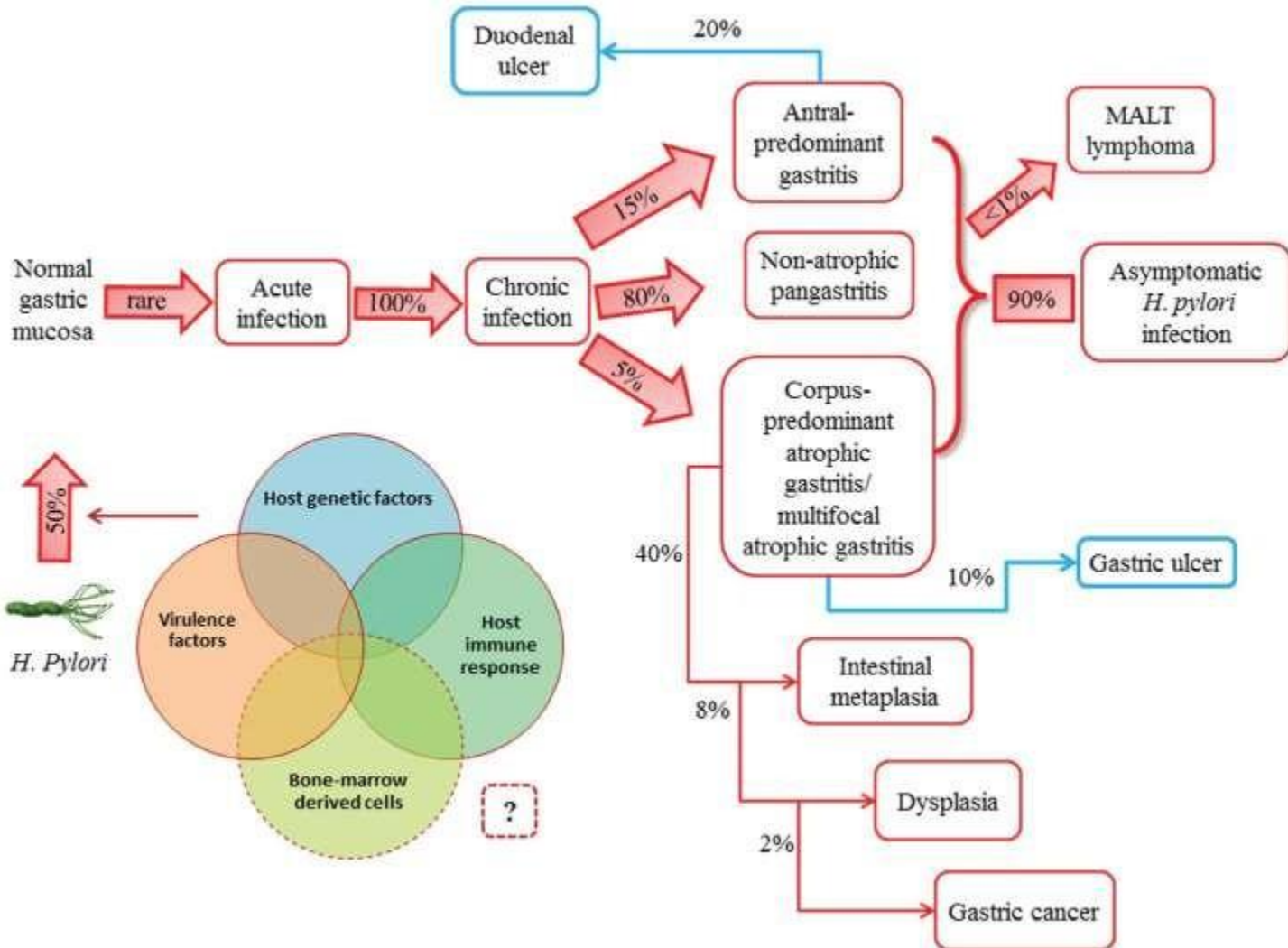
- Chronic gastritis is a progressive, irreversible decay (atrophy) of the lining (gastric mucosa) and glandular tissue within the stomach
- In some disorders the body targets the stomach as if it were a foreign protein or pathogen; it makes antibodies against, severely damages, and may even destroy the stomach or its lining
- In some cases bile, normally used to aid digestion in the small intestine, will enter through the pyloric valve of the stomach if it has been removed during surgery or does not work properly, also leading to gastritis
- Since 1992, chronic gastritis lesions are classified according to the Sydney system.

