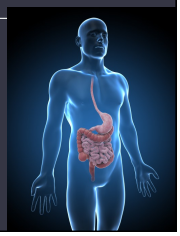
MANAGING COMMON GI PROBLEMS IN STUDENT HEALTH CLINICS

Cheryl Flynn*, MD, MS, MA
University of Vermont
NECHA 2014



*no affiliations to disclose

Objectives: evaluation & treatment of

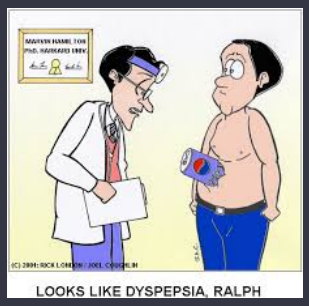
Upper GI problems

1. Gastroesophageal Reflux disease (GERD)
2. Peptic ulcer disease (PUD)
3. Functional Dyspepsia (FD)
   (or the condition formerly known as NUD…nonulcer dyspepsia)

Lower GI problems

4. Celiac disease
5. Lactose intolerance
6. Irritable bowel syndrome (IBS)
   - Inflammatory bowel diseases (IBD)
     - Crohns
     - Ulcerative colitis

What do we mean by dys-pepsi-a?



LOOKS LIKE DYSPEPSIA, RALPH

Dyspepsia

- Greek: dys = "bad" or "difficult" + pepsis "digestion"
- Sensation of pain or discomfort in the upper abdomen; it often is recurrent. It may be described as indigestion, gassiness, early satiety, postprandial fullness, gnawing, or burning
- Types/syndromes
  - GERD: heartburn
  - PUD: ulceration of stomach or duodenum
  - FD: without evidence of an organic disease that is likely to explain the symptoms
  - (rarely) cancer

GastroEsophageal Reflux Disease

GERD

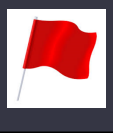
- What is it?
  - Regurgitation of stomach contents into the esophagus leading to mucosal changes and/or symptoms of heartburn
- Prevalence
  - Very common in US
    - 44% adults experience monthly sx; 14% weekly; 7% daily
    - 22% of any college students, and weekly sx in 7% in one Pakistani study

Gastroenterology 2002; 122:1500
J Pak Med Assoc 2010; 60:147

GERD: history & physical

Symptoms
- Retrosternal burning
- Regurgitation, sour taste
- Atypical sx:
  - Cough, laryngitis, sore throat
- Tob, ETOH, meds = risk fx

Exam
- Usually negative
- Neither sensitive or specific findings to aid in dx
- Obesity = risk fx



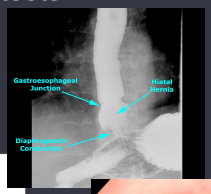
Red flag s/sx: significant wt loss; dysphagia; persistent vomiting; +FHx gastroesophageal malignancy

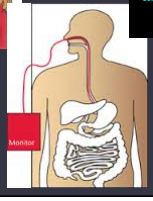
GERD: accuracy of symptoms

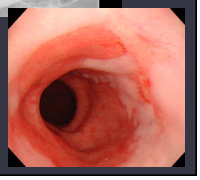
	Sensitivity	Specificity	LR+	LR-
Relief from PPIs	78	54	1.7	0.41
Heartburn	68	52	1.42	0.62
Acid regurgitation	60	52	1.25	0.77
Epigastric pain	54	47	1.01	0.98
Clinician gestalt	59	83	3.5	0.5

Lancet 1990; 335: 205

GERD: Diagnostic tests







GERD: accuracy of tests

	Sensitivity	Specificity	LR+	LR-
Omeprazole challenge*	78	85	5	0.3
pH probe**	80	73	3	0.3
Endoscopy/EGD***	30	78	1.4	0.9

Clinician's subjective sense of GERD, and response to tx are the best to rule in GERD

*Gastroenter 1998; 115:42
**Ann Surg 1984; 200:724
***Dig Dis Sci 2000; 45: 217

GERD: treatment options

- Lifestyle modification
  - Altered diet—avoid ETOH, caffeine, acidic foods, peppermint
  - Mechanical—staying upright 3+hr post prandial, loose clothing, smaller meals, elevate head o' bed for nighttime sx
  - Discontinue tobacco use
  - Lose weight
- Motility agents (cisapride, metoclopramide)
- Antacid medications
  - Calcium carbonate and carafate less effective than other meds; consider for adjunctive tx
  - H2 Blockers
  - Proton pump inhibitors
- Surgical interventions
  - Reserved for truly recalcitrant cases

