UNIVERSITY of MARYLAND
SCHOOL OF MEDICINE

Top GI Complaints

ACP Maryland Chapter Scientific Meeting 2018

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Abnormal liver function tests

A 57-year-old woman has elevated liver enzymes noted on laboratory testing done for a pre-employment physical. Past medical history is negative. She takes no medications or dietary supplements. The physical examination is normal; body mass index is 24 kg/m^2. Laboratory testing shows AST 437 mg/dl and ALT 613 mg/dl. Alkaline phosphatase, bilirubin, albumin, and prothrombin time results are normal. The most likely cause of her laboratory abnormalities is:

A. Alcoholic hepatitis
B. Autoimmune hepatitis
C. Hepatitis A
D. Hepatitis B
E. Hepatitis C
F. Non-alcoholic steatohepatitis

Initial evaluation

A. Alcoholic hepatitis
B. Autoimmune hepatitis
C. Hepatitis A
D. Hepatitis B
E. Hepatitis C
F. Non-alcoholic steatohepatitis

- History: alcohol use, previous medications
- PE: hepatomegaly, splenomegaly, spider angiomata
- Labs:
  - Hepatitis A ab
  - HbsAg, HbsAb, HbcAb
  - HCV ab
  - ANA, ASMA, SPEP, immunoglobulins, LKM-1 ab
- Liver imaging

Most likely diagnosis?

A. Alcoholic hepatitis
B. Autoimmune hepatitis
C. Hepatitis A
D. Hepatitis B
E. Hepatitis C
F. Non-alcoholic steatohepatitis

Most likely diagnosis?

A. Alcoholic hepatitis
B. Autoimmune hepatitis
C. Hepatitis A
D. Hepatitis B
E. Hepatitis C
F. Non-alcoholic steatohepatitis

What do we do next?

- Diagnosis - assessment of fibrosis
  - Clinical decision aids
  - Imaging: Fibroscan, elastography
  - Liver biopsy
    - Advanced fibrosis suspected
    - Can not exclude other chronic liver disease (autoimmune, hemochromatosis)

Treatment

- Many patients have metabolic syndrome. Treat this aggressively
  - Diabetes mellitus
  - Hyperlipidemia
  - Hypertension
  - Obesity (diet, exercise)
    - Goal: 10% weight loss over 12 months
- Vitamin E
  - In non-diabetics
  - 800 IU/day for 6-12 months, stop if no improvement in LFTs

Hey Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm in size or larger. Exam is normal to the cecum. There is with no family history of colon cancer or polyps.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm in size or larger. Exam is normal to the cecum. There is with no family history of colon cancer or polyps.

Average risk individual with normal colonoscopy – repeat in 10 years.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy, which is normal to the cecum, however formed stool is present in the ascending colon preventing adequate visualization. There is no family history of colon cancer or polyps.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy, which is normal to the cecum, however formed stool is present in the ascending colon preventing adequate visualization. There is no family history of colon cancer or polyps.

Inadequate colonoscopy – repeat soon.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm in size or larger. The exam is normal. Her mother was diagnosed with colon cancer at age 58.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm in size or larger. The exam is normal. Her mother was diagnosed with colon cancer at age 58.

High risk individual – 1st degree relative with colon cancer < 60 years old – repeat in 5 years.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm in size or larger. Exam shows a 5 mm polyp in the sigmoid colon, removed by cold snare polypectomy. Pathology shows tubular adenoma. There is no family history of colon cancer or polyps.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm in size or larger. Exam shows a 5 mm polyp in the sigmoid colon, removed by cold snare polypectomy. Pathology shows tubular adenoma. There is no family history of colon cancer or polyps.

Low risk adenoma (< 3, < 1 cm, not villous histology) – repeat in 5-10 years.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm or larger. A 15 mm polyp is completely removed from the ascending colon. Pathology shows tubular adenoma.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm or larger. A 15 mm polyp is completely removed from the ascending colon. Pathology shows tubular adenoma.

High risk adenoma (3 or more, ≥ 1 cm, villous histology) – repeat in 3 years.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm or larger. A flat 15 mm polyp is found in the ascending colon and removed by piecemeal resection. Pathology shows tubular adenoma.

Hey, Doc, when do I need my next colonoscopy?

A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
F. 10 years

A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm or larger. A flat 15 mm polyp is found in the ascending colon and removed by piecemeal resection. Pathology shows tubular adenoma.

Piecemeal polypectomy – risk of incomplete removal – repeat in 3 – 6 months.

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A. 3 - 6 months
B. 1 year
C. 3 years
D. 5 years
E. 5 - 10 years
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A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm or larger. A 5 mm polyp is found in the sigmoid colon, removed by cold snare polypectomy. Pathology shows tubular adenoma. Repeat colonoscopy is performed 5 years later and is completely normal.

Hey, Doc, when do I need my next colonoscopy?

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A 50 year old undergoes colonoscopy with prep adequate to identify polyps 6 mm or larger. A 5 mm polyp is found in the sigmoid colon, removed by cold snare polypectomy. Pathology shows tubular adenoma. Repeat colonoscopy is performed 5 years later and is completely normal.

Baseline colonoscopy	First surveillance	Second surveillance
LRA	HRA	3 years
	LRA	5 years
	No adenoma	10 years
HRA	HRA	3 years
	LRA	5 years
	No adenoma	5 years

Refractory GERD

A 52-year-old man comes to your office for follow-up of heartburn. His heartburn is present after meals, especially after dinner, as well as when he lays down at night to sleep. He also complains of intermittent nocturnal regurgitation awakening him from sleep with cough and throat burning. He was seen by you 2 months ago with similar complaints, and omeprazole 40 mg once daily was prescribed. Symptoms are not improved.

What do you do next?

Persistent GERD on PPI
What do you do next?

- Obtain more history
- Increase PPI to BID
- Change to another PPI
- Add bedtime H2-blocker
- Request upper endoscopy
- Request barium esophagram
- Request ambulatory esophageal pH monitoring

Persistent GERD on PPI
What do you do next?