Mechanisms: Chronic Gastritis



H pylori and NSAID have synergistic effects on gastric mucosal damage. Both *H pylori* infection and NSAID use have been found to independently and significantly increase the risk of gastric and duodenal mucosa damage and ulceration.

Mechanisms: Chronic Gastritis



Natural history of *Helicobacter pylori* (H. pylori) infection

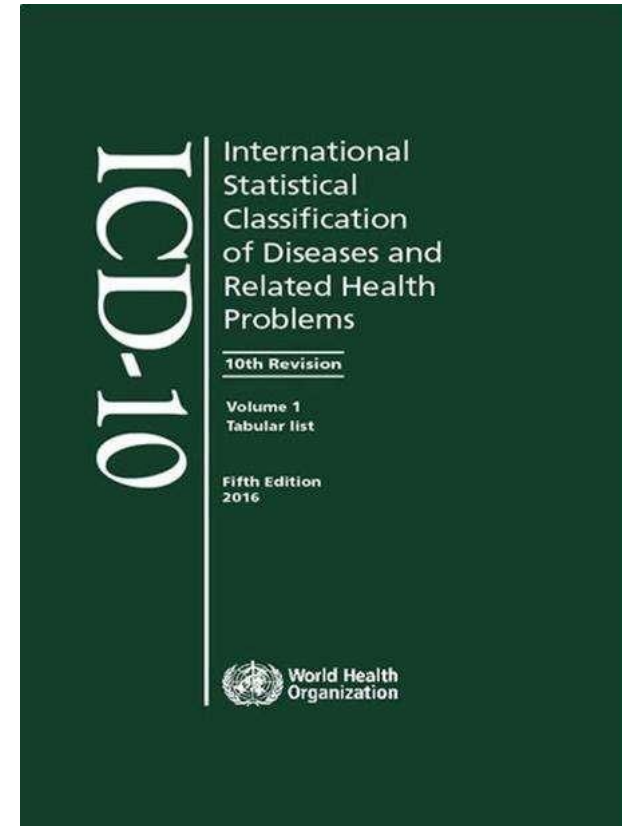
Classification: Dyspepsia & Chronic Gastritis (International Classification of Diseases (ICD))

XI Diseases of the digestive system

K30 Functional dyspepsia

K29 Gastritis and duodenitis

- K29.3 Chronic superficial gastritis
- K29.4 Chronic atrophic gastritis
- K29.5 Chronic gastritis, unspecified
- K29.6 Other gastritis (giant hypertrophic gastritis, granulomatous gastritis, Ménétrier disease)
- K29.7 Gastritis, unspecified



Classification: Dyspepsia

Rome III Diagnostic Criteria for Functional Dyspepsia

At least 3 months, with onset at least 6 months previously, of 1 or more of the following:

- Bothersome postprandial fullness
- Early satiation
- Epigastric pain
- Epigastric burning

And

- No evidence of structural disease (including at upper endoscopy) that is likely to explain the symptoms

Classification: Dyspepsia

Rome III Diagnostic Criteria for Functional Dyspepsia

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- Bothersome postprandial fullness
- Early satiation
- Epigastric pain
- Epigastric burning

And

- No evidence of structural disease (including at upper endoscopy) that is likely to explain the symptoms

Classification: Dyspepsia

Rome III Diagnostic Criteria for Epigastric Pain Syndrome

At least 3 months, with onset at least 6 months previously, with ALL of the following:

Pain and burning that is:

- intermittent
- localized to the epigastrium of at least moderate severity, at least once per week,
- and NOT:
 - generalized or localized to other abdominal or chest regions
 - relieved by defecation or flatulence
 - fulfilling criteria for gallbladder or sphincter of Oddi disorders

Classification: Dyspepsia

Rome III Diagnostic Criteria for Postprandial Distress Syndrome

At least 3 months, with onset at least 6 months previously, of 1 or more of the following:

- Bothersome postprandial fullness
 1. occurring after ordinary-sized meals
 2. at least several times a week
- Or
- Early satiation
 1. that prevents finishing a regular meal
 2. and occurs at least several times a week.

