Clinical Pearls
Gastroenterology

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63 year old M PMH of DM, HTN, HLD with recent CVA presents to clinic for hospital follow up. He denies any significant complaints and would like his medications refilled. However on ROS he notes mild difficulty with swallowing. You investigate further and he says that initiation is often difficult with intermittent episodes of nasal regurgitation. He points to his middle cervical neck for the location of where the food feels like it is sticking. He denies any issues with liquids. What is the next best step?

1. **Modified barium swallow**
2. Barium swallow
3. EGD
4. Esophageal manometry
Dysphagia

Determine if Oropharyngeal or Esophageal

- Oropharyngeal History:
  - Suggestive Medical history:
    - Prior CVA, Neuromuscular disorder such as ALS, Parkinson's, MS.
  - Targeted questions at the “-Ations”
    - Initiation
    - Aspiration
    - Nasal Regurgitation
    - Lateralization
  - If any “-Ations” start with modified barium swallow and speech evaluation
Dysphagia

- Esophageal Dysphagia
  - Localized to lower sternum, drink lots of water to try to get down, throw hands in the air
  - Want to distinguish what causes it
    - Solids or liquids
    - Progressive
    - Any associated heartburn
    - Weight loss
  - Usually start with barium swallow vs directly to EGD
# Dysphagia

## Oropharyngeal Etiologies

### Neuromuscular Causes

- Amyotrophic lateral sclerosis (ALS, Lou Gehrig's disease)
- CNS tumors (benign or malignant)
- Idiopathic UES dysfunction
- Manometric dysfunction of the UES or pharynx
- Multiple sclerosis
- Muscular dystrophy
- Myasthenia gravis
- Parkinson's disease
- Polymyositis or dermatomyositis
- Postpolio syndrome
- Stroke
- Thyroid dysfunction

### Structural Causes

- Carcinoma
- Infections of pharynx or neck
- Osteophytes and other spinal disorders
- Prior surgery or radiation therapy
- Proximal esophageal web
- Thyromegaly
- Zenker's diverticulum

## Esophageal Etiologies

### Motility (Neuromuscular) Disorders

#### Primary Disorders

- Achalasia
- Diffuse esophageal spasm
- Hypertensive LES
- Ineffective esophageal motility
- Nutcracker (high-pressure) esophagus

#### Secondary Disorders

- Chagas' disease
- Reflux-related dysmotility
- Scleroderma and other rheumatologic disorders

### Structural (Mechanical) Disorders

#### Intrinsic

- Carcinoma and benign tumors
- Diverticula
- Eosinophilic esophagitis
- Esophageal rings and webs (other than Schatzki ring)
- Foreign body
- Lower esophageal (Schatzki) ring
- Medication-induced stricture
- Peptic stricture

#### Extrinsic

- Mediastinal mass
- Spinal osteophytes
- Vascular compression
**Clinical Pearl:** Remember the Oropharyngeal “-Ations”- Initiation, Aspiration, Nasal Regurgitation, Lateralization
56 year old Hispanic male presents to office for evaluation of abnormal lab values after an insurance physical. Patient is well known to you, he has a past history of DMII, HTN, HLD and obesity. He currently takes lisinopril, metformin and simvastatin. In the past his AST/ALT have been mildly evaluated at 56 and 72 respectively. His total bilirubin, alkaline phosphatase, albumin, INR and ggt were normal. You review his insurance labs and they are similar to prior values. You order an liver ultrasound that shows hepatomegaly and extensive steatosis. Review of your past workup reveals a negative viral panel, negative autoimmune studies and normal iron studies. What is the next best step in management?

1. Stop simvastatin and repeat LFT in 6 weeks
2. Stop simvastatin and switch to atorvastatin
3. **Recommend weight loss**
4. No recommendations at this time but repeat labs in 6 weeks
NASH

• Epidemiology of NAFLD
  – NAFLD: 17-33%
  – NASH: 5.7-16.5%
  – Cirrhosis of the liver: 20% of patients with NASH
  – Death related to liver disease: 10% over 10 years
  – NASH present in only 2.7% of non-obese patients

• 2013: NASH is the third most common cause for cirrhosis and transplant
  – 30 million patients with NAFLD
  – 90,000/year develop ESLD

• 2020: NASH projected to be the most common reason for cirrhosis and transplant

• Other Causes of Steatosis
  – Alcohol
  – HCV (GT3)
  – Wilson’s disease
  – Medications: Amiodarone, Methotrexate, Tamoxifen, Corticosteroids, Valoprate and antiretroviral medications.
  – Parenteral nutrition
  – Acute fatty liver of pregnancy