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- Change to another PPI
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- Request upper endoscopy
- Request barium esophagram
- Request ambulatory esophageal pH monitoring

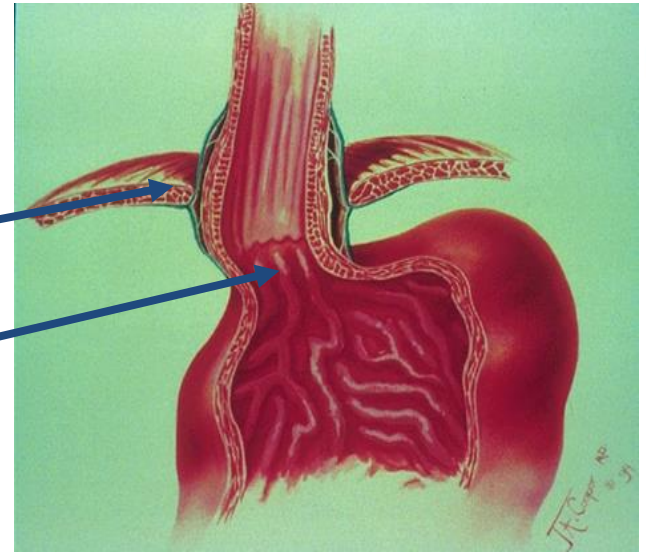
Persistent GERD on PPI
More history

- Diet is high in fat, low in fresh fruits, vegetables
- Drinks coffee 8 cups/day. Has 2-3 cans/beer every night
- Works late, eats dinner around 8 pm, falls asleep by 10 pm
- Frequently snacks on ice cream or cookies before bed
- Takes PPI at bedtime when he remembers to take it
- BMI is 34 kg/m2

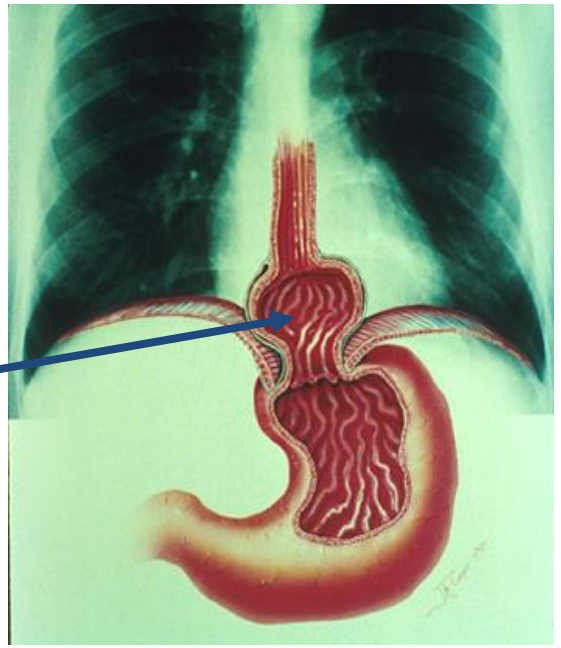
Pathophysiology of GERD

Mechanical factors

- Normal antireflux barrier
  - Crura of the diaphragm
  - Lower esophageal sphincter (LES)



- Defective antireflux barrier
  - Lower esophageal sphincter
    - Inappropriate Transient Lower Esophageal Sphincter Relaxation (TLESRs)
    - Hypotensive LES
  - Hiatal hernia



Pathophysiology of GERD

- Gastric factors
  - Acid
  - Gastric distention
  - Gastric emptying
- External factors
  - Diet
  - Obesity
  - Tobacco/alcohol use
  - Medications
- Diminished esophageal clearance
  - Peristalsis
  - Body position
  - Saliva
- Impaired mucosal resistance

Lifestyle modifications are cornerstone of GERD therapy

- Elevate head of bed while sleeping
- No food 3 hours before bedtime
- Stop smoking
- Modify diet
  - Decrease fat and volume
  - Avoid peppermint, chocolate, alcohol, coffee
- Weight loss
- Avoid potentially harmful medications
- Antacids prn

Effectiveness of GERD Treatment

Treatment	Response
Lifestyle modifications/antacids	20 %
H_2-receptor antagonists	50 %
Single-dose PPI	80 %
Increased-dose PPI	> 80 %

Follow-up

He takes your advice to heart. He is now eating a heart healthy diet, has decreased alcohol and caffeine intake, is avoiding food within 3 hours of bedtime, has elevated the head of his bed 6 inches, and takes his PPI 30 minutes before breakfast every day.

But his heartburn symptoms persist!

What do you do next?

Persistent GERD on PPI
What do you do next?

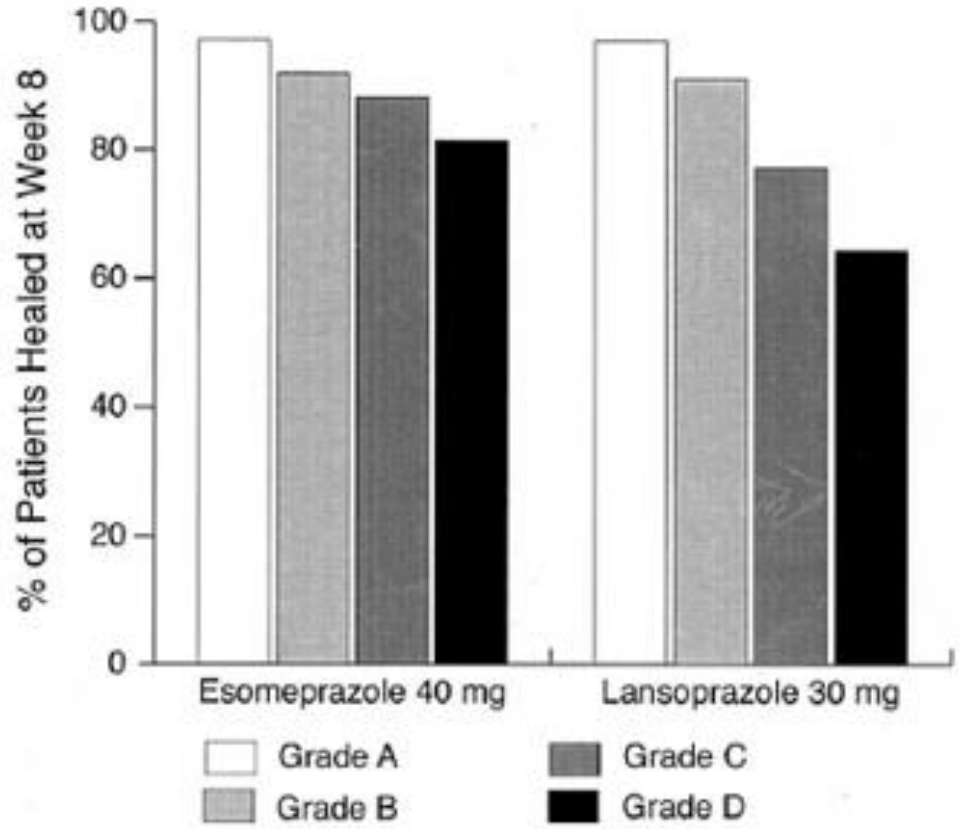
- Obtain more history
- Increase PPI to BID
- Change to another PPI
- Add bedtime H2-blocker
- Request upper endoscopy
- Request barium esophagram
- Request ambulatory esophageal pH monitoring

PPI once vs twice daily

- Rationale: once daily dosing does not heal more severe esophagitis. BID dosing is more effective.

