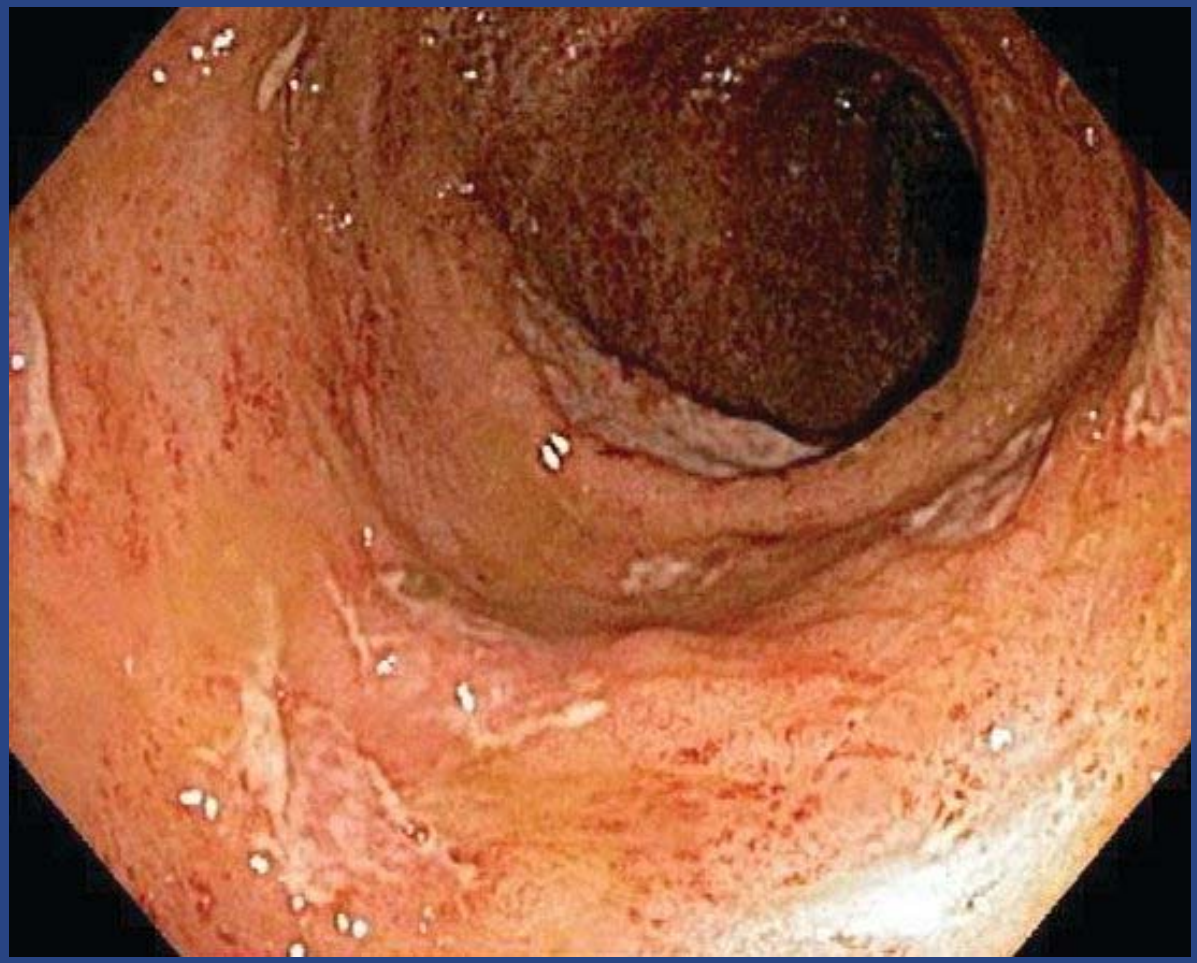
15.



GI/Hepatology Test Review 2015

Brenda Shinar, MD

Question 1.

- B; Empiric treatment with antibiotics

Diagnose and treat small intestinal bacterial overgrowth (SIBO)

Disorders associated with bacterial overgrowth
Small intestinal stasis
Anatomic abnormalities
Small intestinal diverticulosis
Surgically created blind loops (end-to-side anastomosis)
Strictures (Crohn's disease, radiation, surgery)
Abnormal small intestinal motility
Diabetes mellitus
Scleroderma
Idiopathic intestinal pseudoobstruction
Radiation enteritis
Crohn's disease

Symptoms of SIBO:

- Bloating, flatulance
- Abdominal pain
- Watery diarrhea
- Dyspepsia
- Weight loss
- Macrocytic anemia due to B12 malabsorption

Diagnosis:

- Jejunal aspirate (gold standard)
- 14-C d-xylose breath test
- Hydrogen breath test

Treatment 7-10 days:

Augmentin or Flagyl + Bactrim

Question 2.

- D. No treatment at this time

Manage Hep B virus infection in a patient in the immune-tolerant phase

TABLE 4.

Interpretation of HBV Immunologic Markers

Markers			
*HBsAg**	*HBcAb†*	*HBsAb‡*	*Interpretation*
–	–	–	Susceptible to HBV infection (should be vaccinated)
–	–	+	Immune because of vaccination
–	+	+	Immune because of natural HBV infection
+	+	–	Acute or chronic HBV infection
–	+	–	Interpretation unclear; four possibilities: 1. Resolved HBV infection (most common) 2. False-positive HBcAb, thus susceptible 3. "Low-level" chronic HBV infection 4. Resolving acute HBV infection

HBcAb = hepatitis B core antibody; HBsAb = hepatitis B surface antibody; HBsAg = hepatitis B surface antigen; HBV = hepatitis B virus; + = positive test result; – = negative test result.

*— The presence of HBsAg indicates that the person is infectious.

†—*HBcAb appears at the onset of acute HBV infection. Presence may also indicate chronic HBV infection or a false-positive test.*

‡—*The presence of HBsAb indicates recovery and immunity from HBV infection or successful immunization against HBV.*

TABLE 5.

Phases of Chronic HBV Infection

	Tests				Histology		
Phase	Alanine transaminase level	Hepatitis B e antigen	Hepatitis B e antibody	HBV DNA (IU per mL)	Inflammation	Fibrosis	Treatment
Active	Elevated	+/–	+/–	> 20,000	Active	Variable	Indicated
Inactive	Normal	–	+	< 20,000	None	Minimal	Not indicated
Gray zone	Elevated or normal	+/–	+/–	Variable	Variable	Variable	May or may not be indicated
Immune tolerant	Normal	+	–	> 20,000	Minimal	Minimal	Not indicated

HBV = hepatitis B virus; + = detectable; – = undetectable; +/– = may or may not be detectable.

Information from reference 22.