• Associations
  – Conditions with established association
    • Obesity
    • Diabetes mellitus
    • Dyslipidemia
    • Metabolic syndrome
  - Conditions with emerging association
    • Hypothyroidism
    • Obstructive Sleep apnea
    • Polycystic ovary syndrome
    • Hypopituitarism
    • Hypogonadism
    • Pancreato-duodenal resection
    • PNPLA3

Liver Transpl 2006
Hepatology 2008
NASH Therapy

• Most effective intervention is Weight loss
  – Weight loss of $\geq 7\%$ (over 48 weeks) led to significant improvements in:
    • Steatosis ($-1.36$ vs. $-0.41$, $P < 0.001$)
    • Lobular inflammation ($-0.82$ vs. $-0.24$, $P = 0.03$)
    • Ballooning injury ($-1.27$ vs. $-0.53$, $P = 0.03$)

Vitamin E
  – 800 IU PO daily showed:
    Improvement in the histological findings but not fibrosis.
  – Concerns:
    Increased all-cause mortality
    Prostate cancer

Hepatology 2010
N Engl J Med 2010
Statins and NASH

- [2-28-2012] The U.S. Food and Drug Administration (FDA) has approved important safety label changes for the class of cholesterol-lowering drugs known as statins.

- **Monitoring Liver Enzymes**
  Labels have been revised to remove the need for routine periodic monitoring of liver enzymes in patients taking statins. The labels now recommend that liver enzyme tests should be performed before starting statin therapy and as clinically indicated thereafter.

- In a large randomized placebo controlled trial studying the effects of statin therapy for dyslipidemia in a cohort of patients known chronic liver disease, patients treated with statin therapy did not have any excess toxicity compared to those taking placebo.

A 36 year old woman with bloating and diarrhea put herself on a strict gluten-free diet one year ago with improvement in her symptoms. She now presents to clinic and notes great improvement in her symptoms. She is afraid to stop her gluten free diet, but notes that it is quite expensive and does not want to stay on the diet if it is not required. She would like you to tell her if she truly has the diagnoses of celiac sprue. The most useful next test to do in this situation is:

1. Antiendomysial IgA antibody 0%
2. Anti- tissue transglutaminase (TTG) IgA antibody 0%
3. HLA DQ8/2 allele blood test 0%
4. Small bowel biopsy 0%
Celiac

- Systemic immune-mediated disorder triggered by dietary gluten in genetically susceptible persons.
- Characterized by a broad range of clinical presentations, a specific serum autoantibody response, and variable damage to the small intestinal mucosa.
- Studies range, but affects 0.6-1% of population
- Clinical presentation varies dramatically
  - Usual presentation - malabsorption – diarrhea, anemia, weight loss, N/V, abdominal pain, distention, bloating, abnormal Liver Function Tests
  - Silent – iron deficiency anemia, Vit D deficiency leading to osteoporosis, infertility.
  - Skin Manifestations – Dermatitis Herpetiformis

Dermatitis Herpetiformis

(images via VisualDx)
# Celiac Serologies

<table>
<thead>
<tr>
<th>Test</th>
<th>Sensitivity (Range)</th>
<th>Specificity (Range)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>IgA anti-tTG antibodies</td>
<td>&gt;95.0 (73.9–100)</td>
<td>&gt;95.0 (77.8–100)</td>
<td>Recommended as first-level screening test</td>
</tr>
<tr>
<td>IgG anti-tTG antibodies</td>
<td>Widely variable (12.6–99.3)</td>
<td>Widely variable (86.3–100)</td>
<td>Useful in patients with IgA deficiency</td>
</tr>
<tr>
<td>IgA antiendomysial antibodies</td>
<td>&gt;90.0 (82.6–100)</td>
<td>98.2 (94.7–100)</td>
<td>Useful in patients with an uncertain diagnosis</td>
</tr>
<tr>
<td>IgG DGP</td>
<td>&gt;90.0 (80.1–98.6)</td>
<td>&gt;90.0 (86.0–96.9)</td>
<td>Useful in patients with IgA deficiency and young children</td>
</tr>
<tr>
<td>HLA-DQ2 or HLA-DQ8</td>
<td>91.0 (82.6–97.0)</td>
<td>54.0 (12.0–68.0)</td>
<td>High negative predictive value</td>
</tr>
</tbody>
</table>
Diagnostic algorithm

High probability (>5 percent)

- Duodenal biopsy
  - TTGA IgA
    - Both negative
      - Celiac disease unlikely
    - Both positive
      - Celiac disease
    - Biopsy/serology disagreement
      - HLA DQ2 and DQ8 genotyping
      - Measure IgA level ± TTGA/DGP IgG
      - Work-up for other causes of villous atrophy

Low probability (<5 percent)