Classification: Chronic Gastritis

- There are follows forms of chronic gastritis:
 - Type A gastritis (autoimmune atrophic gastritis) may be triggered by a physical or psycho-emotional stressor that causes the individual's immune system to produce antibodies against certain cells in the stomach (parietal cells); destruction of these cells results in atrophy of the stomach tissue
 - Type B gastritis (simple atrophic gastritis) is more common and is strongly associated with the presence of a certain bacterium (*Helicobacter pylori*) in the stomach mucosa
 - Type AB gastritis (environmental)
 - Chemical gastritis (reflux gastritis)
 - Uncommon forms

Classification: Chronic Gastritis

The updated Sydney System: Classification and Grading of Gastritis as the Basis of Diagnosis and Treatment

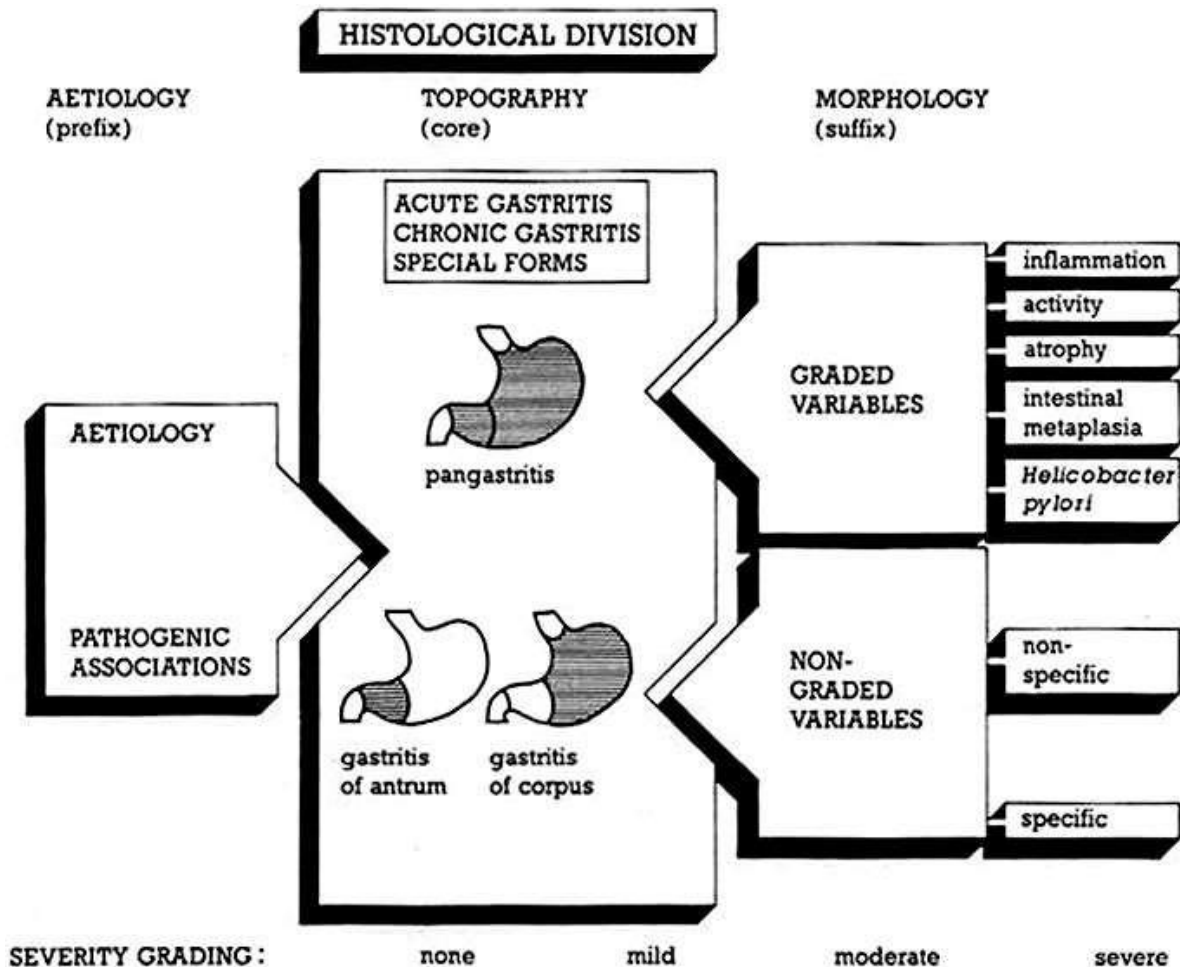


Chart designed for the histological division of the original Sydney System as presented to the World Congress of Gastroenterology