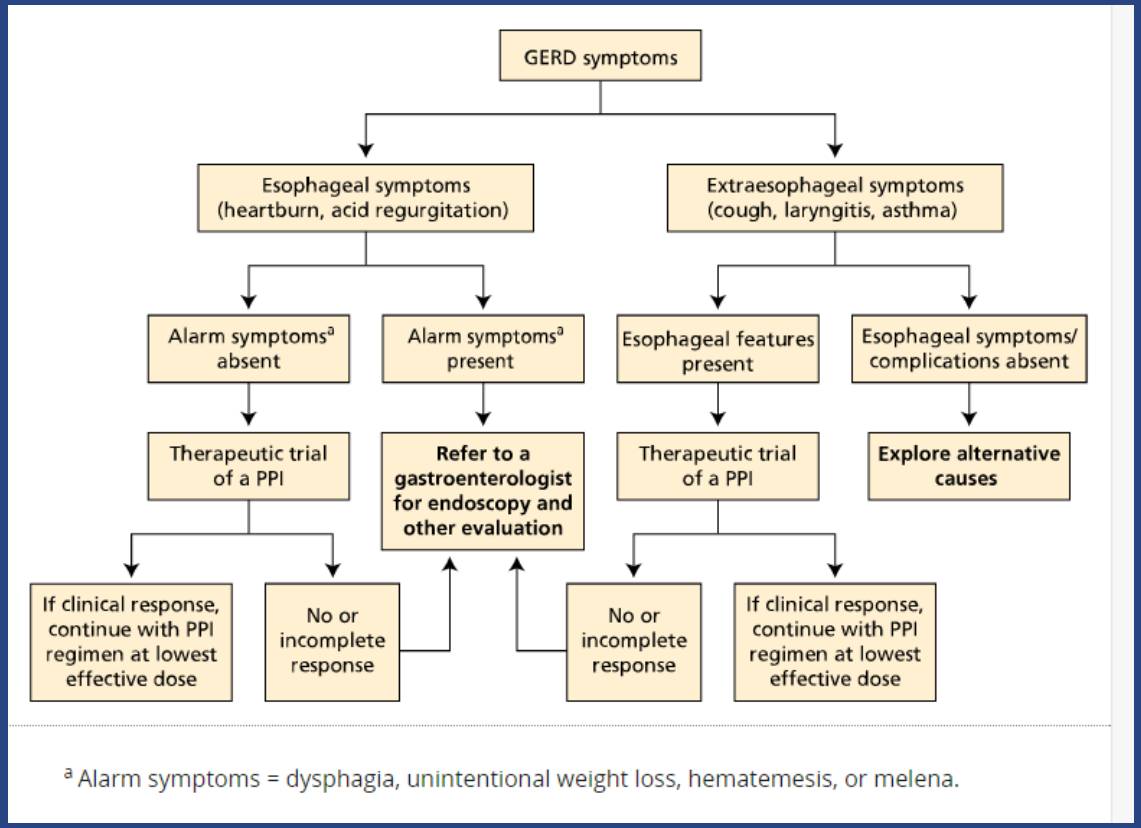
IMMUNE TOLERANT PHASE

During the immune tolerant phase of chronic HBV infection, HBeAg is positive, HBV DNA levels are high (greater than 20,000 IU per mL), and ALT levels are normal.[18,22] In this phase, there is minimal inflammation or fibrosis, and treatment is not indicated. Because there is a direct relationship between HBV DNA levels and the risk of hepatocellular carcinoma, patients in this phase should be monitored every six months with ultrasonography and serum α-fetoprotein levels.[2,23] Patients should also be monitored every six to 12 months for reactivation.[6] Patients who convert to the active phase should be treated.

Question 3.

- C; Trial of a proton pump inhibitor

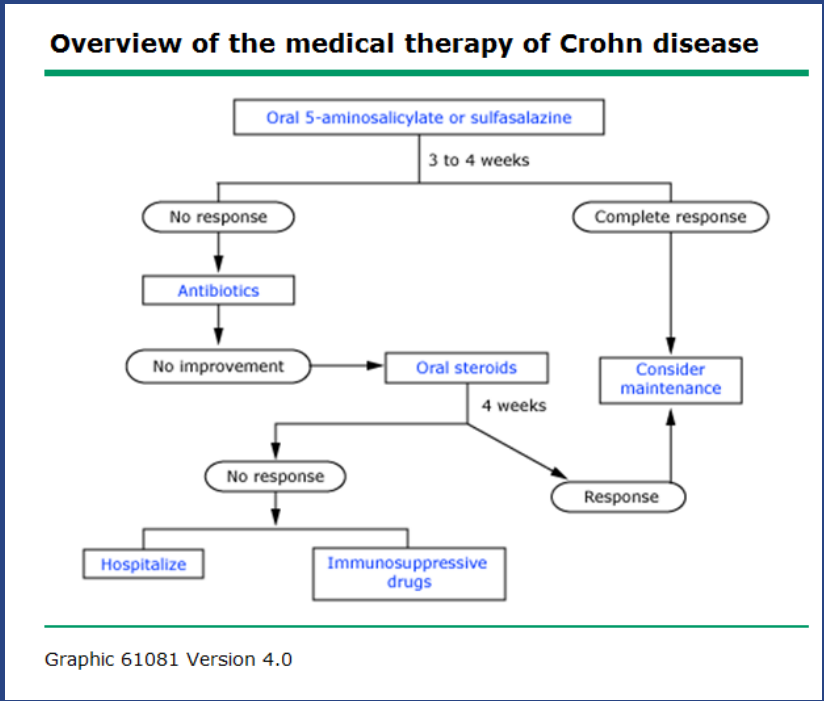
Manage gastroesophageal reflux disease with an empiric trial of a proton pump inhibitor



Question 4.

- A; Certolizumab

Treat Crohn disease in a pregnant patient



SEVERITY SCORING FOR CROHN DISEASE:

- Crohn Disease Activity Index (CDAI)

0-149 points:	Asymptomatic remission
150-220 points:	Mildly to moderately active Crohn's disease
221-450 points:	Moderately to severely active Crohn's disease
451-1100 points:	Severely active to fulminant disease

UNSAFE DRUGS FOR CROHN DISEASE IN PREGNANCY:

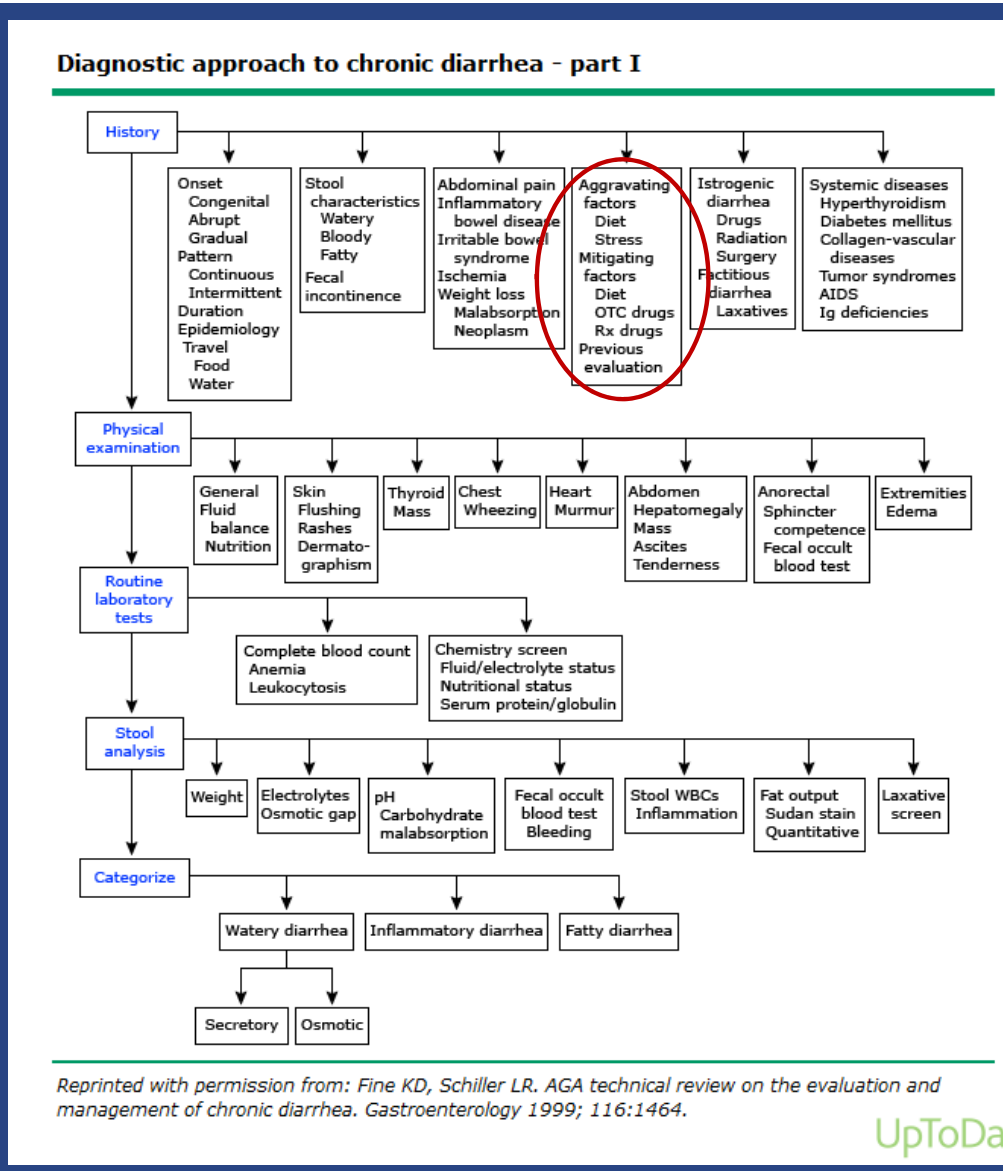
- Methotrexate
- Ciprofloxacin

SAFE DRUGS FOR CROHN DISEASE IN PREGNANCY:

- 5-amino salicylates
- Prednisone
- Biologic agents (certolizumab, infliximab)

Question 5.

- C; Discontinue sugar-free sweeteners



Reprinted with permission from: Fine KD, Schiller LR. AGA technical review on the evaluation and management of chronic diarrhea. Gastroenterology 1999; 116:1464.

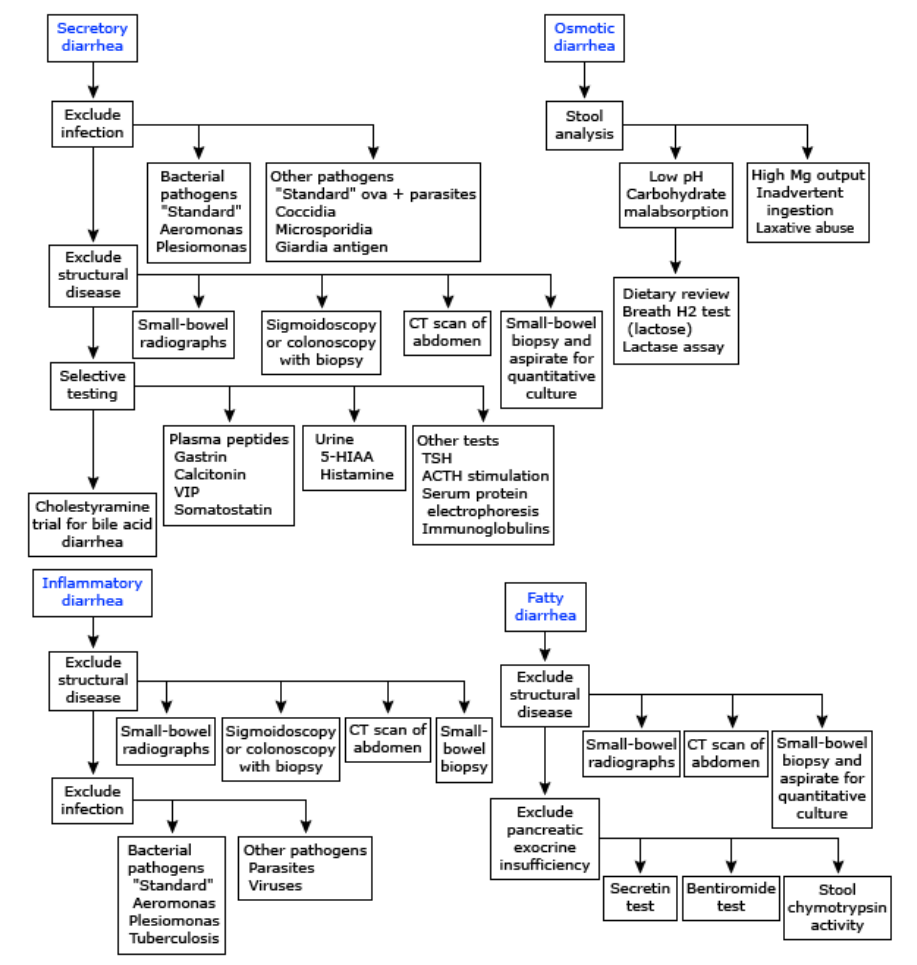
UpToDate®

Sugar-free alcohols:

- sorbitol
- xylitol
- mannitol
- isomalt
- maltitol

Side effects:

- gas, bloating
- cramping
- Diarrhea (osmotic)



Osmotic: (watery)

- No diarrhea when fasting
- 290 - 2 (stool Na + K) = gap
- Stool osm gap > 125 = osmotic
-

Secretory: (watery)

- Large volume, persists when fasting
- 290- 2 (stool Na+K) = gap < 50 = secretory

Inflammatory: (white cells, blood)

- Fecal calprotectin (93% sensitive, 96% specific in adults
- Fecal WBC
- Sed rate/ CRP

Fatty:

- Greasy, oily stool
- Quantitative fecal fat

Question 6.