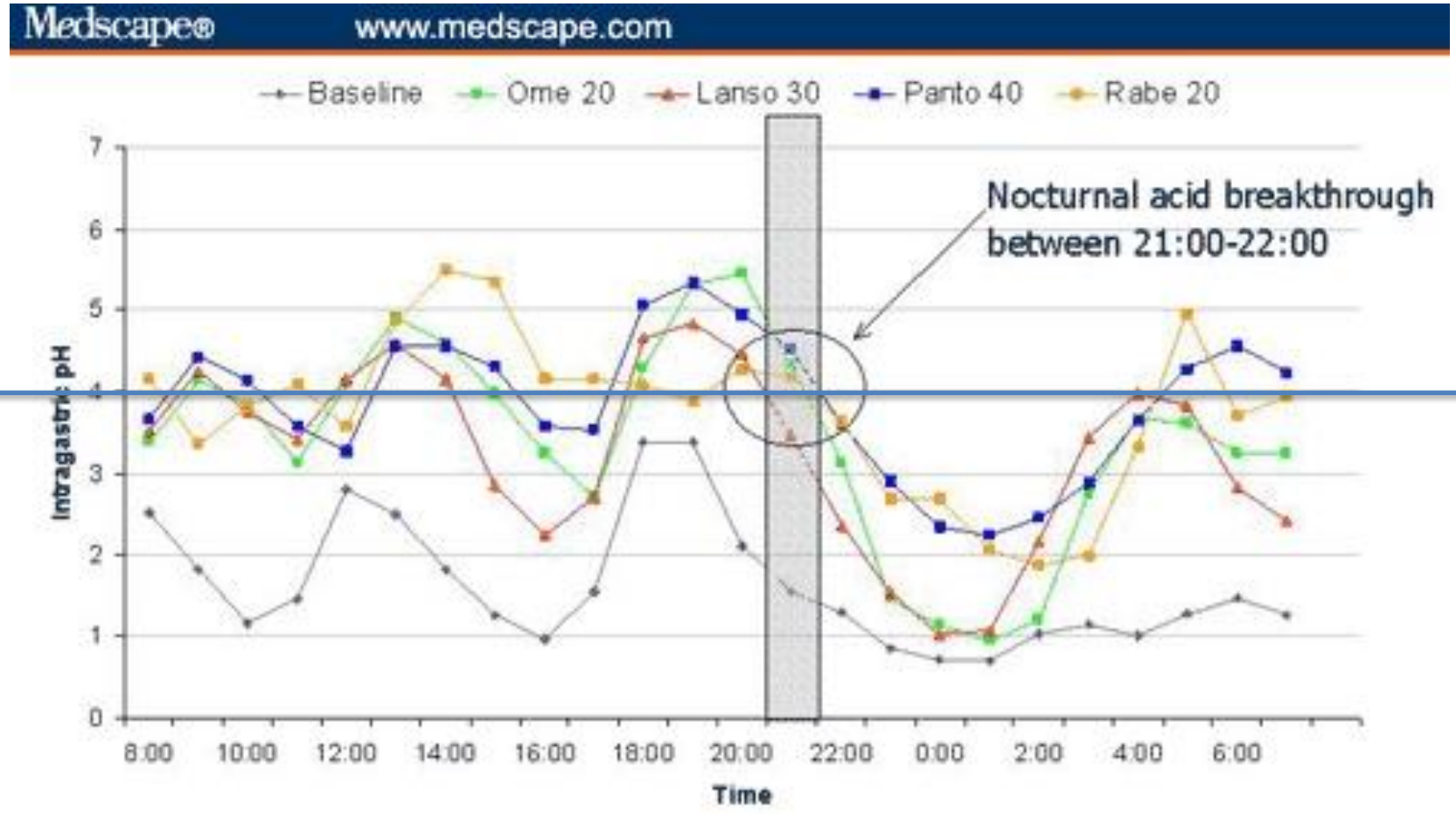
- Some studies show improved outcomes with BID therapy. But recent meta-analysis suggest PPI BID is not associated with improved heartburn relief.

(Gastroenterol Res Pract 2017 PMC5585660)



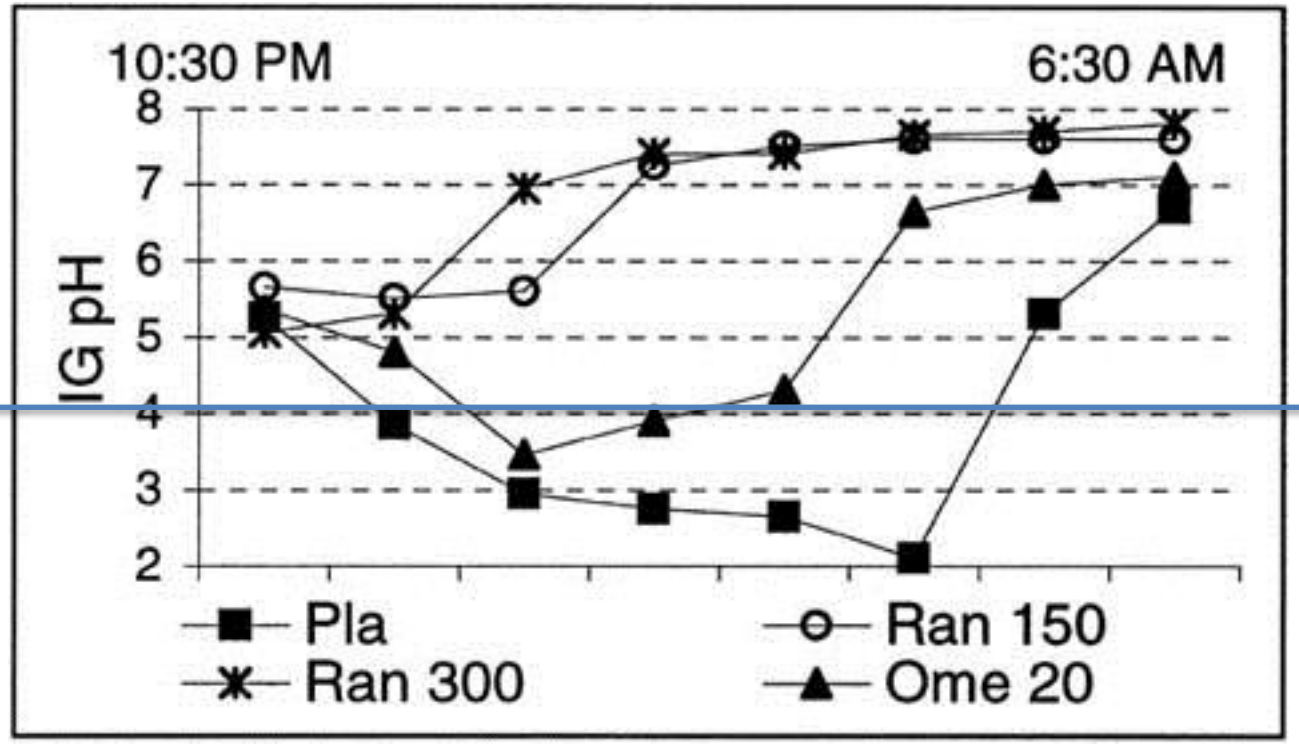
Am J Gastroenterol 2002; 97:575

Nocturnal Acid Breakthrough



MedGenMed. 2004; 6(4): 11. Published online 2004 Oct 26. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1480544/