Classification: Chronic Gastritis

Operative Link for Gastritis Assessment (OLGA)

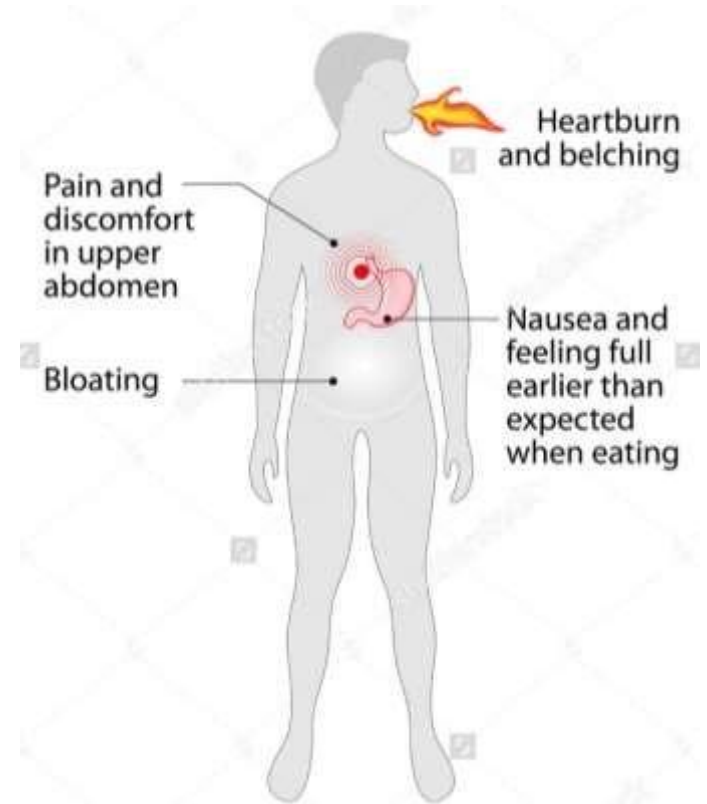
		Corpus			
		No atrophy (score 0)	Mild atrophy (score 1)	Moderate atrophy (score 2)	Severe atrophy (score 3)
Antrum	Atrophy score	No atrophy (score 0)	Mild atrophy (score 1)	Moderate atrophy (score 2)	Severe atrophy (score 3)
	No atrophy (score 0)	Stage 0	Stage I	Stage II	Stage II
	Mild atrophy (score 1)	Stage I	Stage I	Stage II	Stage III
	Moderate atrophy (score 2)	Stage II	Stage II	Stage III	Stage IV
	Severe atrophy (score 3)	Stage III	Stage III	Stage IV	Stage IV

Classification: Chronic Gastritis

- There are two forms of chronic gastritis:
 - Type A gastritis (also known as autoimmune atrophic gastritis) may be triggered by a physical or psycho-emotional stressor that causes the individual's immune system to produce antibodies against certain cells in the stomach (parietal cells); destruction of these cells results in atrophy of the stomach tissue
 - Type B gastritis (or simple atrophic gastritis) is more common and is strongly associated with the presence of a certain bacterium (*Helicobacter pylori*) in the stomach mucosa.

Signs and Symptoms: Dyspepsia

- Most people feel pain and discomfort in the stomach or chest area generally soon after consuming food or drink, and in some cases during a meal or some time after a meal
- The following symptoms are also common: nausea, belching, feeling bloated (very full), vomiting, early satiety, and abdominal distention (swelling).



History: Dyspepsia

- A detailed history is necessary to narrow the differential diagnosis and to identify gastroesophageal reflux disease (GERD) and nonsteroidal anti-inflammatory drug (NSAID)-induced dyspepsia, as well as patients with alarm
- Radiation of the pain to the back or personal or family history of pancreatitis may be indicative of chronic pancreatitis
- Significant weight loss, anorexia, vomiting, dysphagia, odynophagia, and a family history of gastrointestinal cancers suggest the presence of an underlying malignancy
- The presence of severe episodic epigastric or right upper quadrant abdominal pain lasting more than an hour or pain that occurs at any time is suggestive of symptomatic cholelithiasis.