- B; 3 years

Provide colonoscopy surveillance following a diagnosis of a serrated polyp

United States Multi-Society Task Force on Colorectal Cancer recommendations for surveillance and screening intervals in individuals with baseline average risk

Baseline colonoscopy: most advanced finding(s)	Recommended surveillance interval (years)	Quality of evidence supporting the recommendation	New evidence stronger than 2006
No polyps	10	Moderate	Yes
Small (<10 mm) hyperplastic polyps in rectum or sigmoid	10	Moderate	No
1 to 2 small (<10 mm) tubular adenomas	5 to 10	Moderate	Yes
3 to 10 tubular adenomas	3	Moderate	Yes
>10 adenomas	<3	Moderate	No
One or more tubular adenomas ≥10 mm	3	High	Yes
One or more villous adenomas	3	Moderate	Yes
Adenoma with HGD	3	Moderate	No
Serrated lesions			
Sessile serrated polyp(s) <10 mm with no dysplasia	5	Low	NA
Sessile serrated polyp(s) ≥10 mm **OR** Sessile serrated polyp with dysplasia **OR** Traditional serrated adenoma	3	Low	NA
Serrated polyposis syndrome*	1	Moderate	NA

The recommendations assume that the baseline colonoscopy was complete and adequate and that all visible polyps were completely removed.
HGD: high-grade dysplasia; NA: not applicable.
* Based on the World Health Organization definition of serrated polyposis syndrome, with one of the following criteria: (1) at least five serrated polyps proximal to sigmoid, with two or more ≥10 mm; (2) any serrated polyps proximal to sigmoid with family history of serrated polyposis syndrome; and (3) >20 serrated polyps of any size throughout the colon.
Reproduced from: Lieberman DA, Rex DK, Winawer SJ, et al. Guidelines for colonoscopy surveillance after screening and polypectomy: A consensus update by the US Multi-Society Task Force on Colorectal Cancer. Gastroenterology 2012; 143:844. Table used with the permission of Elsevier Inc. All rights reserved.

Question 7.

- B; Celecoxib and omeprazole

Treat a patient at risk for NSAID-induced GI toxicity with a PPI and a COX-2 inhibitor

Patients at increased risk for NSAID gastrointestinal toxicity
High risk
1. History of a previously complicated ulcer, especially recent
2. Multiple (>2) risk factors
Moderate risk (one to two risk factors)
1. Age >65 years
2. High-dose NSAID therapy
3. A previous history of uncomplicated ulcer
4. Concurrent use of aspirin (including low-dose), glucocorticoids, or anticoagulants
Low risk
1. No risk factors

Patients with ONE or MORE of the MODERATE risk factors should be given PPI therapy for PRIMARY prevention of gastrointestinal toxicity to NSAIDS!

COMBINED USE OF COX-2 INHIBITORS AND PPIs — In patients considered to be at exceptionally high risk for peptic ulcer disease, combining a selective COX-2 inhibitor with a proton pump inhibitor (PPI) may confer added protection against gastrointestinal (GI) toxicity. A randomized controlled trial of *Helicobacter pylori*-negative patients who had been hospitalized for upper GI bleeding associated with nonselective nonsteroidal anti-inflammatory drugs (NSAID) use found that after 13 months none of the patients on celecoxib in combination with a PPI had recurrent bleeding compared with 9 percent of patients on celecoxib and placebo [24].

Question 8.

- D; Initiate omeprazole

Manage short-bowel syndrome with acid suppression therapy

Likelihood or resuming an oral diet

- Amount of bowel remaining
- Type of bowel remaining
- Presence of a colon and ileocecal valve
- Intestinal adaptation

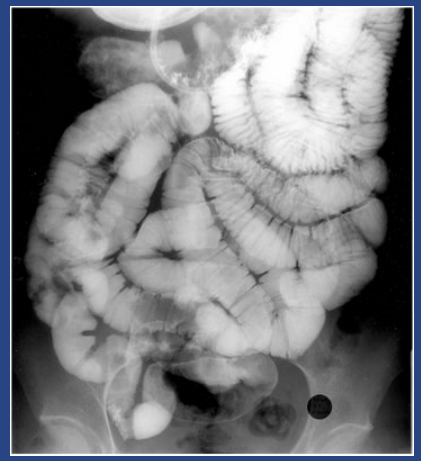
Citrulline concentration

- < 20 micromol/Liter predicts permanent intestinal failure
- 95% PPV, 86% NPV

Treatment of short bowel syndrome

- PPI or H2 blocker for gastric acid suppression (oversecretors)

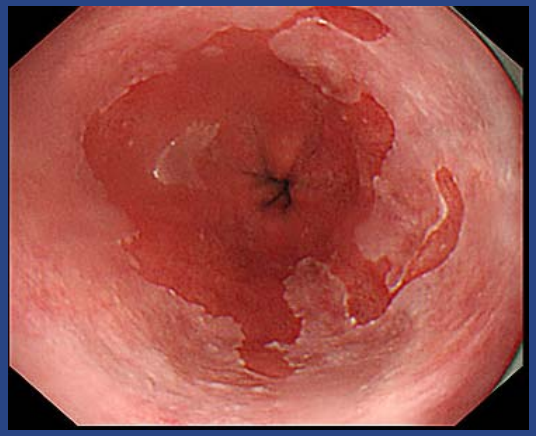
- Replacement of stomal/fecal fluid losses
- Electrolyte replacement
- Loperamide
- Thickeners

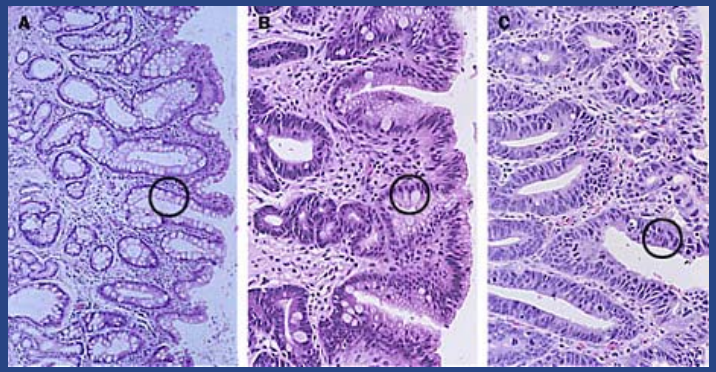


Question 9.

- A; Endoscopic ablation

Manage high-grade dysplasia in a patient with Barrett esophagus





American Gastrointestinal Association Guidelines 2011 for Management of High-Grade Barrett's dysplasia is to undergo Endoscopic Ablation:

- Radiofrequency ablation
- Photodynamic Therapy
- Endoscopic mucosal resection

NOT

- ***Esophagectomy!***

- HIGH grade Barrett's without definitive treatment requires repeat surveillance in 3 months!

Question 10.

