GI Pharmacology for APRN’s
Laura Ranweiler, APRN, CNP
Minneapolis VA Medical Center
GI Department

Topics of discussion
• Irritable Bowel Syndrome (IBS)
• Inflammatory Bowel Disease (IBD): Ulcerative Colitis and Crohn’s Disease
• Gastroesophageal Reflux Disease (GERD)
• Helicobacter pylori (H. pylori)

Objectives
• Describe the pathophysiology of IBS, IBD, GERD, and H. pylori to use as a basis for understanding the treatment.
• Identify testing that should occur with suspected or confirmed IBS, IBD, GERD, and H. pylori
• List at least 2 medications used to treat IBS, IBD, GERD, and H. pylori
• When to refer

IBS
• Chronic functional disorder of the gastrointestinal tract characterized by chronic abdominal pain and altered bowel habits in the absence of an organic disease.
• Approximately 10-15% of adults have symptoms consistent with IBS – although not all individuals seek medical care.
• IBS patients make up a significant percentage of all outpatient visits to GI providers.
• Women are twice as likely as men to develop IBS

8 primary symptoms of ibs
• Abdominal pain/discomfort
• Bloating/distention
• Diarrhea
• Constipation
• Feeling of incomplete evacuation
• Urgency
• Pain at evacuation
• Passage of gas or mucous
Rome IV criteria

- Developed to classify functional gastrointestinal disorders, disorders of the digestive system, in which symptoms cannot be explained by the presence of structural or tissue abnormality, based on clinical symptoms.
- Classified by GI symptoms related to any combination of:
  - Motility disturbance
  - Visceral hypersensitivity
  - Altered mucosal and immune function
  - Altered gut microbiota
  - Alerted central nervous system processing

Rome IV criteria

- According to the Rome IV criteria, IBS is defined as recurrent abdominal pain, on average, at least one day per week in the last three months, associated with two or more of the following criteria:
  - Related to defecation
  - Associated with a change in stool frequency
  - Associated with change in stool form (appearance)

Pathophysiology of IBS

- Not clear – data is conflicting
- Inflammation/Post-infectious
- Alterations in fecal flora
- Small intestinal bacterial overgrowth (SIBO)
- Food sensitivity
- Genetic predisposition
- Visceral hypersensitivity – increased sensation in response to stimuli
- Psychosocial dysfunction: brain-gut connection

Subtypes of IBS

- IBS with predominant constipation
  - Patients reports that abnormal bowel movements are usually constipation (type 1 and 2 in the BSFS)
  - Affects 10% of patients
- IBS with diarrhea
  - Patient reports that abnormal bowel movements are usually diarrhea (type 6 and 7 in the BSFS)
  - Affects 30% of patients
- Mixed IBS
  - Patient reports that abnormal bowel movements are usually constipation and diarrhea (more than 1% of all abnormal bowel movements were constipation and more than 1% were diarrhea)
  - Affects 61% of patients
- Unclassified IBS
  - Patients who meet diagnostic criteria for IBS, but cannot accurately be categorized into one of the other three subtypes
Initial Treatment of IBS

- Education and reassurance
- Lifestyle/Dietary modification
  - Low FODMAP diet
  - Fermentable Oligosaccharides, Disaccharides, Monosaccharide, Polyols
  - Carbohydrates that are difficult to digest and become fermented by bacteria, causing bloating and discomfort
  - Exclusion of gas-producing foods
  - Lactose/Gluten avoidance
  - Physical activity
  - Fiber
  - Mental health follow-up if psychiatric comorbidities

Pharmacologic therapy for IBS-d

- Antidiarrheal agents
  - Loperamide 2 mg po 45 minutes before a meal on regularly scheduled doses – max daily dose 16 mg
  - Lomotil 30 mg po TID-QID

- Anticholinergic agents
  - Dicyclomine 20 mg po QID prn
  - Hyoscyamine 0.125-0.25 mg po or sublingually TID-QID (needs VA pharmacy approval)
  - Tricyclic antidepressant
    - Amitriptyline, Nortriptyline 10-25 mg qHS

- Rifaximin 550 mg TID for 14 days – may be retreated up to 2 times with the same dosing if symptoms recur (needs VA pharmacy approval)

Pharmacologic therapy for IBS-c

- Psyllium 2.5-30 grams per day
- Polyethylene glycol 17-34 grams qday prn
- Lubiprostone: indication – chronic idiopathic constipation, IBS-C, opioid-induced constipation (requires VA pharmacy approval)
- Uracitabine: indication – chronic idiopathic constipation or IBS-C (requires VA pharmacy approval)
- Dicyclomine 20 mg po QID prn
- Hyoscyamine 0.125-0.25 mg po or sublingually TID-QID (needs VA pharmacy approval)
- Use antispasmodics with caution as they can cause constipation
- Tricyclic antidepressant – Amitriptyline, Nortriptyline 10-25 mg qHS

What are the “newer” IBS medications?