A comment about PPIs

- PPIs more effective than H2Bs (NNT=3)
  - Though 75% of people w/ mild to moderate GERD effectively tx w/ H2Bs; 50% of those w/ severe GERD
- Within class, meds equivalent efficacy
- Long-term use of PPIs demonstrated to be safe
  - Millions of patients over last few decades
  - Tiny increased risk of pneumonia (NNH=449/yr)
  - Long-term, high dose PPI → slt incr risk of hip fx r/t osteoporosis (OR 2.6)

Undifferentiated Dyspepsia
(aka nonGERD dyspepsia)

Dyspepsia w/o GERD

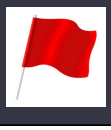
- Peptic ulcer disease (PUD)
  - H Pylori infection (95% DU, 75% GU)
  - Chronic NSAID use (includes asa, COX2 inhib)
  - ETOH, tobacco, social stressors
- Functional dyspepsia (aka nonulcer dyspepsia, NUD)
  - Diagnosis of exclusion; must r/o other causes
  - ~70% of those presenting w/ dyspepsia have no organic cause found on testing
- Prevalence
  - Dyspepsia—16.3% US adult population (meta-analysis)*
  - PUD—6.8% US adult population**
  - Limited data on college population: ~9% in one Chinese study***

*Am J Managed Care 2011; 17: 3449
**Vital Health Stat 2005; 10:; www2.niddk.nih.gov
***PLoSONE 2013; 8: e54183

Dyspepsia: history & physical

Symptoms
- Epigastric pain/discomfort, nausea, early satiety, bloating
- Sx slt more predictive of PUD:
  - Alleviation w/ food
  - Nighttime sx
  - Episodic pain

Exam
- Often normal
- Possible epigastric tenderness



Red Flag S/Sx: new onset sx ≥55y/o; wt loss >5%; jaundice; palpable mass; GI bleed or anemia

H&P Accuracy: dyspepsia→PUD

	Sensitivity	Specificity	LR+	LR-
Food reduces pain	39	88	3.25	0.69
Episodic pain	80	65	2.30	0.31
Epigastric pain	68	62	1.8	0.52
Tenderness, deep palpation	52	27	0.71	1.78
Tenderness, light palpation	4	75	0.16	1.3
Clinician Gestalt			2.2	0.45

JAMA 2006; 295: 1566-76. LOE 1

H&P Accuracy: dyspepsia→FD

	Sensitivity	Specificity	LR+	LR-
Tenderness, deep palpation	77%	38%	1.24	0.61
Tenderness, light palpation	20%	81%	1.10	0.99
Clinical gestalt			1.90	0.40

Bottomline: individual sx, signs and even clinician impression insufficient in distinguishing PUD from FD

JAMA 2006; 295: 1566-76. LOE 1

Dyspepsia: diagnosing PUD

1. Empiric treatment (aka clinical dx only)
2. Test and treat strategy (HPylori) (NNT = 8)
3. Double contrast Upper GI Barium (UGI)
4. Endoscopy

	Sensitivity	Specificity	LR+	LR-
UGI	74	93	10.7	0.27
EGD	95	98	41.3	0.05

Kiil Scan J Gastro 1980; 15:39

Which dx approach to take?

- Test & treat strategy is most cost-effective*
  - Demo'd if prevalence rate of H.Pylori >10%
    - US & Canada ~25-30% **
    - Most other countries much higher (Mexico 70-90%; Asia 50-80% Middle East 80-90%
  - In dyspepsia with +H.Pylori, eradication treatment→sx resolution (NNT=8)***
- Endoscopy is the gold standard
  - If red flag s/sx, or no response to eradication tx, consider EGD
  - In areas with limited specialty services, UGI option for primary care settings

*AGA guidelines; **UpToDate; ***Arch Int Med 2011; 171: 1929

Testing for H.Pylori

Accuracy: H. Pylori testing

	Sensitivity	Specificity	LR+	LR-
Urea breath test	89	100	178	0.1
Stool antigen	96	90	9.3	0.05
Serum antibody	81	88	7.0	0.2

Gatta Gut 2006; 55:457
Gastro 1995; 109: 136
Gastro 1998; 33: 364
Dig Dis Sci 1998; 43:103
Dig Dis Sci 1999; 44:2303