- TTGA IgA ± IgA level
  - Positive TTGA
    - Duodenal biopsy
      - Any positive
      - All negative
  - Negative TTGA Low IgA
    - TTGA IgG ± DGP IgG
      - Celiac disease unlikely
  - Negative TTGA Normal IgA

42 year old male presents with new onset jaundice and ascites. He has a history of IV drug use and alcohol use. Over the past month he has increased his alcohol consumption to 10-12 beers daily. He complains of abdominal distention and abdominal pain. On exam he is febrile to 101, HR:110, BP99/60. He has moderate abdominal distention, pain on palpation and scleral icterus, mild confusion with asterixis. AST 138 IU/L, ALT 68 IU/L, ALP 135 IU/L, INR 2.1, T.bili 12, wbc 12, hbg 11, creatnine 2.3. His diagnostic paracentesis is consistent with spontaneous bacterial peritonitis. He is diagnosed with alcoholic hepatitis and SBP. He is admitted, started on antibiotics and albumin and you recommend starting which of the following?

1. Prednisolone 60mg  0%
2. Pentoxifylline 400mg TID  0%
3. Vitamin E 800mg daily  0%
4. Infliximab infusion  0%
Alcoholic Hepatitis

- Continues to be a common clinical presentation within the US population, 1 in 10 noting heavy drinking (defined as >3 drinks/day). Although not everyone will get AH.
- Various scores used to determine severity of disease including Lillie, MELD and Maddrey Discriminate Function. mDF being most commonly used.
- Abstinence is main therapy
Corticosteroids or Pentoxifylline

- **Corticosteroids:**
  - Most widely used agent
  - Metaanalysis from 5 RCTs that used corticosteroids for severe AH showed an approximately 50% relative survival benefit at 1 month
    - With the number needed to treat being 5 patients to reduce 1 death
  - When used, oral prednisolone 40 mg daily or parenteral methylprednisolone (for patients unable to take orally) 32 mg per day is the usual initial dose and is administered for 4 weeks.

- About one-fourth of patients develop infection after starting steroids. Therefore, discontinuation of steroids is recommended in patients who are nonresponders after a week of therapy.
  - Defined as a rise in bilirubin or Lillie score >0.45

- Despite this documented benefit, practice surveys have shown that physicians in the United States prefer pentoxifylline over steroids for managing AH.
Corticosteroids or Pentoxifylline

• Pentoxifylline:
  – A phosphodiesterase inhibitor, a dose of 400 mg 3 times daily for 28 days was associated with approximately 50% survival benefit in a pivotal study in 101 patients with severe AH and was superior to corticosteroids in another study.
  – However, a meta analysis of 5 RCTs has failed to show any benefit with pentoxifylline therapy.
  – Ongoing study that compares corticosteroids to pentoxifylline to corticosteroids and pentoxifylline to no therapy.
  – One consistent benefit of pentoxifylline is protection against renal dysfunction.
  – Continues to be recommended therapy for severe AH
Steroid contraindications:
- Active or suspected infection
- Uncontrolled DM
- Renal failure
- Active GI bleeding
33 year old female presents to her primary care doctor for evaluation of pruritus that she has had for the past 8 weeks. She does not take any medications, denies any rash, fever or chills. She denies jaundice, no travel and no recent sick contact. Her lab data is essentially normal excepted for an elevated alkaline phosphatase and ggt. Further work up is negative for viral hepatitis, ANA normal, Total IgG normal, AMA is positive at 1:1280. Which is the following is a complication of her disease process?

1. **Osteoporosis**  
   - Score: 0%
2. Glucocoma  
   - Score: 0%
3. HTN  
   - Score: 0%
4. Celiac disease  
   - Score: 0%
PBC

• Chronic cholestatic disease with a progressive course which may extend over many decades.
• Likely an autoimmune disease although the exact cause is remains unknown.
• PBC is predominantly a female disease.
  – Reported female : male ratio ranges
    • 3 : 1 to 22 : 1, with a median ratio of 9 : 1
• AMA is positive in 90-95% of patients
• Rate of progression varies greatly among individual patients.
Osteoporosis and PBC

• Occurs in up to one-third of patients
• Relative risk for osteoporosis in PBC compared to an age-matched and sex-matched healthy population is 4.4
• The cause of osteoporosis in PBC is uncertain.
  – Vitamin D metabolism is normal in patients with PBC except for those with jaundice and clinically advanced disease.
• Women with PBC lose bone mass at a rate approximately twice that seen in age-matched controls.
• In a large series of PBC female patients, 21% developed fractures

Feldman: Sleisenger and Fordtran's Gastrointestinal and Liver Disease, 9th ed
PBC therapy

- Mainstay of therapy is and has been ursodeoxycholic acid
- 6a-Ethyl-chenodeoxycolic acid (obeticholic acid) is a novel derivative of the primary human bile acid
  - In a study of 140 patients who did not achieve improvement of ALP to less than 1.67 times the upper limit of normal, the addition of obeticholic acid led to an additional 24% improvement in ALP
63 year old male presents to clinic for follow up from hospital discharge after an upper gastrointestinal bleed. He states that his upper gastrointestinal bleed was due to an ulcer, but he denies that he takes any aspirin or NSAID. A biopsy at the time of endoscopy revealed H. pylori and the patient was treated with 14 days of amoxicillin, clarithromycin and omeprazole. He went to the lab before coming to your office and his H. pylori stool antigen is positive. What is the next best step in treatment of his H. Pylori?