- C; Endoscopic retrograde cholangiopancreatography (ERCP)

Manage acute cholangitis

Clinical Syndrome:

- Fever
- Abdominal Pain
- Jaundice
- Hypotension
- Altered mental status

Diagnosis:

- Suspected: fever/rigors, labs consistent with inflammation, AND jaundice OR abnormal LFTs
- Definite: Suspected PLUS biliary dilation on imaging, or stone/stent/stricture

Treatment:

- Obtain blood cultures
- Empiric antibiotics (E. coli, Klebsiella, Enterococcus, Anaerobes)
- ERCP within 24 hours
- MRCP if unsure or EUS if cannot perform MRCP

TABLE 2. A proposed strategy to assign risk of choledocholithiasis in patients with symptomatic cholelithiasis based on clinical predictors

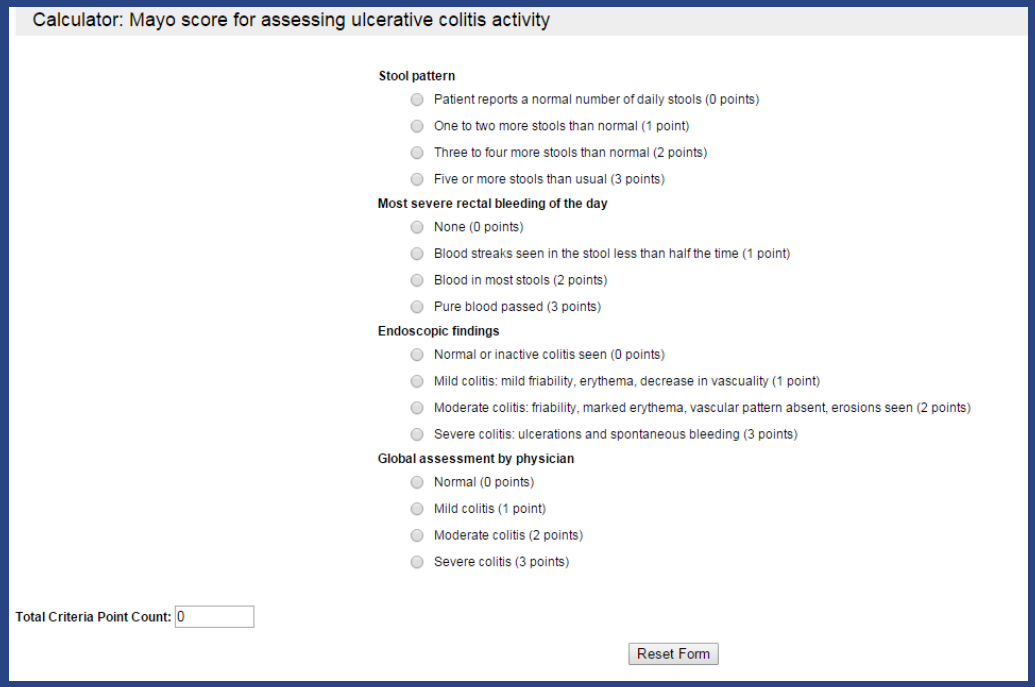
Predictors of choledocholithiasis[13,14,29,31,32]	
Very strong	
CBD stone on transabdominal US	
Clinical ascending cholangitis	
Bilirubin >4 mg/dL	
Strong	
Dilated CBD on US (>6 mm with gallbladder in situ)	
Bilirubin level 1.8-4 mg/dL	
Moderate	
Abnormal liver biochemical test other than bilirubin	
Age older than 55 y	
Clinical gallstone pancreatitis	
Assigning a likelihood of choledocholithiasis based on clinical predictors[12-14,28,29,31,32]	
Presence of any very strong predictor	High
Presence of both strong predictors	High
No predictors present	Low
All other patients	Intermediate

CBD, Common bile duct.

Question 11.

- B; Infliximab

Treat ulcerative colitis with the appropriate maintenance therapy


Calculator: Mayo score for assessing ulcerative colitis activity

Stool pattern
- Patient reports a normal number of daily stools (0 points)
- One to two more stools than normal (1 point)
- Three to four more stools than normal (2 points)
- Five or more stools than usual (3 points)

Most severe rectal bleeding of the day
- None (0 points)
- Blood streaks seen in the stool less than half the time (1 point)
- Blood in most stools (2 points)
- Pure blood passed (3 points)

Endoscopic findings
- Normal or inactive colitis seen (0 points)
- Mild colitis: mild friability, erythema, decrease in vascuality (1 point)
- Moderate colitis: friability, marked erythema, vascular pattern absent, erosions seen (2 points)
- Severe colitis: ulcerations and spontaneous bleeding (3 points)

Global assessment by physician
- Normal (0 points)
- Mild colitis (1 point)
- Moderate colitis (2 points)
- Severe colitis (3 points)

Total Criteria Point Count: 0

Reset Form

<u>Induce Remission (Mild to Moderate Dz):</u>
- 5-ASA topical or systemic or both
- Topical steroids
- Prednisone for patients who fail the above therapies to induce remission;

<u>Steroid Dependent/ Steroid Refractory</u>
- Prednisone 40-60 mg q day until improvement, then taper 5-10 mg q week until 20 mg q day
- 3x risk of infection on steroids, bone disease, cataracts, hyperglycemia, etc

<u>Maintain Remission:</u>
- **<u>TPMT deficiency: CANNOT use azathioprine or 6-MP ; neutropenia</u>**

Question 12.

- B; Liver transplant evaluation

Manage hepatocellular carcinoma in a patient who meets the Milan criteria

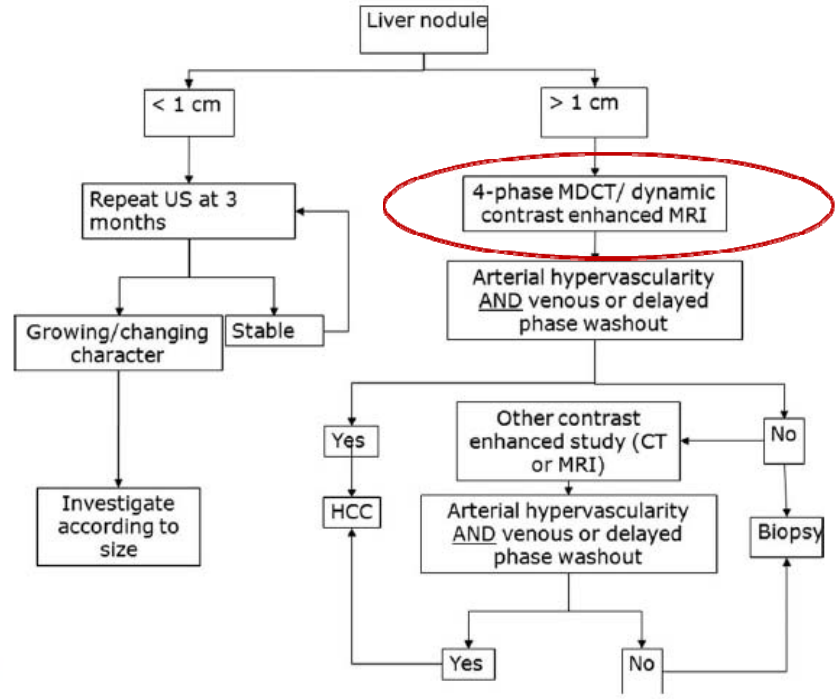


Fig. 1. Diagnostic algorithm for suspected HCC. CT, computed tomography; MDCT, multidetector CT; MRI, magnetic resonance imaging; US, ultrasound.