PUD treatment = H. Pylori eradication

Regimen	Eradication Rate	Duration	Notes
PPI bid + amoxicillin 1 g bid + clarithromycin 500 mg bid	80%-90%	7-14 days	7 days vs 14 days had similar eradication
PPI bid + clarithromycin 500 mg bid + metronidazole 500 mg bid	80%-90%	7-14 days	Useful for penicillin allergy
2 tablets of 262 mg bismuth subsalicylate, metronidazole 500 mg, and 2 g amoxicillin suspension, all taken 4 times over the course of the day, along with 60 mg lansoprazole taken once	95%	1 day	1 day regimen - only studied in a single clinical trial POEM 60264
PPI plus 1 g amoxicillin for 5 days followed by PPI, clarithromycin 500 mg and tinidazole 500 mg for 5 days (all given bid)	93.4%	10 days	Sequential therapy has good evidence of efficacy Ann Intern Med 2008; 148: 923-931
Bismuth (Pepto-Bismol) 2 tablets daily, metronidazole 250 mg daily, tetracycline 500 mg daily (if intolerant allergic may substitute amoxicillin 1 g bid) plus either H2 blocker or PPI daily	75%-85%	14 days	NIH Conventional Triple Therapy: Inexpensive, but more complicated. Useful for failed triple therapy and penicillin allergy.

NOTE: The recommended duration of PPI therapy is 8 weeks for gastric ulcer and 4 weeks for duodenal ulcer. PPI denotes proton pump inhibitor; bid, twice daily.

FD treatment

- Dietary changes—no data to support
  - Though reasonable to recommend avoiding triggering foods, weight loss if obese
- H2Blockers and PPIs are effective
  - Double dosing *not* superior to standard dosing
  - PPIs *not* superior to H2Bs
- Tricyclic antidepressants effective, if comorbid anxiety or depression (NNT=3)
- Other non-pharm options w/ limited but supportive data
  - CBT small benefit, but short duration
  - Acupuncture superior to sham-acupuncture in one RCT
  - Hypnotherapy

Upper GI syndrome algorithm

Celiac disease

Celiac Disease

- What is it?
  - Genetically-based, immune-mediated response to gluten causing small bowel malabsorption
  - HLA types DQ2 & DQ8
- Prevalence 0.8-1% U.S. population
  - Similar rates worldwide, with exception of East Asia and sub-Saharan Africa
  - Blacks, Asians & nonwhite Hispanics rates about ½ of Whites

Celiac: History & Physical

Symptoms

- bloating, flatulence, chronic diarrhea &/or constipation, abdominal pain
- classic GI sx→ 2.3 fold increase in dx vs general pop

Exam

- skin manifestation: dermatitis herpetiformis
- possible weight loss
- limited benefit

Dermatitis Herpetiformis

Celiac: Value of symptoms

Signs & Symptoms	Sensitivity	Specificity	LR+	LR-
Sx since childhood	35	89	3.2	0.7
Flatulence/gas	76	43	1.3	0.6
Loss of appetite	20	81	1.1	1.0
Diarrhea	71	21	0.9	1.4

Am J Gastro 995; 90:394
LOE 4

Celiac: Diagnostic Tests

- IgA anti-tissue transglutaminase
- IgA anti-endomysial antibody
  - Lack of gluten exposure→false negative testing
  - IgA deficiency→false negative
- No longer used anti-gliadin
- Definitive dx = resolution of sx on gluten free diet
- Gold Standard= biopsy (small bowel or skin if DH)

Celiac: Test accuracy

Test	Sensitivity	Specificity	LR+	LR-
Endomysial antibody	87	99	87	0.1
Tissue Transglutiaminase antibody (tTG)	87	97	29	0.1
Gliadin peptide antibody IgG	88	94	15	0.1

JAMA 2010; 303:1743
LOE 1a

Celiac: Treatment

Eating gluten-free

NO to the big 3

1. Wheat
   - Breads, cereals, pasta, sauces, salad dressings
2. Barley
   - Malt, food coloring, **BEER!**
3. Rye

- Triticale

Yes to

- Fruits, vegies, meats, dairy, legumes & nuts
- Grains:
  - Rice, corn, potato
  - **Oats!**
  - Quinoa, millet, teff
  - Flax, chia, buckwheat