- Viberi (Eluxadoline)
  - IBS-D
  - Patients with a gallbladder: 100 mg po BID
  - New FDA safety alert March 2017 – should not be used in patients who do not have a gallbladder – can develop “serious” pancreatitis
  - Safety and effectiveness established in two double-blind, placebo-controlled clinical trials involving 2,425 patients
  - Activates receptors in the nervous system that can lessen bowel contractions, improves stool consistency
  - Most common side effects include constipation, nausea, and abdominal pain
  - Most serious risk is pancreatitis. Should not be used in patients with hx of bile duct obstruction, pancreatitis, severe liver impairment, severe constipation, or patients who drink more than 3 alcoholic beverages/day

- Lotronex (Alosetron)
  - Selective 5-HT3 Receptor Antagonist – block receptors that modulate visceral pain, colonic transit, and gastrointestinal secretion
  - Females with severe IBS-D who have failed conventional treatment.
  - Initial dose: 0.5 mg BID for 4 weeks, can increase to 1 mg BID, max dose 2 mg/day
  - Drug has been reintroduced to the market after being withdrawn d/t adverse effects including severe constipation and ischemic colitis
  - FDA suggests that few than 5 percent of patients with IBS are considered to have severe disease, only a small percentage of IBS patients would be eligible for Alosetron tx.

- Ibgard
  - peppermint oil – targeted in the small intestine
  - OTC – medical food
  - IBS symptoms including abdominal pain, bloating, diarrhea, constipation, urgency, and gas
  - Associated with 30% reduction in severe symptoms within 24 hours and 66% reduction in symptoms at 4 weeks (IBSREST Trial)
What about probiotics?

- Live microorganisms intended to have health benefits
- Preliminary evidence that some probiotics are helpful in preventing diarrhea caused by infections and antibiotics and in improving IBS symptoms
- Benefits have not been conclusively demonstrated
- Probiotics vary (strains, quality)
- Much remains to be learned

Differential dx

- Celiac Disease
  - TTG, total IGA
  - Enteropathy, weight loss, iron deficiency anemia, variety of GI symptoms
- IBD
  - Further testing if alarm symptoms
- Microscopic colitis
  - Diagnosed with random bx of colon – no inflammation seen
  - Initial Tx is Loperamide, then Budesonide
- Pancreatic insufficiency
  - Unintentional weight loss (60 lb in males) or severe
  - Fecal fat stool test
- SIBO
  - Breath test – not available at the VA
  - Diagnosed by symptoms – bloating, abdominal discomfort, diarrhea, dyspepsia, in severe cases
  - Weight loss
  - Exercise and suppression, drugs that reduce motility may be contributing factor
- Food allergies/sensitivities

When to refer

- Lifestyle modifications have failed
- Alarm symptoms
  - More than minimal rectal bleeding
  - Weight loss
  - Unexplained iron deficiency anemia
  - Nocturnal symptoms
  - Family history of selected organic diseases including colorectal cancer, inflammatory bowel disease, or celiac sprue
  - Not responding to first line medications
  - Severe symptoms

Case study

- 32 year old female
  - Alternating diarrhea/constipation (50/50)
  - Bristol stool scale 1 and 7
  - Abdominal cramping associated with the need to have a BM
  - Abdominal cramping associated with need to have a BM
- Urgency, incontinence, gas, bloating
- Blood in her stool occasionally – has external and internal hemorrhoids
- Daily N/V
- Lost ~35 lbs over the past year through diet and exercise
- Dad was dx with colon cancer at age 45
- Loperamide, Metamucil, Miralax, Stimulant laxatives without improvement or she had side effects
- Anxiety – number of medications have given her side effects
- Smokes cigarettes and marijuana daily – helps GI symptoms and anxiety

Inflammatory bowel disease

- Autoimmune condition - chronic or recurring immune response and inflammation of the GI tract
- More than 1 million Americans have IBD
- Each year, approximately 10 per 100,000 are diagnosed with UC and 16 per 100,000 are diagnosed with Crohn’s
- Most common to develop IBD between ages of 15-35