Physical Exam: Dyspepsia

- The physical examination is usually normal, except for epigastric tenderness
- The presence of epigastric tenderness cannot accurately distinguish organic dyspepsia from functional dyspepsia
- Abdominal tenderness on palpation should be evaluated with the Carnett sign to determine if it is due to pain arising from the abdominal wall rather than due to inflammation of the underlying viscera: if the pain is decreased (negative Carnett's sign), the origin of pain is not from the abdominal wall and likely from an intra-abdominal organ, as the tensed abdominal wall muscles protect the viscera.

Complications: Dyspepsia

- The complications are relatively limited
- Since symptoms are most often provoked by eating, patients who alter their diets and reduce their intake of calories may lose weight
- Symptoms that awaken patients from sleep are more likely to be due to non-functional than functional disease
- Most commonly, dyspepsia interferes with patients' comfort and daily activities
- The interference with daily activities also can lead to problems with interpersonal relationships, especially with spouses
- Most patients live with their symptoms and infrequently visit physicians for diagnosis and treatment.

Red flags for people: Dyspepsia

- Age 50 years or older at first presentation
- Family history of gastric cancer with age of onset < 50 years
- Severe or persistent dyspepsia
- Previous peptic ulcer disease, particularly if complicated
- Ingestion of NSAIDs, including aspirin
- Signs and symptoms of chronic gastrointestinal bleeding
- Iron deficiency anemia
- Difficulty in swallowing
- Persistent or protracted vomiting
- Palpable abdominal mass
- Coughing spells or nocturnal aspiration
- Unexplained weight loss

Signs and Symptoms: Chronic Gastritis

- Many people experience no symptoms at all
- Upper central abdominal pain is the most common symptom; the pain may be dull, vague, burning, aching, gnawing, sore, or sharp; the pain is usually located in the upper central portion of the abdomen, but it may occur anywhere from the upper left portion of the abdomen around to the back
- Other signs and symptoms may include nausea, vomiting (if present, may be clear, green or yellow, blood-streaked, or completely bloody, depending on the severity of the stomach inflammation), belching (if present, usually does not relieve the pain much), bloating, early satiety, loss of appetite, unexplained weight loss.

History: Chronic Gastritis

- Patients may report vague stomach distress, a sensation of fullness, nausea, malaise, a heavy feeling in the stomach after meals, or ulcer-like symptoms
- Symptoms typically occur within 1 to 5 hours after meals
- With severe gastritis, the individual may also report chest pain, sweating, and feeling faint
- There may be a history of ulcers, recent use of NSAIDs, recent ingestion of highly acidic food or chemicals, recent radiation or surgical procedure, or past gastrointestinal illness
- Patients may report having eaten raw fish
- Patients history should include information regarding eating, drinking, and smoking habits as well as prescription and nonprescription drug use.

Physical Exam: Chronic Gastritis

- The exam results are most often normal
- Rarely, there is abdominal tenderness, pale skin, tachycardia, dyspnea, or hypotension
- Some findings are specifically associated with the particular complications of *H pylori* (associated gastritis and autoimmune gastritis)
- If gastric ulcers coexist, guaiac-positive stool may result from occult blood loss
- With severe cobalamin deficiency, the patient is pale and has slightly icteric skin and eyes
- The individual may have foul-smelling breath (halitosis), with bloating associated with bacterial overgrowth syndrome.

Complications: Chronic Gastritis

- Although gastritis may not produce symptoms, its complications do
- Left untreated, gastritis may lead to stomach ulcers and stomach bleeding, or even cancer of the stomach
- Another potential complication is a severe loss of blood
- Others include: intestinal metaplasia (the last stage of Barrett's esophagus), pernicious anemia caused by vitamin B12 insufficiency, peptic ulcers, stomach cancer.