Nocturnal Acid Breakthrough improved with H2RA



Gastroenterology 1998; 115:1335

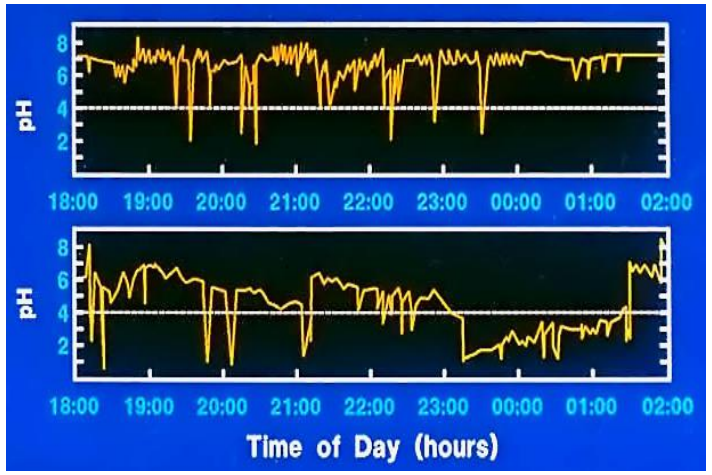
Role of EGD: identify other causes of symptoms

- Eosinophilic esophagitis
- Pill esophagitis
- Zollinger Ellison syndrome
- Lichen planus with esophageal involvement

Functional testing for GERD

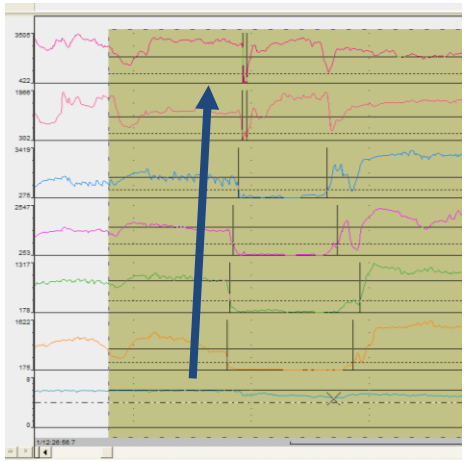
- Ambulatory 24 hour pH monitoring
  - Quantifies acid reflux in esophagus and correlates with symptoms
  - Most useful for atypical symptoms: is this really GERD?

Normal



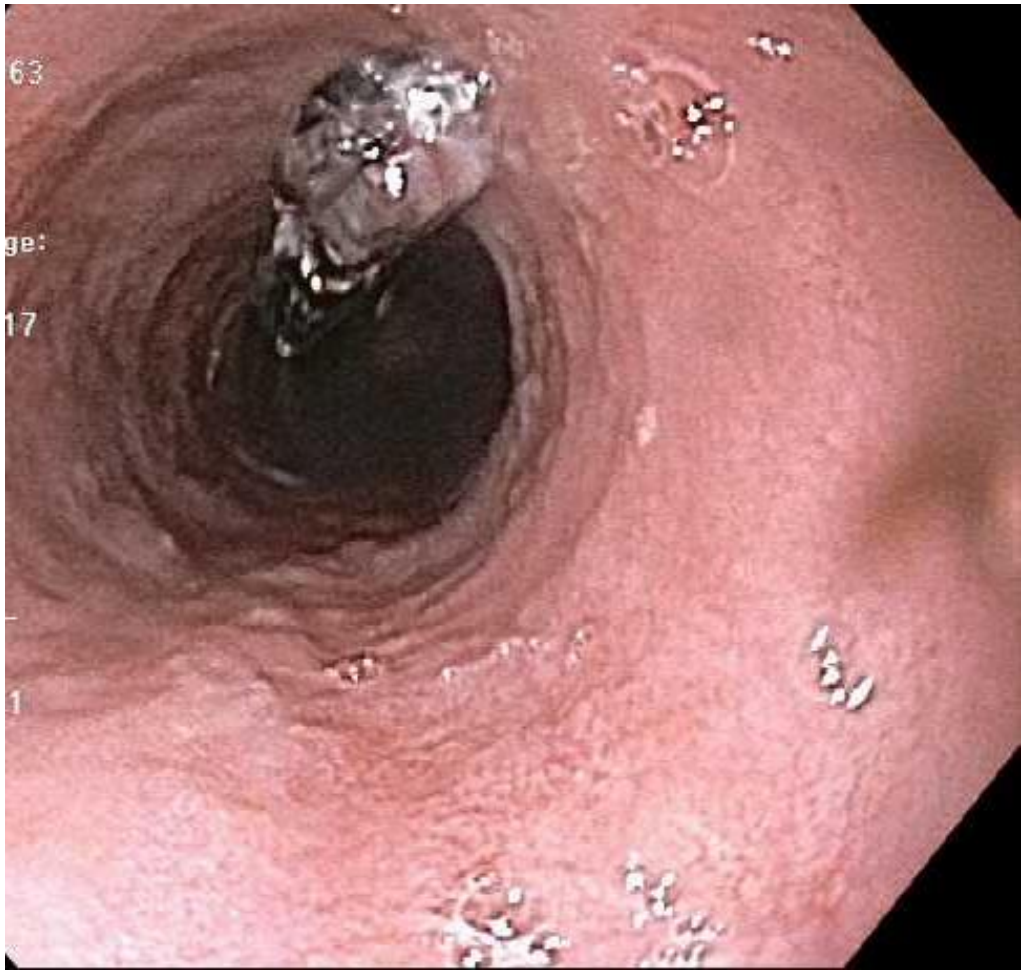
GERD

- Multichannel intraluminal impedance (MII) – pH study
  - Quantifies acid and non-acid reflux and correlates with symptoms
  - Most useful when symptoms persist on twice daily PPI therapy



Wireless ambulatory esophageal pH monitoring

http://www.summitgastro.com/endoscopic-procedures/bravo-ph-monitoring. Accessed 1/7/18