Criteria For Liver Transplant for HCC

- Single Lesion ≤ 5 cm
- Up to 3 lesions, none larger than 3 cm
- No vascular invasion
- No regional node or extrahepatic distant metastases

- 5 year survival with transplant 75% or higher

Question 13.

- E; Repeat upper endoscopy

Diagnose the cause of obscure gastrointestinal bleeding with repeat upper endoscopy

Causes of obscure GI blood loss:

Upper source 29-56%

Lower source 20-30%

Synchronous source 1-17%

No source found 29-52%

Age < 40

Small bowel tumors, celiac dz, Crohn

Age > 40

Vascular ectasia, NSAID induced, celiac

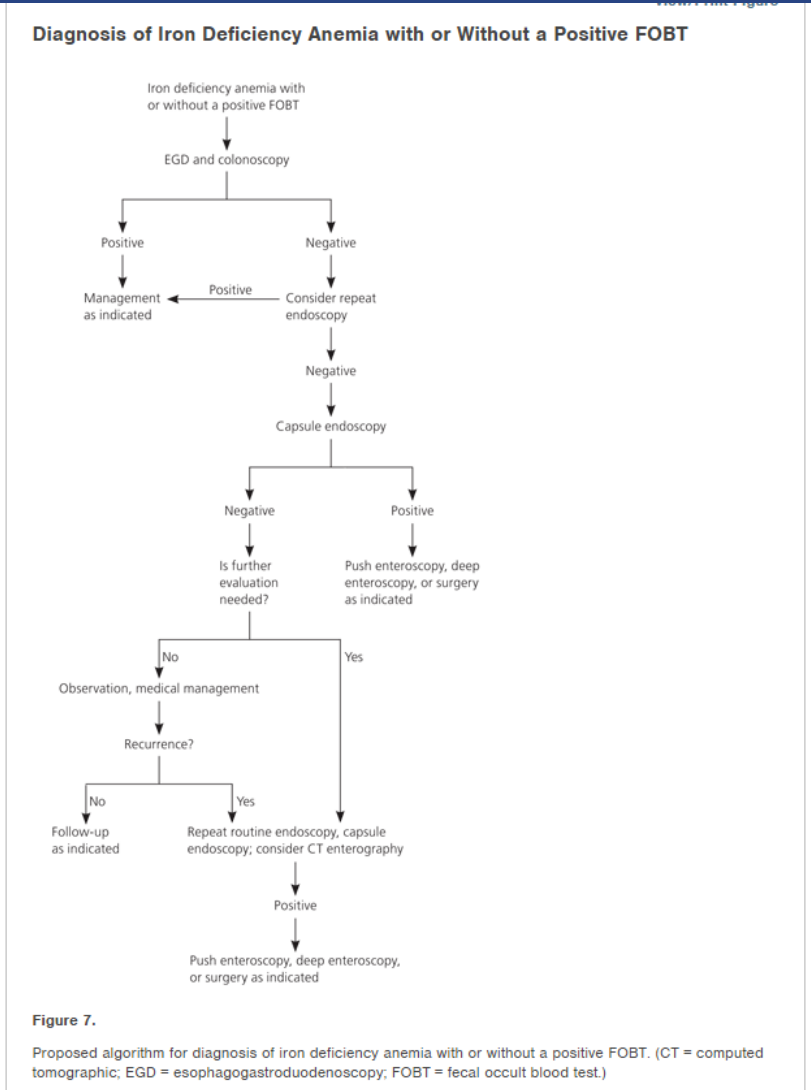


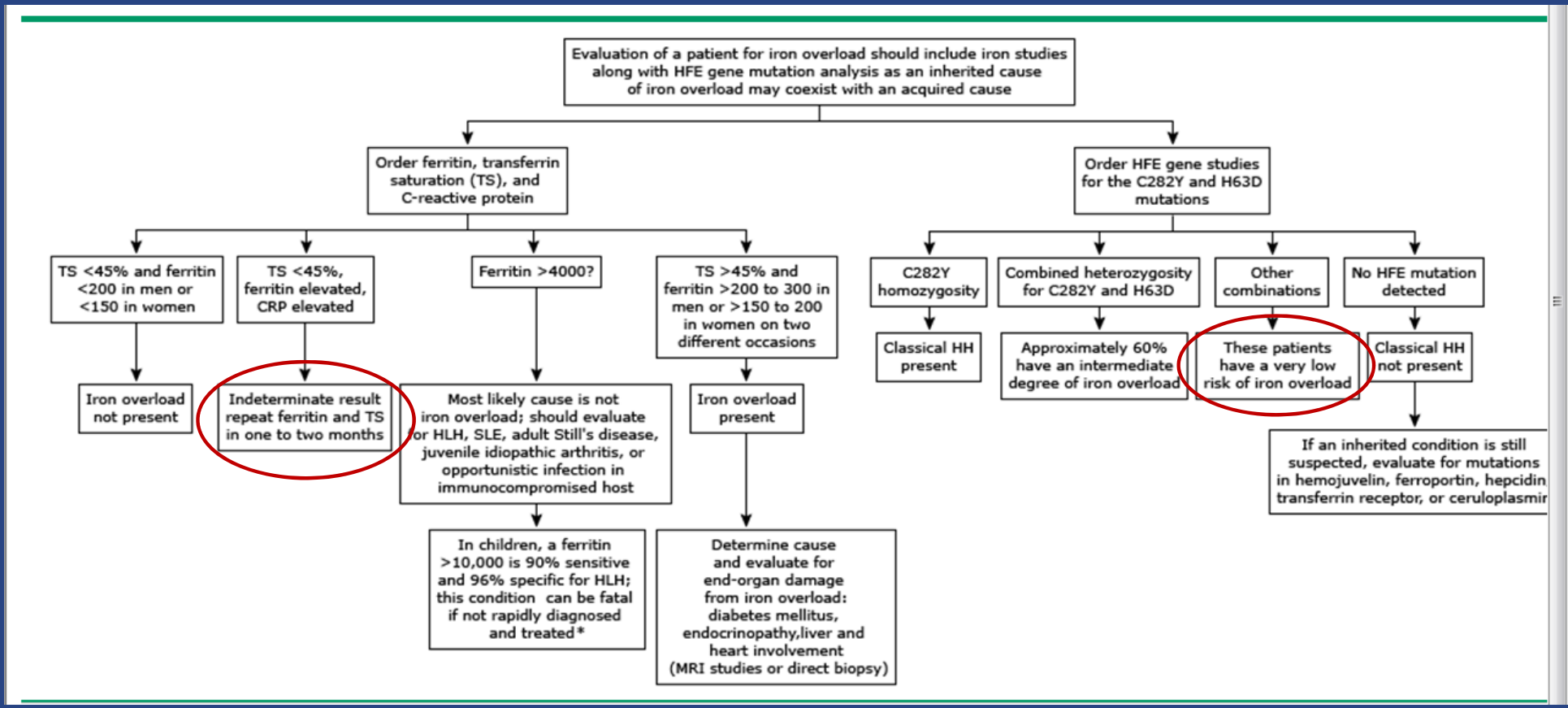
Figure 7.