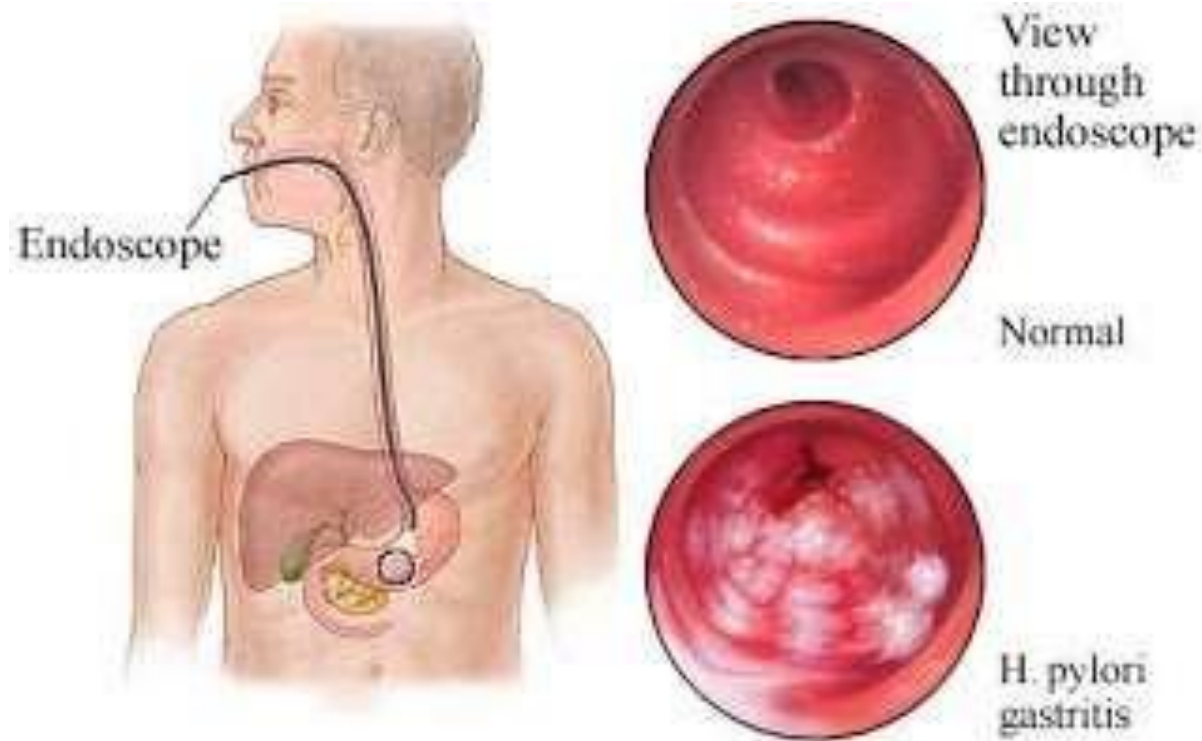
Diagnosis: Dyspepsia

- Dyspepsia is diagnosed on the basis of typical symptoms and the absence of other gastrointestinal diseases
- Patients >55, or those with alarm features should undergo prompt endoscopy to rule out other gastrointestinal diseases
- In patients <55 with no alarm features, the clinician may consider two approximately equivalent management options: (i) test and treat for *H. pylori* using a validated noninvasive test and a trial of acid suppression if eradication is successful but symptoms do not resolve or (ii) an empiric trial of acid suppression with a proton pump inhibitor (PPI) for 4–8 wk.
- Repeat upper endoscopy (EGD) is not recommended once a firm diagnosis of functional dyspepsia has been made, unless completely new symptoms or alarm features develop.

Diagnosis: Chronic Gastritis

- The diagnosis may be established by a complete history and physical examination
- Some cases may require blood tests and other tests (endoscopy) or a consultation with a specialist (usually a gastroenterologist)
- The tests which may be used to verify gastritis include: evaluation for *H. pylori* by way of blood, breath or stool testing; blood cell counts (looking for anemia); liver and kidney functions, urinalysis, gallbladder and pancreas functions; pregnancy test; stool test (looking for blood); X-rays (an upper gastrointestinal series or a barium swallow); an electrocardiogram (ECG, EKG), endoscopy, stomach biopsy.