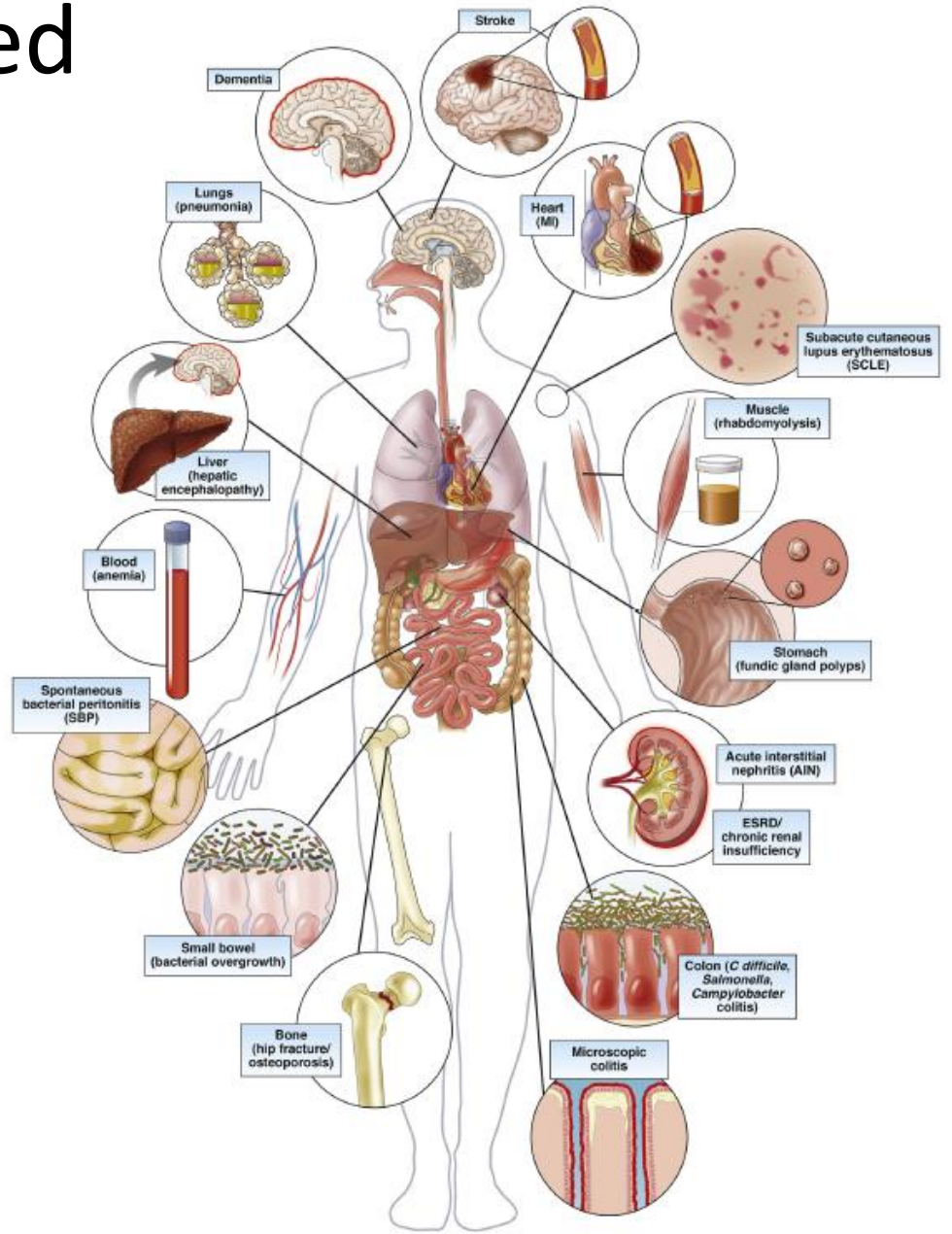


BRAVO pH probe attached to esophageal wall

Reported adverse events associated with PPI use

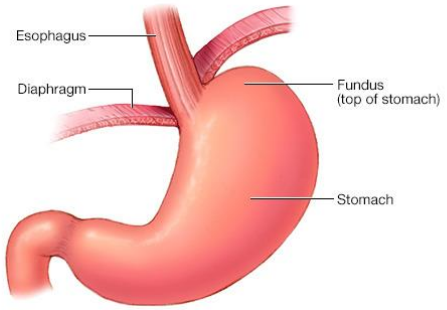
- No causal associations determined
- Studies are retrospective
- Confounding contributes to conclusions
- Effect size of many of these events is minimal

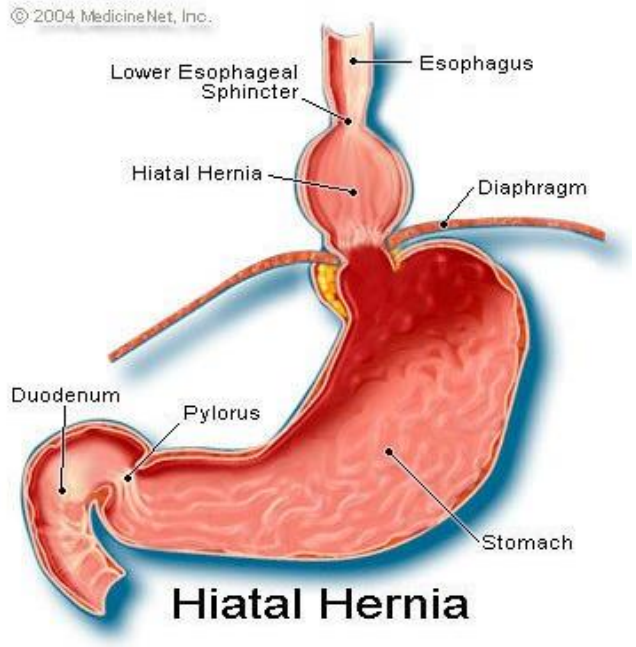
→ Use PPIs when appropriate
Assess if still needed over time