Case study

- Fits the Rome IV criteria for IBS
- Colonoscopy d/t hematochezia and family hx of colon cancer
  - Colon and TI normal, random bx with no evidence of microscopic, active, or chronic colitis
- EGD d/t daily N/V
  - Duodenal erythema – no celiac sprue or other pathologic abnormality
- Nutrition consult for education on low FODMAP diet
- Tobacco and marijuana cessation
- Declining IBS medications
- Declining Mental Health follow-up
Pathophysiology of IBD

- Not clear - interaction of genetic, environmental, and/or microbial factors
- Inflammatory response directed toward a self-antigen such as mucin, goblet cells, colonocytes, or other cells has been proposed as the underlying basis of IBD

Crohn’s vs. UC – what’s the difference?

- **Ulcerative Colitis**
  - Confined to the colon – rectal involvement in 95% of patients
  - Inflammation limited primarily to the mucosa
  - Continuous inflammation
  - Histologic findings – polymorphonuclear leukocytes and mononuclear cells, crypt abscesses, distortion of the mucosal glands, and goblet cell depletion

Crohn’s vs. UC – what’s the difference? Cont.

- **Crohn’s**
  - Can affect anywhere in the GI tract from mouth to anus
  - “Skip areas”
  - Inflammation can affect the entire wall of the GI tract
  - Histologic findings – aphthoid ulcer, granuloma formation
  - Most common location of Crohn’s is the ileocecal region, followed by the terminal ileum

Signs/symptoms of IBD

- Abdominal pain
- Diarrhea
- Hematochezia
- Anemia
- Mucous
- Fever
- Fatigue
- Reduced appetite
- Unintentional weight loss
- Joint pain, eye inflammation (extraintestinal manifestations)
- Fistula, Stricture, Abscess (Crohn’s)

Goals of IBD tx

- Achieve remission
- Maintain remission
- Stop/reduce or sparing of glucocorticoids

IBD medications

- 5 aminosalicylic acid (5-ASA) – reduce inflammation in the lining of the intestine. More effective in tx of UC.
  - **Topical**
    - Mesalamine suppositories/enemas
  - Rectal/left-sided disease
  - **PO**
    - Mesalamine (Apriso 1500 mg po qday-BID)
    - Sulfasalazine 2-4 grams po qday
    - Some patients experience side effect r/t sulfa component
    - Approximately 90% of those with intolerance to Sulfasalazine can tolerate Mesalamine
    - Check renal function prior to initiation, 3 months after initiation, and yearly
    - Overall, 5-ASA agents are well tolerated and safe
    - Potential side effects include headache, nausea, abdominal pain and cramping, diarrhea, loss of appetite, vomiting, rash, or fever.
Ibd medications cont.

- **Immunomodulators** – weaken the activity of the immune system, which decreases the inflammatory response. Immunomodulators are shown to induce remission in ~70% of patients who fail 5-ASAs and maintain long-term steroid-free remission in ~60% of patients.
  - Methotrexate 25 mg SubQ or PO once every week
  - Azathioprine 2.3 mg/kg/day
  - 6-Mercaptopurine 1.5 mg/kg/day
    - Check TPMT (thiopurine methyltransferase) phenotype
      - TPMT 10-20: patients are often very responsive
      - TPMT 20-35: Patients are less responsive – start at 2.5 mg/kg/day
      - Low enzyme activity – increased risk of side effects
        - If TPMT <10, consider alternate therapy or use very low dose
        - TPMT 20-35: patients are unresponsive
        - TPMT >35: patients are unresponsive
        - TPMT > 35: patients are non-responders
        - Inflammatory bowel disease patients on immunomodulators for first 3 months, then
        - Slow onset of action – may take 3-6 months for full effect

- **Immunomodulators side effects**
  - Risk of infection 4-7%
  - TB – rare
  - Shingles, HBV
  - Risk of cancer – lymphoma 1/400-1/2500 per patient
  - Pregnancy risks
    - Pancreatitis 2-12%
    - Leukopenia 5-16%
    - N/V 12%