Diagnosis: Chronic Gastritis

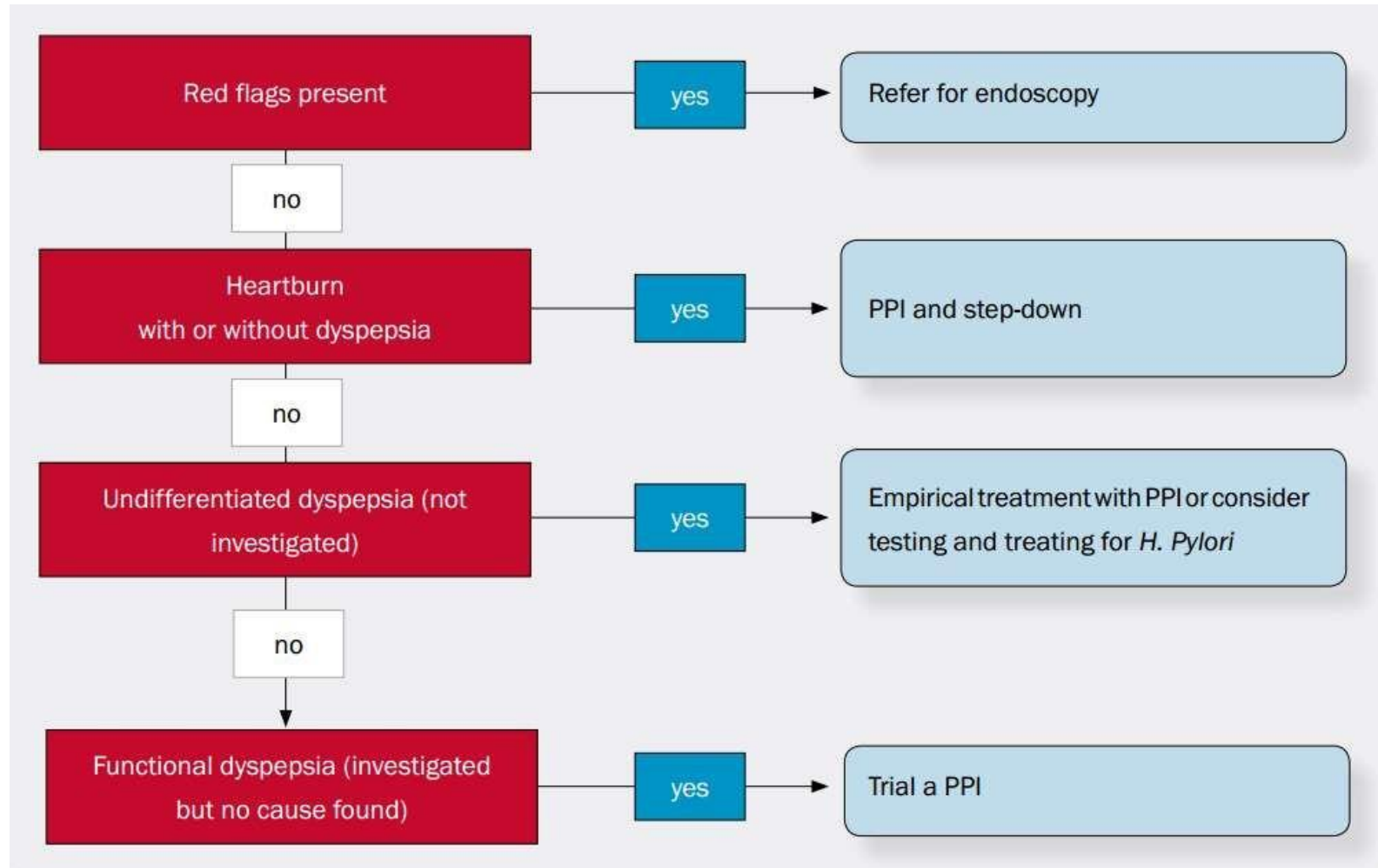


Management: Dyspepsia

- Diet and lifestyle changes (consuming less fatty foods, coffee, alcohol and chocolates; sleeping at least 7 hours every night; and avoiding spicy foods)
- Antacids (over-the-counter, no prescription needed)
- H-2-receptor antagonists
- Proton pump inhibitors (PPIs)
- Prokinetics (the efficacy has been questioned)
- Antidepressants, if no causes for indigestion are found and the patient has not responded to treatments
- Psychological treatments
- Psychotherapy and behavioral therapy may also provide benefit in selected patients.

