H.Pylori

EPIDEMIOLOGY

- Infection - acquired at an earlier age in developing countries
- Majority of children become infected before the age of 10
- Infection persists , so that in the prevalence reaches more than 80% by age 50

- Living conditions and the family's socioeconomic status
- Person-to-person transmission
- Twin studies support genetic susceptibility to *H. pylori* infection

COLONIZATION AND VIRULENCE FACTORS

- Low pH
- Urease
- Motility – flagella
- *H. pylori* show a strict tropism for the gastric mucosa or intestinal sites in which there is gastric metaplasia

- BabA, act as the bacterial ligand
- Cag PAI plays an important role in the pathogenesis of gastritis in humans
- All strains of *H. pylori* possess the vacA gene, with more than half expressing the vacuolating cytotoxin (VacA)

CONDITIONS ARISING FROM INFECTION

- Chronic active gastritis

- multifocal atrophic gastritis, or MAG)

-dominant antral gastritis (DAG)

- Metaplasia, and dysplasia
- Gastric adenocarcinoma
- Maltoma

Diagnosis

- When to do testing

DIAGNOSIS

NON ENDOSCOPIC TESTS	ADVANTAGES	DISADVANTAGES
Serology (qualitative or quantitative immunoglobulin G [IgG])	Widely available, inexpensive, good NPV	Poor PPV if HP prevalence is low, not useful after treatment
Urea breath test (^{13}C or ^{14}C)	Identifies active infection, accuracy (PPV, NPV) not affected by *H. pylori* prevalence, useful both before and after treatment	Availability and reimbursement inconsistent, accuracy affected by PPI and antibiotic use, small radiation dose with ^{14}C test
Stool antigen test	Identifies active infection; accuracy (PPV, NPV) not affected by *H. pylori* prevalence; useful both before and after treatment (monoclonal test)	Fewer data available for polyclonal test, accuracy affected by PPI and antibiotic use

ENDOSCOPIC TESTS	ADVANTAGES	DISADVANTAGES
Histology	Excellent sensitivity and specificity, especially with special and immune stains; provides additional information about gastric mucosa	Expensive (endoscopy and histopathology costs), interobserver variability, accuracy affected by PPI and antibiotic use
Rapid urease test	Rapid results, accurate in patients not using PPIs or antibiotics, no added histopathology cost	Requires endoscopy, less accurate after treatment or in patients using PPIs
Polymerase chain reaction (PCR) assay	Excellent sensitivity and specificity, permits detection of antibiotic resistance	Not widely available; technique not standardized; expensive
Culture	Specificity 100%, allows antibiotic sensitivity testing	Difficult and tedious to perform; not widely available; expensive

TREATMENT

- When to teat
- Test and treat in Uninvestigated dyspepsia in High prevalence areas(>20%)
- Test and treat in Alarm symptoms
- PUD
- Carcinoma
- Maltoma

First-Line Treatment of *Helicobacter pylori*

TREATMENT REGIMEN*	**DURATION**	**ERADICATION RATE**
PPI†, clarithromycin 500 mg, amoxicillin 1000 mg (each twice daily)	10-14 days	70%-85%
PPI[†], clarithromycin 500 mg, metronidazole 500 mg (each twice daily)	10-14 days	70%-85%
Bismuth subsalicylate 525 mg, metronidazole 500 mg, tetracycline 500 mg (each four times daily) **plus** PPI[†] or H2RA (twice daily)	10-14 days	75%-90%

Sequential regimen

- PPI[†], amoxicillin 1000 mg (each twice daily)

  followed by

  PPI[†], clarithromycin 500 mg, tinidazole 500 mg (each twice daily)

- 5 days5 days
- 90%

Rescue Treatment for Persistent *Helicobacter pylori* Infection*

REGIMEN	DURATION	ERADICATION RATE
Bismuth subsalicylate 525 mg, metronidazole 500 mg, tetracycline 500 mg (each four times daily) **plus** PPI[†] or H2RA (twice daily)	14 days	70%
PPI[†], amoxicillin 1000 mg, levofloxacin 250 mg (each twice daily)	10-14 days	57%-91%
PPI[†] amoxicillin 1000 mg, rifabutin 150 mg (each twice daily)	14 days	60%-80%

Adenocarcinoma and Other Tumors of the Stomach

- The incidence of gastric cancer in Western countries has decreased dramatically
- Highest incidence rates in the Far East
- In United States, the median age of diagnosis is 71 years
- In country with a high incidence of gastric cancer, the mean age of diagnosis is roughly a decade earlier
- Lower socioeconomic status is associated with a much higher incidence of gastric cancer

distribution

- 39% in the proximal third
- 17% in the middle third
- 32% in the distal third,
- 12% involving the entire stomach.

Risk Factors

Definite	
Helicobacter pylori infection Chronic atrophic gastritis Intestinal metaplasia Dysplasia* Adenomatous gastric polyps* Cigarette smoking	History of gastric surgery (esp. Billroth II)* Genetic factors Family history of gastric cancer (first-degree relative)* Familial adenomatous polyposis (fundic gland polyps)* Hereditary nonpolyposis colorectal cancer* Peutz-Jeghers syndrome* Juvenile polyposis*

Probable

High intake of salt Obesity (adenocarcinoma of cardia only) Snuff tobacco use History of gastric ulcer Pernicious anemia* Regular aspirin or NSAID use (protective)	Low socioeconomic status M?n?trier's disease High intake of fresh fruits and vegetables (protective) High ascorbate intake (protective)

PREMALIGNANT CONDITIONS

- CHRONIC ATROPHIC GASTRITIS
- NTESTINAL METAPLASIA
- DYSPLASIA
- GASTRIC POLYPS
- PREVIOUS GASTRECTOMY
- PEPTIC ULCER DISEASE
- MENETRIER'S DISEASE

SCREENING AND SURVEILLANCE

PREVENTION

- Eradication of *Helicobacter pylori* +
- Antioxidants
- Aspirin and Nonsteroidal Anti-inflammatory Drugs
- Green Tea

CLINICAL FEATURES

- A
- A
- A
- GOO
- Dysphagia
- Paraneoplastic

DIAGNOSIS

- ENDOSCOPY
- COMPUTED TOMOGRAPHY
  GASTROGRAPHY

CLASSIFICATION AND STAGING

- *Early gastric cancer* is defined as a cancer that does not invade beyond the submucosa regardless of lymph node involvement

METHODS OF STAGING

- Endoscopic Ultrasonography
- Computed Tomography /Magnetic Resonance Imaging
- Positron Emission Tomography

TREATMENT

- SURGICAL THERAPY
- ENDOSCOPIC MUCOSAL RESECTION AND SUBMUCOSAL DISSECTION -for select early gastric cancers (EGCs).
- CHEMORADIATION