- **Biologic Therapy**
  - Anti-TNF agents – bind and block a small protein called tumor necrosis factor alpha (TNF-alpha) that promotes inflammation in the intestine, as well as other organs and tissues. Reduce symptoms and heal inflamed intestine.
    - Infliximab (Remicade) 5-10 mg/kg IV q8weeks
    - Adalimumab (Humira) 40 mg SubQ every other week
    - Certolizumab (Cimzia) 400 mg SubQ every 4 weeks
    - Golimumab (Simponi) 100 mg SubQ every 4 weeks
    - Check Quantiferon Gold, Hepatitis B Serology, CBC, CMP prior to initiation
    - May take up to 8 weeks to notice improvement in symptoms

- **AGA guideline: moderately severe Crohn’s**

- **Integrin Receptor Antagonist**
  - Natalizumab (Tysabri) 300 mg IV every 4 weeks
  - Vedolizumab (Entyvio) 300 mg IV every 8 weeks
  - Blocks interaction of integrin receptors (α4β7 and MAdCAM-1) impairing the inflammatory cascade

- **Corticosteroids**
  - Prednisone
  - Budesonide

- **Biologic side effects**
  - Malignancy - ? risk
  - Injection site reactions
  - Infusion reactions
  - Demyelinating disease
  - Heart failure
  - Infection
Preventative care

• Vaccinations
  • Influenza
  • Pneumonia
  • Hepatitis A/B
  • Tetanus
  • Gardasil
  • Meningococcal Meningitis

• Cancer Screening
  • Screening colonoscopy every 2 years after 8-10 years of IBD dx
  • Annual skin exam if immunocompromised

Preventative care cont.

• Bone Density Screening
  • Optimize corticosteroid sparing therapy
  • Check Vitamin D levels at least once in all patients and supplement as needed
  • Patients with IBD and low bone mass should receive standard amounts of calcium (1200 mg/day) and vitamin D (800-1000 units/day)

• Who to screen
  • Steroid use
  • Post-menopausal women
  • Males >50
  • Other risk factors – advancing age, previous fracture, low body weight, current cigarette smoking, excessive ETOH, rheumatoid arthritis

Preventative care cont.

• Diet
  • No diet will cure IBD
  • Increase Omega 3 fatty acids
  • Decrease Omega 6 fatty acids
  • Decrease FODMAP foods
  • Lactose free = 50% of patients with IBD are lactose intolerant
  • Gluten free = decreases bloating, abdominal pain, fatigue
  • Avoid artificial sweeteners = can increase diarrhea
  • Avoid caffeine and alcohol = can trigger abdominal discomfort and diarrhea
  • Dietary fiber, fruits, and vegetables can improve gut microbiota
  • Everyone is different = keep a food diary to see what foods trigger symptoms

Case study

• 61 year old male
• UC for >20 years
• Treated with Sulfasalazine for many years – no formal GI follow-up
• Has “flare-ups” 2-4x/year – tx with steroids by PCP – steroids worsen his adult acne
• 2 loose stools/day without blood
• When “flaring” 5-10 bloody, loose stools associated with urgency
• Intermittent abdominal cramping that occurs prior to having a BM, will subside after BM - ?IBS

Case Study

• Colonoscopy 2014 – bi inflammation from rectum to cecum – Pancolitis
• Repeat colonoscopy ordered – no driver...
• Azathioprine 200 mg qday (2.5 mg/kg/day)
• TNF-27.8
• Check Hepatitis B serology, Quantiferon Gold
• Continue Sulfasalazine 1000 mg p.o QID
• Vaccinations: Hep A/B, Pneumonia, Zoster
• DEXA scan = no osteopenia or osteoporosis
• After 3 months of Azathioprine = patient doing very well!
• CRP
  • 07/2016: 12.20
  • 05/2017:
• Sedegren
  • 07/2016: 54
  • 06/2017:

Gastroesophageal reflux disease (GERD)

• The Montreal Classification is a consensus statement that defines GERD as condition that develops when the reflux of stomach contents causes troublesome symptoms and/or complications.
• “Heartburn” is considered troublesome if mild symptoms occur two or more days/week, or moderate to severe symptoms occur more than one day a week.
• 10-20% of people in the Western world experience GERD
Signs/symptoms of GERD

- Heartburn (pyrosis)
- Regurgitation
- Dysphagia – also suggestive of obstruction or stricture
- Bronchospasm
- Laryngitis
- Chronic cough
- Globus sensation
- Odynophagia
- Nausea
- Water brash or hypersalivation

Signs/symptoms of GERD cont.