Celiac Foundation: http://celiac.org/

Celiac: Special Considerations

- Dermatological Manifestation
  - Dermatitis herpetiformis
- Nutriti
  - anem
  - folate
  - Vit D
- Risk of certain cancers increased
  - adenocarcinoma of small intestines, non-Hodgkins lymphoma
- Some association with
  - Infertility, other autoimmune disorders, liver disease

Most of these improve/ resolve with adherence to gluten-free diet

Celiac: bottomline

- H&P not helpful enough to make dx—though useful to consider in patients with chronic lower GI complaints
- Blood tests required:
  - tTransglutaminase Ab (anti-tTG) &/or Endomysial Ab (anti-EM)
  - Test while consuming gluten; consider IgA at time of testing
-
- If +, gluten free diet, for life
- Likely scope w/ bx not necessary
  - Reserve for those with
    - No or incomplete response to treatment
    - Red flag s/sx

Lactose Intolerance

Lactose Intolerance

- What is it?
  - Syndrome of GI sx following the ingestion of lactose
  - Severity will depend of amt of lactose consumed, level of lactase deficiency
  - Cause: lactase deficiency, primary vs secondary (acquired); genetic LI (rare), developmental LI
- Prevalence
  - Primary lactase deficiency: 70-75% world pop
    - in N America: Native Americans 79%; Blacks 75%; Hispanics 51%; Whites 21%
  - *Self reported* LI ~12%
    - ~10% prevalence in one Ohio State study

Am J Clin Nutr 1988; 48:1079
Nutrition Today, 10/2009

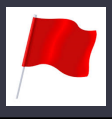
Lactose info vs Milk Allergy

Lactose info	Milk Allergy
• Enzyme deficiency limiting absorbtion of mild sugars	• IgE mediated response to milk proteins
• GI sx only	• Can cause GI sx, but also systemic sx like hives or wheezing
• More often begins in adolescence/young adulthood	• More often in infants, can outgrow

LI: history & physical

Symptoms
- Abd pain, bloating, diarrhea, borborygmi, nausea
- Onset w/in 3 hr of consuming lactose-containing products

Exam
- Nonspecific
- Usually not helpful



Red Flags: bloody diarrhea, wt loss, fever, loss of appetite, signs of obstruction or perforation

LI: Accuracy of history

	Sensitivity	Specificity	LR+	LR-
Diarrhea	39%	90%	3.90	0.680
Borborygmi	65%	75%	2.60	0.470
Bloating	70%	69%	2.30	0.430
Abdominal pain	55%	72%	2.00	0.630
Nausea	41%	71%	1.40	0.830

Aliment Pharmacol Ther 2008; 27: 659

LI: diagnostic tests

- Hydrogen breath test
  - Fasting pt consumes lactose load; serially measure H2 excretion over 3 hr
  - Noninvasive, cost ~$125
- Lactose tolerance test
  - Measure serial blood glucose following lactose load
- Fecal pH
  - Decreases b/c formation of fatty acids r/t CHO malabsorption
  - Not used b/c high rates false positives and negatives
- Duodenal biopsy, measure lactase levels
- LCT gene
  - CC genotype 100% correlation with +breath test; CT intermediate, and TT = lactase persistent

LI: diagnostic tests

	Sensitivity	Specificity	LR+	LR-
Breath test*	88%	85%	5.9	0.14
Lactose tolerance test*	94%	90%	9.4	0.67
Genetic test**	89%	96%	22	0.1

*Aliment Pharmacol Ther 2012; 35:429; LOE 1
**Aliment Pharmacol Ther 2008; 27: 265; LOE 4

LI: Treatment

- Lactose-free or reduced diet
  - Variable quantities of lactose tolerated; typically 1 cup milk OK
  - Beware 'hidden' sources of lactose
    - Powdered sauces, cheese flavored salty snacks
    - Some medications!
- Addition of lactase
  - Lactaid tablets
  - Lactase drops
- Addition of probiotics not effective
  - Though some people with LI tolerate yogurt, kefir

Ann Intern Med 2010; 152(12):797-803. LOE 3a

Lactose intolerance: bottomline

- Suspect LI if abd pain, diarrhea, gas, bloating following lactose consumption
- Diagnosis can often be made clinically
  - Food & symptom diary
  - Elimination diet→resolution of sx
  - If questionable, breath test suffices for dx
- Treatment is lactose reduced/free diet
  - Remember dairy does not equate w/ lactose