Proposed algorithm for diagnosis of iron deficiency anemia with or without a positive FOBT. (CT = computed tomographic; EGD = esophagogastroduodenoscopy; FOBT = fecal occult blood test.)

Question 14.

- D; Stop alcohol intake

Evaluation of a patient for iron overload



Primary and Secondary Causes of Iron Overload

Hereditary hemochromatosis
HH: HFE related
C282Y homozygosity
C282Y/H63D compound heterozygosity
Other mutations of HFE
HH: non-HFE related; other gene mutations
Juvenile hemochromatosis (mutations of hemojuvelin or hepcidin)
Ferroportin mutations
Transferrin receptor 2 mutation (rare)
Secondary iron overload
Iron-loading anemias with or without multiple transfusions
Thalassemia major and thalassemia intermedia
Sideroblastic anemia
Chronic hemolytic anemias (eg, sickle cell disease)
Aplastic anemia
Myelodysplastic syndromes
Dietary iron overload
Chronic liver diseases
Hepatitis C and B
Alcohol-induced liver disease
Porphyria cutanea tarda
Fatty liver disease
Miscellaneous causes of iron overload
African iron overload
Neonatal iron overload
Aceruloplasminemia

HH: hereditary hemochromatosis.

Question 15.

- B; Crohn colitis

Diagnose Crohn Colitis

- Diagnosis of Crohn disease
  - 80% involve small bowel
  - Transmural inflammation
    - 5-ASA tx ineffective
  - Skip lesions, rectal sparing
  - Mouth to anus

- Assess severity clinically and endoscopically
  - Crohn Disease Activity Index (CDAI))

- Initiate treatment
  - Step up vs. Top down

1. General well-being (0 = very well, 1 = slightly below average, 2 = poor, 3 = very poor, 4 = terrible)
2. Abdominal pain (0 = none, 1 = mild, 2 = moderate, 3 = severe)
3. Number of liquid stools per day
4. Abdominal mass (0 = none, 1 = dubious, 2 = definite, 3 = tender)
5. Complications (1 point for each)
- Arthralgia
- Uveitis
- Erythema Nodosum
- Aphthous Ulcers
- Pyoderma Gangrenosum
- Anal Fissure
- New Fistula
- Abscess

Scoring
<5 Remission
5-7 Mild Disease
8-16 Moderate Disease
>16 Severe Disease

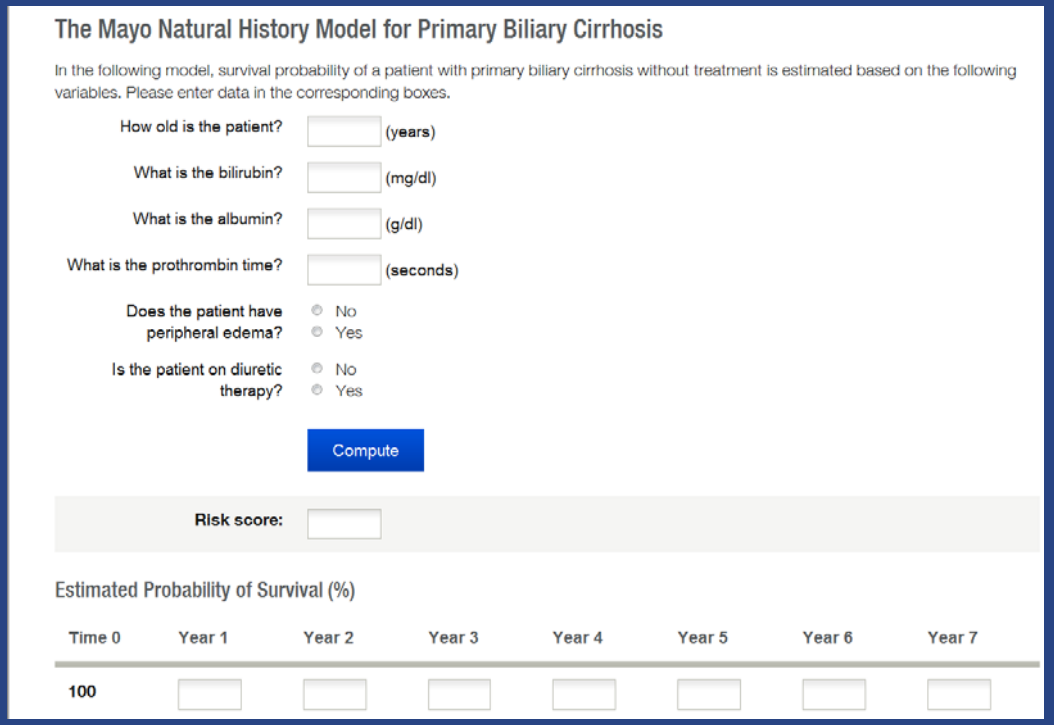
- ANTI-TNF THERAPY WITH OR WITHOUT 6-MP OR AZATHIOPRINE RESULTED IN HIGHEST REMISSION RATES (SONIC trial; NEJM September,2010)

Question 16.

- C; Primary biliary cirrhosis

Diagnose Primary Biliary Cirrhosis

- Signs and Symptoms:
  - Fatigue
  - Pruritis
  - Xanthomas/Xanthelasma
  - Other autoimmune diseases
  - Isolated elevated alkaline phosphatase
- Diagnosis:
  - No extrahepatic biliary dilatation
  - PLUS 2 of the following:
  - Alkaline phosphatase ≥ 1.5 ULN
  - Anti-mitochondrial antibody ≥ 1:40
  - Liver biopsy consistent with destruction of biliary caniculi
- Treatment:
  - Ursodeoxycholic acid



The Mayo Natural History Model for Primary Biliary Cirrhosis

In the following model, survival probability of a patient with primary biliary cirrhosis without treatment is estimated based on the following variables. Please enter data in the corresponding boxes.

How old is the patient? (years)

What is the bilirubin? (mg/dl)

What is the albumin? (g/dl)

What is the prothrombin time? (seconds)

Does the patient have peripheral edema? No Yes

Is the patient on diuretic therapy? No Yes

Compute

Risk score:

Estimated Probability of Survival (%)

Time 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
100							

Question 17.

