Chronic Gastritis

Background

1. Definition
    - A histologic diagnosis-clinical and endoscopic findings alone are unreliable[1]
        - Mucosal injury with mononuclear inflammatory infiltrate
            - Often w/ mucosal atrophy and metaplasia or dysplasia
        - Distinct from gastropathy—mucosal injury without inflammation
        - Distinct from acute gastritis—neutrophilic infiltrate
2. Clinical Associations
    - Acute gastritis
    - Peptic Ulcer Disease, gastric cancer, MALT (mucosa-associated lymphoid tissue) lymphoma, carcinoid tumors, pernicious anemia
3. Dyspepsia
    - Postprandial fullness, early satiety, epigastric pain or burning (Rome III committee criteria)[2]
4. General information
    - No universally accepted classification system, most differentiate based on type of inflammatory infiltrate and/or duration of symptoms[1]

Pathophysiology

1. Pathology of disease
    - Atrophy and metaplasia may or may not be present depending on chronicity, etiology and severity (See Metaplastic Atrophic Gastritis below)
    - Causes
        - Infectious agents
            - H. pylori (most common world wide.)
            - Viruses
            - Fungi
            - Parasites
            - Syphilis
        - Autoimmune
            - Familial autoimmune gastritis—see AMAG below
            - Sarcoidosis
            - Crohn's disease
            - Celiac disease
            - Wegner's granulomatosis
            - Allergic/Eosinophilic Gastritis
        - Chemical (often causes gastropathy rather than gastritis)
            - NSAIDS
            - Bile reflux
            - Alcohol
        - Other causes
            - Radiation
            - Partial gastrectomy
            - Achlorhydria

- Metaplastic Atrophic Gastritis- Subtypes[1]
  - Autoimmune Metaplastic Atrophic Gastritis (AMAG)
    - Autosomal dominant, northern European extraction
    - Associated with other autoimmune disorders—Hashimoto's thyroiditis, vitiligo
    - Autoimmune response directed against parietal cells and intrinsic factor
    - High risk for B12 deficiency (pernicious anemia)
    - Atrophy and metaplasia usually absent in antrum
    - Leads to profound hypochlorhydria and hypergastrinemia
  - Environmental Metaplastic Atrophic Gastritis (EMAG)
    - Associated with H. pylori, smoking, possibly nitrous compounds from food
    - Antral inflammation advances proximally over time to corpus followed by atrophy and intestinal metaplasia which can progress to dysplasia and finally malignancy
    - H. pylori eradication appears to reduce risk of progression to carcinoma and can induce remission in early MALT lymphoma
  - Pts at highest risk of progressing to malignancy
    - Family hx gastric CA
    - Resident in, or migration from high risk location (e.g. Asia)
    - Member of high risk ethnic group
    - Dysplasia on biopsy
    - Extensive intestinal metaplasia on biopsy

2. Incidence
   - Difficult to assess due to various classification schemes
   - Need for endoscopy and biopsy
     - 22% w/ chronic gastritis
     - 11.6% w/ premalignant lesions in population based European studies[4]
   - H. pylori incidence greater in developing world
3. Risk factors
   - H. pylori, NSAIDs, alcohol, smoking, family history, Asian ancestry
   - Prolonged treatment with PPI (omeprazole) may increase risk of atrophic gastritis in H. pylori positive pts
4. Morbidity / mortality
   - Gastric CA, MALT lymphoma, carcinoid—both AMAG and EMAG
   - Gastric or duodenal ulcer—EMAG>>AMAG
   - B12 deficiency/pernicious anemia—AMAG only

Diagnostics

1. History
   - Nausea, vomiting, early satiety, postprandial fullness, dull or burning epigastric or RUQ pain, may be asymptomatic
   - Alarm symptoms: unintended weight loss, dysphagia, odynophagia, hematemesis, family history of upper GI cancer, previous gastric surgery
   - Look for associated medications/ diseases