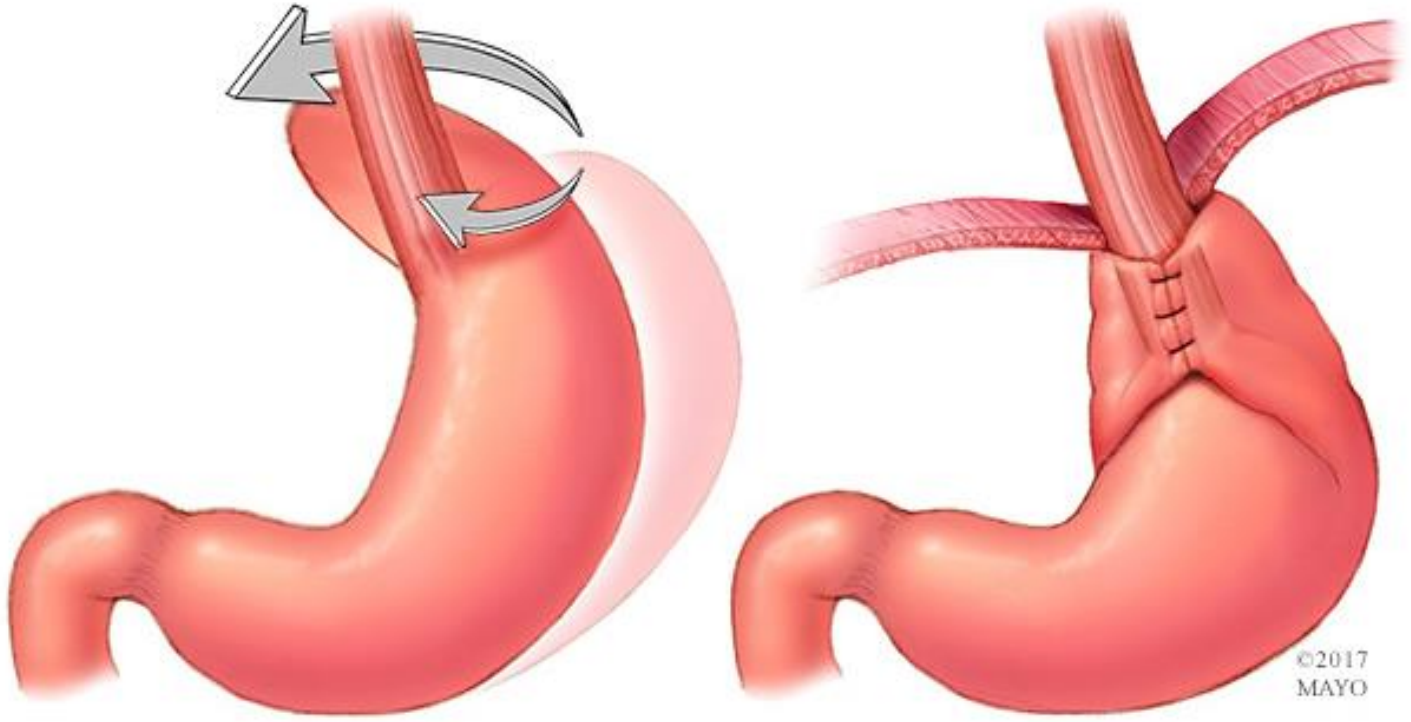


Vaezi *et al*. Gastroenterology 2017; 153:35

Anti-reflux surgery – Nissen fundoplication







A. Fundus wrapped around back side of esophagus

B. Wrap secured with sutures to anchor lower esophagus below diaphragm

Persistent GERD on PPI
What would I do?

- Increase PPI to BID
- Add bedtime H2-blocker
- Change to another PPI
- Perform upper endoscopy
- If still with bothersome symptoms, perform ambulatory esophageal pH/multichannel intraluminal impedance monitoring

Bloat

- A 33-year-old woman complains of frequent bloating. This is present most days and is worse in the late afternoon, with distension. Bowel movements are irregular, with several days of constipation (no stool or small hard formed stool with straining) followed by several days of loose frequent stools. She has lower quadrant cramping pain sometimes relieved with bowel movements, worse when constipated. For the past 6 months she has been on a gluten free diet without improvement. She requests testing for celiac disease. She denies weight loss, skin rash, fever/chills, blood in the stool.

- Her past medical/surgical history/family history is negative.

Evaluation

- Physical exam is normal except for mild LLQ tenderness.
- Lab studies are obtained:
  - CBC, thyroid studies normal
  - Sed rate, CRP normal
  - IgA TTG negative
- What would you do next?

Bloat/distension

- Symptoms may be due to combination of:
  - Increased intestinal gas
  - Gut hyperalgesia
  - Impaired transit of gas
- Treatment
  - Diet modification: low-FODMAP diet
  - Assess for small intestinal bacterial overgrowth (SIBO)
  - Alter gut microbiome

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More Options to Treat Irritable Bowel Syndrome

Dietitians and gastroenterologists point to new drugs and the spread of the low-Fodmap diet to battle IBS

A dietary approach to easing that burden has gained steam in the U.S. as physicians like Dr. Chey listen to patients who would rather avoid taking a prescription drug, he says. The University of Michigan, University of Chicago and Stanford University are among the academic medical centers that have embraced the low Fodmap diet as an option for patients. Some have hired dietitians specializing in gastrointestinal disorders to help guide patients. Peter Loftus, May 2, 2016

The Washington Post

By Cara Rosenbloom December 22, 2016

USA TODAY

Low-FODMAP diet catches on among people with digestive misery

| Updated 11:15 a.m. ET Feb. 13, 2017

High- and low-FODMAP food lists are updated frequently at websites and apps run by the University of Michigan and Monash University in Australia.