- A; Discharge home with close follow up

Manage acute diverticulitis

- Diverticul***osis***:
  - Intrinsic weakness where vessel penetrates the colon wall
  - Simultaneous or excessive haustral contractions
  - Inadequate dietary fiber
  - COMMON in Western populations
  - 40% by age 60 and 60% by age 80

- Diverticul***itis***:

  (fever, LLQ pain, WBC)

  (1 in 5 with diverticul***osis***):
  - Uncomplicated
  - Recurrent uncomplicated
  - Complicated
  - Smoldering

- CT is diagnostic test of choice

- Management decisions:
  - Outpatient or inpatient
  - Antibiotics (gm neg and anaerobes)
  - Bowel rest

- *Following resolution (2-6 weeks later) the entire colon needs endoscopic evaluation to look for mimickers, ie. cancer/polyps

- Preventing future episodes:
  - Surgical resection of diseased segment
  - High fiber diet
  - No association between seeds, nuts, or popcorn consumption

Question 18.

- A; Acute mesenteric ischemia

Diagnose acute mesenteric ischemia

1) Acute arterial mesenteric ischemia

- Pain out of proportion
- Afib, unanticoagulated
- Thromboembolus to SMA
- Known vasculopath
- High mortality: dead bowel

2) Chronic arterial mesenteric ischemia

- Hungry
- Afraid to eat due to pain
- Weight loss
- Known vasculopath

3) Subacute venous-hypertension related mesenteric ischemia

- Unusual hypercoagulable state
- Polycythemia Vera, Paroxysmal Nocturnal Hemoglobinuria (PNH)
- Occlusive portal vein clot propagates to SMV

4) Colonic ischemia

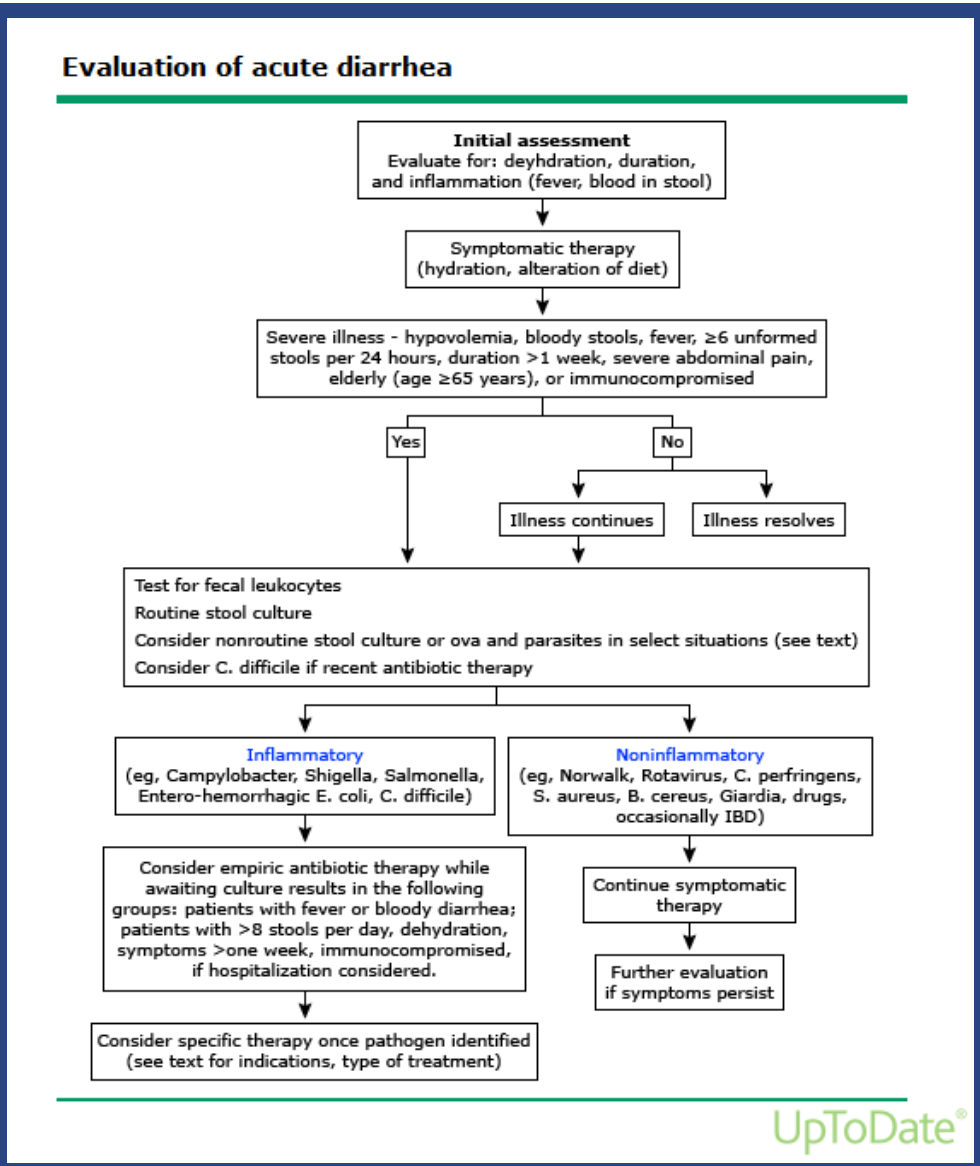
- Elderly
- Hypotension /Dehydration event
- Mucosal ischemia especially watershed areas (splenic flexure and sigmoid)
- Increase perfusion pressure to treat; avoid hypotension
- No need for angiogram

Question 19.

- D; Supportive care

Manage acute diarrhea

- Definition:
  - Acute < 14 days
  - Chronic > 4 weeks
- Osmotic, secretory, inflammatory or malabsorptive
- Most acute cases of diarrhea are self-limited and require no further evaluation
- FEATURES that require additional evaluation:
  - Fever> 38.5 C (101.3 F)
  - Bloody stool
  - Pregnancy
  - Elderly or immunocompromised
  - Hospitalized
  - Food handler
  - Recent antibiotics
  - Volume depleted
  - Severe abdominal pain



Manage acute diarrhea

Stool cultures:

- Immunocompromised, including HIV
- Bloody diarrhea
- Underlying IBD
- Food-handlers

Pregnant patients:

- *Listeria is not found in stool cultures; only blood cultures!*

Question 20.

- D; Ultrasound of liver and spleen

Manage nonalcoholic steatohepatitis

- 30% of adults in US have NAFLD
- 20% of patients with NAFLD have NASH

- Risk factors for progession to cirrhosis:
  - Age > 50 years
  - BMI > 28
  - Serum triglycerides >150
  - ALT > 2x ULN

- Platelets are predictive of progression to cirrhosis
  - <150,000/uL, confirm with ultrasound

- Treatment for all:
  - Weight loss
  - Monitor AST/ALT q 3-6 months
  - Statins are okay

- AASLD Guidelines For *Biopsy Proven* NASH:
  - Diabetics: Pioglitazone 45 mg/day (1B)
  - Non-diabetics: Vitamin E 800 U/ day (1B)