2. Physical examination
    - Nonspecific findings but may find epigastric tenderness
    - Alarm findings: weight loss, jaundice, pallor, palpable mass
3. Diagnostic Testing
    - H. pylori testing[5]
        - Serology: 90-97% sensitive, 50-96% specific
            - Does not distinguish between active and prior infection
            - Least expensive, most cost-effective
        - C-urea breath test (UBT)
            - Sensitivity and specificity 95-97%
        - Stool antigen testing
            - Sensitivity 94%, specificity 97%
        - Both UBT and stool antigen tests can be used to document eradication, both can also have false negatives in PPI users
        - "Test and treat" strategy effective and more cost-effective than routine endoscopy in pts at low risk for malignancy (SOR B)[6]
        - Empiric PPI therapy for 4 weeks equivalent to "test and treat" strategy in populations with H. pylori prevalence rates up to 25%, however 80% of pts still symptomatic at 1 year in both groups. (SOR A)[7]
    - Additional tests to consider
        - Stool occult blood
        - CBC
        - Liver enzymes
        - Lipase
        - Serum gastric level—elevated in AMAG>>EMAG
        - Serum pepsinogins (PP1, PP2) – Low PP1 and low PP1/PP2 ratio seen in atrophic gastritis and increased risk of gastric cancer. Possibly some utility as a screening test in high risk populations
    - Pts managed with "H pylori test and treat" strategy require fewer endoscopies and less antisecretory meds than those who undergo prompt endoscopy
    - Diagnostic imaging
        - Upper endoscopy (EGD) w/ biopsy
            - Not essential initially unless red flag historical or physical exam findings
            - Gold standard for diagnosis, staging and surveillance for sequelae such as cancer
            - Multiple biopsies recommended throughout antrum and body of stomach
            - Pts managed with "H. pylori test and treat" strategy require fewer endoscopies and less antisecretory meds than those who undergo prompt endoscopy
            - Recommendations on when to scope vary
                - Endoscopy should follow failed "test and treat" or empiric PPI therapy and should not be delayed in pts at high risk for cancer—age over 45-55, alarm signs

or symptoms, or increased risk based on ethnicity or family history (SOR:B)[9]
        - Pts who are younger than 50 years of age and are H pylori negative can be offered an initial endoscopy or a short trial of PPI acid suppression. (SOR:B)[9]
        - Pts with dyspepsia who do not respond to empiric PPI therapy or have recurrent symptoms after an adequate trial should undergo endoscopy. (SOR:C)[9]
    - Other studies
        - Consider abdominal ultrasound or CT if endoscopy negative

Differential Diagnosis

1. Gastric cancer
2. Peptic ulcer disease
3. Nonulcer dyspepsia
4. GERD
5. Gall bladder disease
    - Cholelithiasis
6. Chronic pancreatitis
7. Pancreatic cancer
8. Irritable Bowel Syndrome
9. Acute gastritis /gastropathy
10. Ischemic gastritis (rare)

Therapeutics

1. Initial
    - Treat underlying disease process
        - Avoid inciting agents
    - Treat H.pylori with PPI and antibiotics
        - Various protocols, see acute gastritis, PUD
        - Followed by PPI for 4-8 weeks
    - Patients with dyspepsia who are < 50 yrs of age and w/o alarm features may undergo an initial test-and-treat approach for H pylori (SOR:B)[9]
2. Long-term care
    - Periodic endoscopic screening possibly beneficial for some patients with AMAG or EMAG at high risk for gastric CA
    - Chronic PPI use assoc/w incr risk of hip fracture in older adults, pneumonia in adults and children, gastroenteritis in children, and C.difficile infection in hospitalized pts
3. PEARL
    - "In the initial management of dyspepsia for patients without 'alarm' symptoms (eg. weight loss, recurrent vomiting, dysphagia, anemia, evidence of bleeding, onset of dyspepsia after age 45 years)
    - Therapy based on the results of early endoscopy was not better than empiric acid suppression (anti secretory therapy) or a Helicobacter pylori 'test and treat' strategy in reducing symptoms or improving quality of life"[14]