- Symptoms can typically occur
  - After meals
  - When sleeping/lying flat
  - May be exacerbated by emotional stress

Pathophysiology of GERD

- Movement of gastric juice from the stomach to esophagus
- Three mechanisms causing gastroesophageal junction incompetence
  - Transient lower esophageal sphincter relaxations
  - Hypotensive lower esophageal sphincter
  - Anatomic disruption of the gastroesophageal junction, often associated with hiatal hernia

Pharmacological therapy for GERD

- Proton Pump Inhibitor: inhibit the hydrogen-potassium ATPase pump
  - Omeprazole
  - Pantoprazole
  - Lansoprazole
  - Rabeprazole
  - Esomeprazole
  - Instruct the patient to take 30 minutes prior to eating
  - Most effective before the first meal of the day because the amount of H-K-ATPase present in the parietal cell is greatest after a prolonged fast
  - Should not be used prn

Best practice advice from AGA

- Best Practice Advice 1: Patients with GERD and acid-related complications (i.e., erosive esophagitis or peptic stricture) should take a PPI for short-term healing, maintenance of healing, and long-term symptom control.
- Best Practice Advice 2: Patients with uncomplicated GERD who respond to short-term PPIs should subsequently attempt to stop or reduce their. Patients who cannot reduce PPIs should consider ambulatory esophageal pH/impedance monitoring before committing to lifelong PPIs to help distinguish GERD from a functional syndrome. The best candidates for this strategy may be patients with predominant dyspeptic symptoms or those who lack an obvious predisposition to GERD (e.g., central obesity, large hiatal hernia).
- Best Practice Advice 3: Patients with Barrett’s esophagus and symptomatic GERD should take a long-term PPI.
- Best Practice Advice 4: Asymptomatic patients with Barrett’s esophagus should consider a long-term PPI.
- Best Practice Advice 5: Patients at high risk for ulcer-related bleeding from NSAIDs should take a PPI if they continue to take NSAIDs.

- Best Practice Advice 6: The dose of long-term PPIs should be periodically reevaluated so that the lowest effective PPI dose can be prescribed to manage the condition.
- Best Practice Advice 7: Long-term PPI users should not routinely use probiotics to prevent infection.
- Best Practice Advice 8: Long-term PPI users should not routinely raise their intake of calcium, vitamin B12, or magnesium beyond the Recommended Dietary Allowance (RDA).
- Best Practice Advice 9: Long-term PPI users should not routinely screen or monitor bone mineral density, serum creatinine, magnesium, or vitamin B12.
- Best Practice Advice 10: Specific PPI formulations should not be selected based on potential risks.
- There is little evidence available regarding potential adverse effects of PPIs. The benefits are likely to outweigh the risks when long-term prescribing is appropriate.
Lifestyle modifications

- Weight loss if indicated
- Elevating the head of the bed in patients with nocturnal or laryngeal symptoms
- Elimination of dietary triggers
  - Fatty foods, caffeine, chocolate, spicy foods, carbonated beverages, peppermint
- Avoid tight-fitting clothes
- Avoid tobacco and ETOH
- Abdominal breathing

Testing for gerd

- Dx based on clinical symptoms
  - EGD
    - Los Angeles Classification for reflux esophagitis: Grade A-D
    - Barium swallow
    - Limit use of acid-sensitive in patients with mild GERD
  - Esophageal pH monitoring
    - Small probe inserted through nostril and positioned near the lower esophagus
    - Measures amount of acid that flows into the esophagus from the stomach during a 24-hour period
    - PPI will affect the result
    - Persistent symptoms
    - No evidence of mucosal damage on endoscopy
    - Trial of PPI failed
  - Esophageal manometry
    - Considered in symptoms of GERD and normal EGD, especially with associated dysphagia
    - Evaluates peristaltic/lower esophageal sphincter function
    - Needed prior to referral for Nissen fundoplication

Differential dx

- Infectious esophagitis
- Pill esophagitis
- Eosinophilic esophagitis
- Peptic ulcer disease
- Biliary tract disease
- Coronary artery disease
- Esophageal motor disorders
- Nonerosive reflux disease (NERD) or functional heartburn
- Non-ulcer dyspepsia
  - Challenging to treat
  - TCA

When to refer

- Symptoms persist despite correct PPI use/lifestyle modifications
- Dysphagia
- Odynophagia
- Nocturnal symptoms
- Unintentional weight loss
- Melena
- Hematemesis
- Severe symptoms