Management: Dyspepsia

Schematic Diagram



Management: Chronic Gastritis

Approach Considerations

- Treatment can be aimed at a specific etiologic agent, if such an agent is known
- When gastritis represents gastric involvement of a systemic disease, treatment is directed toward the primary disease
- Some entities manifested by chronic gastritis do not have well-established treatment protocols
- For example, in lymphocytic gastritis, some cases of spontaneous healing have been reported, however, because the disease has a chronic course, treatment is recommended (some studies have reported successful treatment of exudative lymphocytic gastritis with omeprazole).

Management: Chronic Gastritis

Pharmacotherapy for *H pylori*

- If *H pylori* is identified as the underlying cause of gastritis, it should be eradicated
- Antibiotics that have proven effective against *H pylori* include clarithromycin, amoxicillin, metronidazole, tetracycline, and furazolidone
- Cure rates with single antibiotics have been poor (0-35%), that's why five regimens are approved by the US Food and Drug Administration (FDA) for the treatment of *H pylori* infection
- The most effective of these regimens is bismuth-metronidazole-tetracycline (BMT) triple therapy, followed by ranitidine bismuth citrate plus clarithromycin and then by omeprazole plus clarithromycin.
- Quadruple therapies are recommended as second-line treatment when triple therapies fail.

Management: Chronic Gastritis

Triple and Quadruple Pharmacotherapy for *H pylori*

Triple therapies (with indicated adult dosing):

- Lansoprazole 30 mg, omeprazole 20 mg, or ranitidine bismuth citrate 400 mg orally twice daily
- Clarithromycin 500 mg orally twice daily
- Amoxicillin 1000 mg or metronidazole 500 mg orally twice daily

Quadruple therapies (with indicated adult dosing):

- lansoprazole 30 mg or omeprazole 20 mg orally twice daily
- Tetracycline HCl 500 mg orally 4 times daily
- Bismuth subsalicylate 120 mg orally 4 times daily
- Metronidazole 500 mg orally 3 times daily

Management: Chronic Gastritis

Long-Term Monitoring Pharmacotherapy for *H pylori*

- If a patient was treated for *H pylori* infection, confirm that the organism has been eradicated
- Evaluate eradication at least 4 weeks after the beginning of treatment.
- Eradication may be assessed by means of noninvasive methods such as the urea breath test or the stool antigen test
- Follow-up may be individualized, depending on findings during endoscopy (for example, if dysplasia is found at endoscopy, increased surveillance is necessary)
- For patients with atrophic gastritis or dysplasia, follow-up endoscopy is recommended after 6 months.

Prognosis: Dyspepsia

- Dyspepsia is not a disease, but rather a symptom of other diseases or disorders
- Consequently, the predicted outcome ultimately depends on the underlying cause of the dyspeptic symptoms.

Prognosis: Chronic Gastritis

- The prognosis is strongly related to the underlying cause
- Chronic gastritis may progress asymptotically in some patients, whereas other patients report dyspeptic symptoms
- The clinical course may be worsened when patients develop any of the possible complications of *H pylori* infection, such as peptic ulcer or gastric malignancy
- Eradication of *H pylori* results in rapid cure of the infection with disappearance of the inflammatory infiltration of the gastric mucosa
- In patients with autoimmune gastritis, the major effects are consequent to the loss of parietal and chief cells and include achlorhydria, hypergastrinemia, loss of pepsin and pepsinogen, anemia, and an increased risk of gastric neoplasms .

Prophylaxis

- Prevention is by avoiding things that cause dyspepsia and gastritis
- Proper hygiene, hand washing, and eating and drinking only adequately cleaned or treated foods and fluids are first healthy ways to decrease risk of getting these conditions

Abbreviations

ECG, EKG - electrocardiogram

EGD - upper endoscopy

FDA - Food and Drug Administration

GERD - gastroesophageal reflux disease

IBS - irritable bowel syndrome

NSAIDs – nonsteroidal anti-inflammatory drugs

PPI - proton pump inhibitor

Diagnostic and treatment guidelines

- [Approach to the adult with dyspepsia](#)
- [Evaluation and management of dyspepsia](#)
- [Evidence-based clinical practice guidelines for functional dyspepsia](#)
- [Gastritis](#)
- [Kyoto global consensus report on *Helicobacter pylori* gastritis](#)
- [Management of Dyspepsia](#)
- [Management of *Helicobacter pylori* infection the Maastricht IV/ Florence Consensus Report](#)