Follow-Up

1. Return to office
    - Time frame for return visit
        - Depends on testing/treatment strategy, follow-up 2-4 weeks after initial intervention generally adequate unless symptoms worsening, melena, hematemesis, increasing pain
2. Refer to specialist
    - Patients with dyspepsia who are older than 50 yrs of age and/or those with alarm features should undergo endoscopic evaluation (SOR:B)[9]
    - Patients with dyspepsia who do not respond to empiric PPI therapy/have recurrent symptoms after adequate trial should undergo endoscopy (SOR:C)[9]

Prognosis

1. Dependant on etiology and sequelae
2. Recurrence of H. pylori infection common

Prevention

1. Avoidance of Alcohol, tobacco, NSAIDS if implicated
2. Non-invasive population based screening for H. pylori in high risk groups may be beneficial but not routinely recommended in US
3. No immunization available for H. pylori

References

1. Dixon, MF et. al. Classification and grading of gastritis: The updated Sydney System. Am J Surg Pathol 1996; 20:1161
2. Tack J, et. al.; Functional gastroduodenal disorders, Gastroenterology. 2006 Apr;130(5):1466-79.
3. Fuccio L Meta-analysis: can Helicobacter pylori eradication treatment reduce the risk for gastric cancer? Ann Intern Med. 2009 Jul 21;151(2):121-8.
4. Minerva Gastroenterol Dietol 1994, Dec;40(4):167)
5. Chiara R et.al. Various means and characteristics Diagnosis of Helicobacter pylori: Invasive and non-invasive tests,., Best Practice & Research Clinical Gastroenterology, Vol. 21, No. 2, pp. 299-313, 2007
6. Rick K Safranek S, Malaty W, Is therapy based on endoscopy results better than empiric therapy for dyspepsia? J Fam Pract. 2005 Aug;54(8):725-726
7. Scroggins B, For the initial management of dyspepsia, what strategy is best to prevent recurrent dyspepsia/gastritis? Evidence Based Practice, Vol 12, No. 12, page 13.
8. di Mario F, Cavallaro L Non-invasive tests in gastric diseases, , Digestive and Liver Diseases, 40 (2008) 523-530
9. ASGE Standards of Practice Committee, Ikenberry SO, Harrison ME, Lichtenstein D, Dominitz JA, Anderson MA, Jagannath SB, Banerjee S, Cash BD, Fanelli RD, Gan SI, Shen B, Van Guilder T, Lee KK, Baron TH. The role of endoscopy in dyspepsia. Gastrointest Endosc 2007 Dec;66(6):1071-5.
10. Gastritis. Intracorp - Public For Profit Organization. 1997 (revised 2005). Various pagings. NGC:004244

11. Gastritis. In The Merck manual of diagnosis and therapy (17th ed.,: sec. 3, chap. 23). (http://www.merckmanuals.com/home/sec09/ch121/ch121b.html). Accessed: 9.8.2005
12. Yardley JH, Hendrix TR. Metaplastic (chronic) Atrophic Gastritis. In UpToDate, Rose, BD (Ed), UpToDate, Waltham, MA, 2005.
13. Malaty W, Sue Stigleman. What regimens eradicate Helicobacter pylori? J Fam Pract. 2003 Oct;52(10):799-803
14. Rich K, Safranek S, Malaty W. Is therapy based on endoscopy results better than empiric therapy for dyspepsia? J Fam Pract. 2005 Aug;54(8):725-726.

Evidence-Based Inquiry

1. What are the potential long-term risks of proton pump inhibitors?
2. Is therapy based on endoscopy results better than empiric therapy for dyspepsia?
3. Is prompt endoscopy superior to an "H pylori test and treat" strategy for managing patients presenting with dyspepsia?

Author: Kirk Scofield, MD, *Alaska FMR*

Editor: Vince WinklerPrins, MD, *Georgetown University-Providence Hospital, Washington DC*