Irritable Bowel Syndrome

IBS

- What is it?
  - Disorder that causes abdominal pain and change in stooling pattern; "functional" vs structural
  - No clear etiology; generally dx of ruling out other causes
    - Manning Criteria 1995—empirical assessment of sx clusters
- Prevalence in US 10-15%
  - Female:Male 2:1; White:Black 1:1
  - NCHA 2013 2.8%

IBS: symptoms→ diagnosis

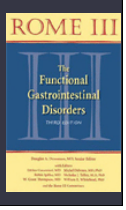
	Sensitivity	Specificity	LR+	LR-
Looser stools at onset of pain	58	73	2.1	0.6
More frequent stools at onset of pain	53	72	1.9	0.7
Pain relieved by defecations	60	66	1.8	0.6
Visible abd distension	39	77	1.7	0.8
Feeling incomplete evacuation	74	45	1.4	0.6
3 or 4 Manning Criteria	63	85	4.2	0.4

BMJ 1978; 2:653
LOE 4

Diagnostic criteria

Rome III, 2006

- Recurrent abd pain &/or discomfort at least 3d/ month x 3 months with 2 or more of the following:
  - Improvement with defecation
  - Onset assoc w/ change in frequency of stool
  - Onset assoc w/ change in form of stool
- Two flavors:
  - Constipation dominant
  - Diarrhea dominant



IBS: history & physical

Symptoms: Rome III
- Incr sx w/ stress & anxiety
  - 2/3 IBS pts have concomitant psych dx

Exam
- NORMAL!
  - Possibly mild tenderness
  - Guaiac neg

- Weight loss
- Dysphagia
- h/o malignancy
- Age>50 at sx onset
- Bleeding
- Guarding/rebound
- Anemia

IBS: diagnostic tests

- Diagnosis of exclusion: ruling out, not ruling in

Bowel sx→organic dx (NOT IBS!)

	Sensitivity	Specificity	LR+	LR-
CRP	50	81	2.6	0.6
ESR>10	58	72	2.1	0.6

Gastroenterology 2002; 123:450
LOE 2b

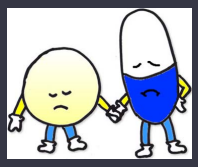
IBS referral?

- Acceptable to make diagnosis clinically
  - Need not refer all students to GI for colonoscopy to formally dx IBS
  - College students LOW risk population for organic conditions
    - Prevalence of inflammatory bowel disease in 26y/o's 0.33%*
      - Crohns 21/10^5 + Ulcerative colitis 12/10^5
    - Malignancy rates even lower

BMJ 1998; 316:1058
LOE 2

IBS treatments: Prescriptions

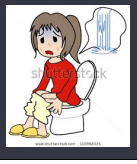
- Antidepressants
  - TCAs & SSRIs: pain improvement
  - NNT = 5



- Anti-spasmotics
  - Dicyclomine (Bentyl) & Hyoscyamine (Levsin)
  - NNT = 5

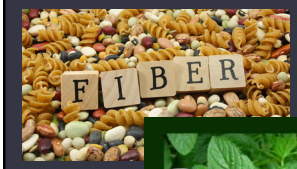
Treatment for IBS flavors

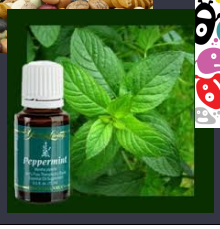
IBS-D
- Alosetron (Iotronex)
  - 5-HT3 receptor antagonist; strict Rx regs, reserved for those who fail tx



IBS-C
- Tegaserod (zelnorm)
  - 5-HT4 receptor agonist
  - Modest benefit but pulled from market 2007 b/c CV adv effects; available via restricted use only

Quiz time: which supplement works best?





And the winner is…

	# studies	#patients	RR	NNT
Fiber**	12	591	0.87	11
Antispasmodics**	22	1778	0.68	5
Probiotics*	10	918	0.71	4
Peppermint oil**	4	392	0.43	**2.5**

Rx: 2 tabs twice a day!

*Gut 2010; 59: 325
**BMJ 2008; 337:a2313

IBS: Nonpharm/supplemental tx

- CBT--Small benefit noted in summary studies
- Exercise-- single RCT demo's benefit
- Accupuncture, Hypnotherapy--inconclusive
- Chinese medicine— slt benefit but poor quality studies