Newsweek

TECH & SCIENCE

HOW A LOW-FODMAP DIET CAN HELP THE MILLIONS TORTURED BY IRRITABLE BOWEL SYNDROME

BY JESSICA FERGER ON 11/7/16 AT 10:24 AM

From Chey, W. DDW 2017

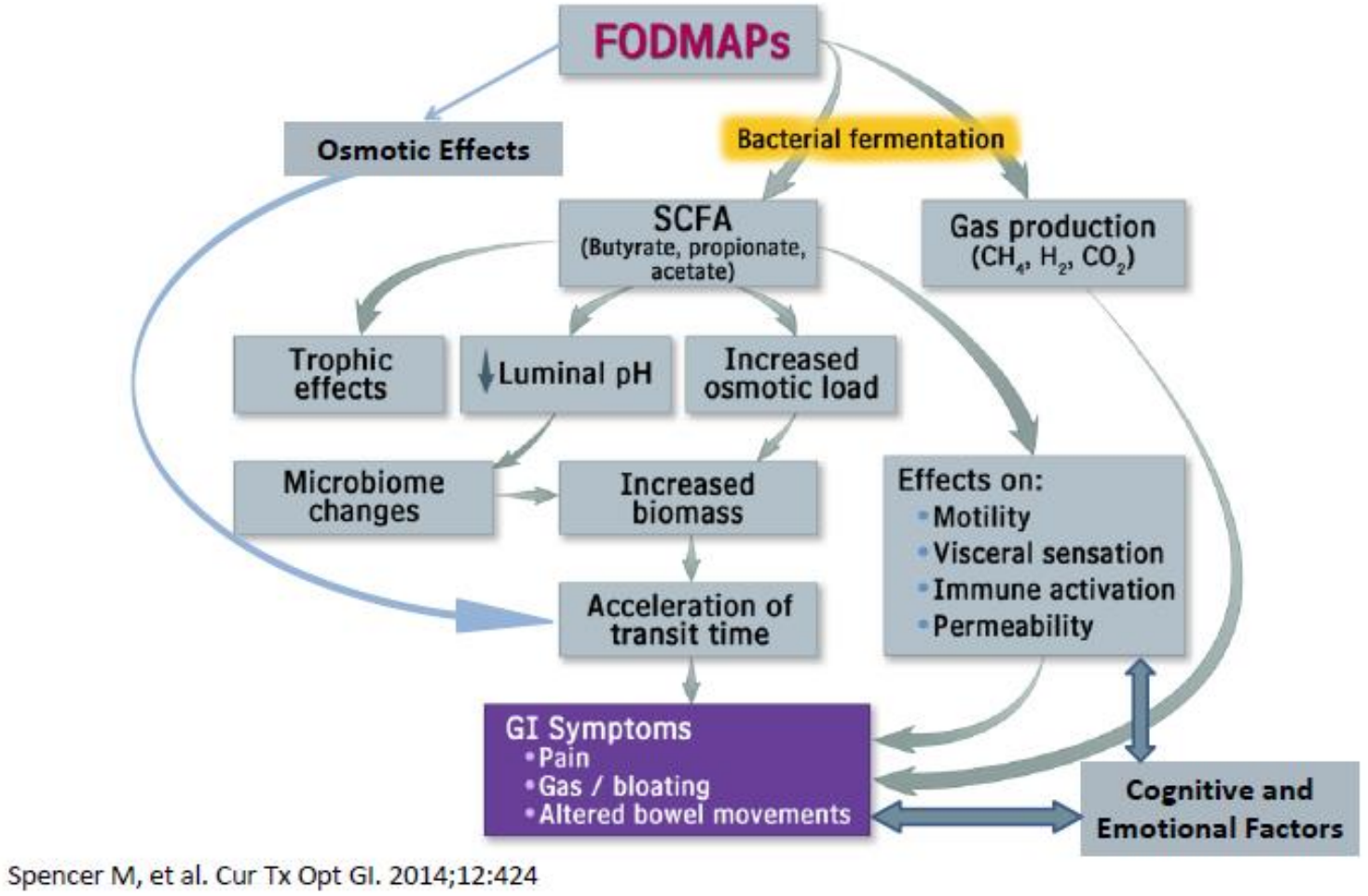
What are FODMAPs?

- **Fermentable oligo-, di-, monosaccharides and polyols**
- **Fruits with fructose exceeding glucose**
  - Apples, pears, watermelon
- **Fructan containing vegetables**
  - Onions, leeks, asparagus, artichokes
- **Wheat based products**
  - Bread, pasta, cereal, cake, biscuits
- **Sorbitol and lactose containing foods**
- **Raffinose containing foods**
  - Legumes, lentils, cabbage, brussels sprouts

Eswaran & Chey, GI Cl North Am 2011;40:141
Shepherd, et al, Clin Gastro Hepatol 2008;6:765
Gibson & Shepherd. J Gastro Hepatol 2010;25:252

From Chey, W. DDW 2017

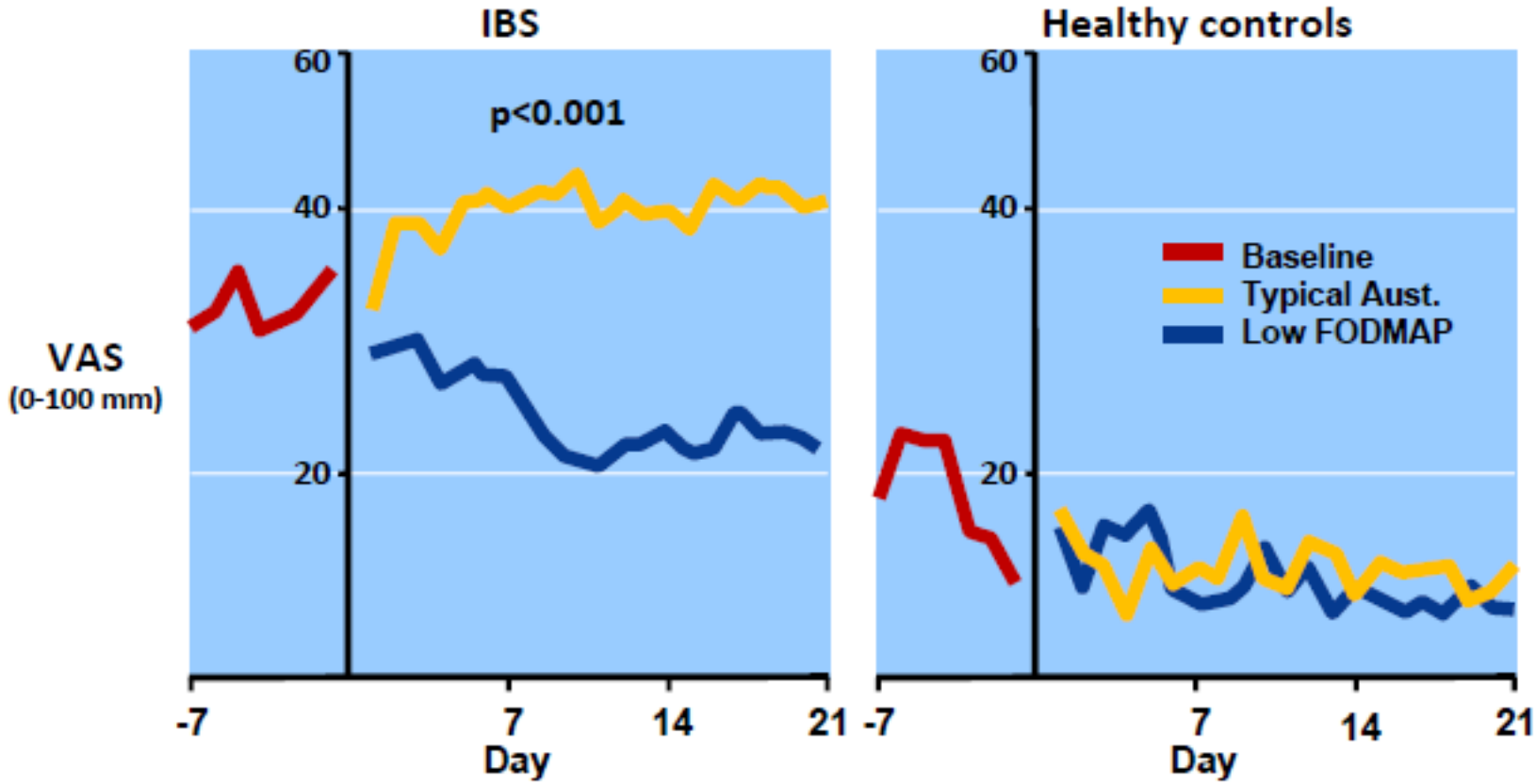
How do FODMAPs affect gut function?