Case study

- 42 year old male
- Intermittent burning in his chest and epigastric area – occurs daily
- Regurgitates food 2x/week
- Nocturnal symptoms
- Eating and activity are triggers
- EGD gastritis erythema
- Omeprazole 20 mg BID
- Uses Ranitidine and Tums prn
- Smokes 1 PPD
- Hgb A1c ranging 9.3->14% over the past 9 years – most recent result >14% – hx of no showing diabetic education appointments
- Father dx with esophageal cancer
- Hx of depression and adjustment d/o – followed by mental health in the past, but not recently

Case study

- Switch Omeprazole to Pantoprazole 40 mg BID
  - Symptoms got worse – back to Omeprazole – increase dose to 40 mg BID 30 minutes prior to meals
- Continue to use Ranitidine 150-300 mg qday prn
- Changed to scheduled at HS to prevent nocturnal symptoms
- Tobacco cessation
  - Smoking causes relaxation of LES
  - Patient presently told he has gastroparesis – no gastric emptying study in chart
  - Small, frequent meals
- Anti-reflux measures
  - Avoid chocolate, peppermint, caffeine, spicy foods, fatty foods, carbonated beverages, and excessive ETOH
  - Avoid tight fitting garments
  - Avoid lying down for a least 1 hour after meals
  - Avoid eating for at least 3 hours before bedtime
  - Elevate the HOB 30 degrees
Case study
- Alternative PPI
- Further testing
  - pH study
  - Manometry
- Nissen fundoplication
  - Reinforce the lower esophageal sphincter by wrapping the stomach around the lower esophagus making it less likely that acid will back up into the esophagus
  - Is he a candidate d/t continued smoking and poor DM control?

Helicobacter pylori (H. pylori)
- Gram negative bacteria in the stomach
- Most common chronic bacterial infection – estimate that 50% of the world’s population is affected
- Transmission is unknown – person to person seems most likely
- Can potentially cause chronic gastritis, peptic ulcers, gastric cancer, and lymphoma

Pathophysiology of h. pylori
- Complex interaction between the host and the bacterium. The interaction is influenced by the environment and modulated by a number of largely unidentified factors.
- Stimulates a robust inflammatory and immune response

Signs/symptoms of h. pylori
- Upper abdominal pain
- Feeling bloated
- Early satiety
- Poor appetite
- Nausea/vomiting
- Dark or black-colored stools
- Fatigue

Testing for h. pylori
- Gastric bx – should be reserved for patients who are undergoing a diagnostic endoscopy
- Breath testing
- Stool antigen
  - No PPI use for 2 weeks prior to testing – can cause false negative result
  - Highly sensitive and specific
- Serology
  - Not recommended for routine diagnosis or for evaluation of treatment effectiveness. Does not distinguish between a present and previous infection
  - No testing in asymptomatic patients
  - Only test if you will treat

Pharmacological therapy for h. pylori
- Most common recommendation for first line tx – triple therapy
  - PPI: Lansoprazole 30 mg po BID, Omeprazole 20 mg po BID, Pantoprazole 40 mg po BID, Rabeprazole 20 mg BID, or Esomeprazole 20 mg po BID
  - Amoxicillin 1 gram po BID
  - Clarithromycin 500 mg po BID for 7-14 days
  - A longer duration of treatment may be more effective in curing infection but this remains controversial
Pharmacological therapy for H. pylori cont.

- Quadruple therapy – tx for 14 days, used as initial treatment for H. pylori in areas where prevalence of resistance to clarithromycin is >15%, or in patients with recent or repeat exposure to Clarithromycin or Metronidazole and as a second-line treatment in patients who fail triple therapy
  - PPI
  - Bismuth Subsalicylate 524 mg po QID
  - Metronidazole 250 mg po QID
  - Tetracycline 500 mg po QID

Pharmacological therapy for H. pylori cont.

- Quadruple non-bismuth therapy
  - PPI
  - Amoxicillin
  - Metronidazole
  - Clarithromycin

When to refer

- The patient is having alarm symptoms that may require evaluation with endoscopy
  - Dysphagia
  - Odynophagia
  - Upper abdominal pain
  - Unintentional weight loss
  - Melena
  - Iron deficiency anemia

Case study

- 64 year old male
- Epigastric and left sided abdominal pain
- PPI didn’t help
- EGD 2012 – h pylori
- Iron deficiency anemia
- Colonoscopy/EGD – h pylori associated chronic active gastritis
- Treated with triple therapy for 14 days
- Patient’s symptoms subsided following abx tx
- Check stool antigen for eradication – h pylori not detected

references


The End. Thank you!
References