Spencer M, et al. Cur Tx Opt GI. 2014;12:424

From Chey, W. DDW 2017

Low-FODMAP diet reduces IBS symptoms



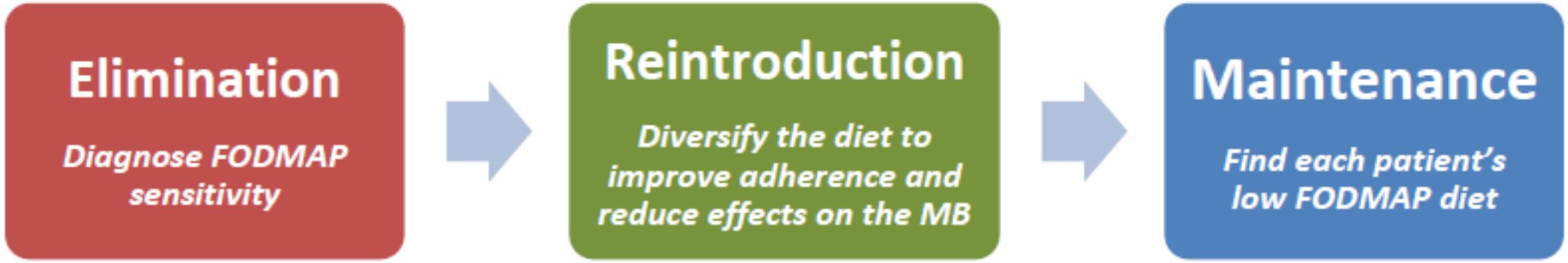
30 IBS patients and 8 HVs: 1 week baseline followed by 21 days of low-FODMAP diet or typical Australian diet before crossing over to other diet. Significant benefits for overall IBS symptoms, bloating, pain, and wind (p<0.001). Benefits for King's Stool Chart only for IBS-D (p<0.04)

Halmos, et al. Gastroenterology 2014; 146:67

From Chey, W. DDW 2017

3 phases of low-FODMAP diet

Elimination is the Beginning NOT the End!!



Prospective follow up study from the UK demonstrates LFD reduces global symptoms and lower severity and incidence of symptoms at **12 months**. Abdominal pain, borborygmi and bloating are symptoms that appear to especially benefit (Lomer et al. DDW 2017, abs Tu1616)

From Chey, W. DDW 2017

Breath testing for SIBO/carbohydrate intolerance

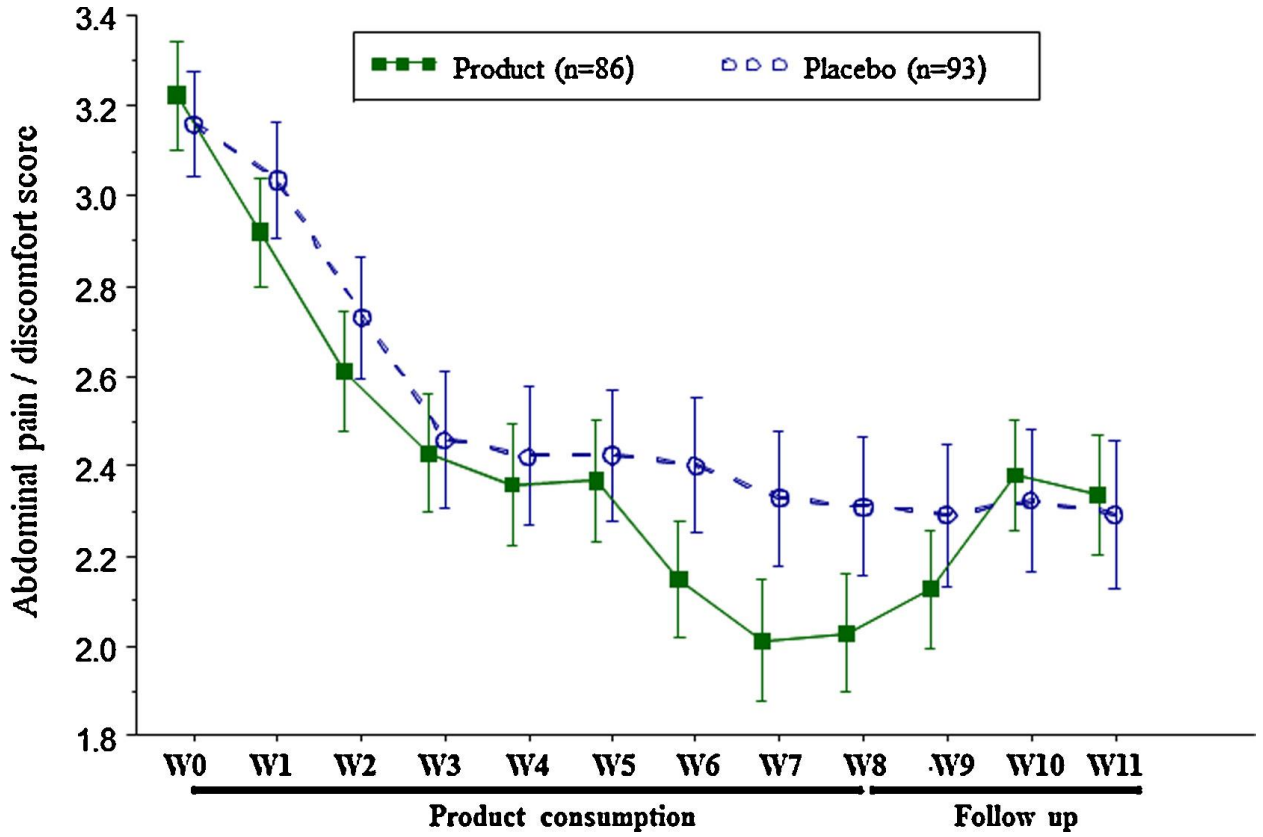
• Glucose/lactulose	Small intestinal bacterial overgrowth
• Lactose	Lactose intolerance
• Fructose	Fructose intolerance

Treatment of SIBO

- Rifaximin 550 mg TID for excess hydrogen production
- Rixaximin plus neomycin for excess methane production

- Stop PPI?
- Avoid drugs that slow gut motility

Probiotics in IBS



179 adults randomized to *Saccharomyces cerevisiae* 500 mg/d vs placebo for 8 weeks. Treated group had significantly more improvement in abdominal pain/discomfort (p=0.04). Dig Liv Dis 2015; 27:119.

Bloat/distension/IBS
What do I do?

- Education about cause of symptoms
- Try probiotic
- Discuss low-FODMAP diet
  - Ideally done with assistance of trained dietician
  - Stepwise reintroduction of foods after initial response
  - http://myginutrition.com
- Consider breath testing for SIBO