1. Do nothing as it is not uncommon for the stool antigen to remain positive 0%
2. Repeat the same therapy for 21 days 0%
3. Check H. pylori serology as it is more sensitive in determining H. Pylori treatment results 0%
4. **Treat with Omeprazole, Bismuth, Tetracyline and Metronidazole** 0%
5. Treat with Omeprazole, Bismuth, Clarithromycin and Metronidazole 0%
H. pylori

- Gram-negative bacteria found on the luminal surface of the gastric epithelium
- Prevalence increases with older age and with lower socioeconomic status during childhood.
- Is a cofactor in the development of three important upper gastrointestinal diseases:
  - Duodenal or gastric ulcers (1 to 10% of infected patients)
  - Gastric cancer (in 0.1 to 3%)
  - Gastric mucosa-associated lymphoid-tissue (MALT) lymphoma (in <0.01%)
H. Pylori therapy

- The triple treatment including PPI-clarithromycin and amoxicillin or metronidazole has become universal with initial therapy.
- However, most recent data show that this combination has lost some efficacy and often allows the cure of only a maximum of 70% of the patients.
- After failure of a PPI-clarithromycin containing therapy:
  - Either a bismuth containing quadruple therapy or
  - Levofloxacin containing triple therapy are recommended.

H. Pylori testing

Table 1. Tests for *Helicobacter pylori* Infection.*

<table>
<thead>
<tr>
<th>Test</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonendoscopic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Serologic test</td>
<td>Widely available; the least expensive of available tests</td>
<td>Positive result may reflect previous rather than current infection; not recommended for confirming eradication</td>
</tr>
<tr>
<td>Urea breath test</td>
<td>High negative and positive predictive values; useful before and after treatment</td>
<td>False negative results possible in the presence of PPIs or with recent use of antibiotics or bismuth preparations; considerable resources and personnel required to perform test</td>
</tr>
<tr>
<td>Fecal antigen test</td>
<td>High negative and positive predictive values with monoclonal-antibody test; useful before and after treatment</td>
<td>Process of stool collection may be distasteful to patient; false negative results possible in the presence of PPIs or with recent use of antibiotics or bismuth preparations</td>
</tr>
<tr>
<td>Endoscopic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urease-based tests</td>
<td>Rapid, inexpensive, and accurate in selected patients</td>
<td>False negative results possible in the presence of PPIs or with recent use of antibiotics or bismuth preparations</td>
</tr>
<tr>
<td>Histologic assessment</td>
<td>Good sensitivity and specificity</td>
<td>Requires trained personnel</td>
</tr>
<tr>
<td>Culture</td>
<td>Excellent specificity; provides opportunity to test for antibiotic sensitivity</td>
<td>Variable sensitivity; requires trained staff and properly equipped facilities</td>
</tr>
</tbody>
</table>

* PPI denotes proton-pump inhibitor.

- Remember when confirming eradication to wait:
  - 4 weeks after antibiotics are stopped
  - 2 weeks after ppi are stopped.
57 year old male presents to clinic for his annual visit. He has a pmh of HTN, HLD and DM. He underwent a colonoscopy 3 year ago and was told it was normal. His hemoglobin A1c is 6.2, LDL is 55, and BP is well controlled. He takes an lisinopril, metformin and crestor as his only medications. What preventive health recommendation do you suggest?

1. Repeat Colonoscopy to ensure no new polyps 0%
2. Hepatitis C screening 0%
3. Recommend EGD to survey for barrett’s esophagus 0%
4. Recommend abdominal US to evaluate for non-alcoholic fatty liver disease. 0%
Screening for Hepatitis C Virus Infection in Adults

The U.S. Preventive Services Task Force (Task Force) has issued a final recommendation statement on Screening for Hepatitis C Virus Infection in Adults.

This final recommendation statement applies to adults who have no signs or symptoms of hepatitis C infection and who have not been diagnosed with liver disease or liver function problems.

The Task Force reviewed recent research studies on screening for and treatment of hepatitis C infection in adults. The final recommendation statement summarizes what the Task Force learned about the potential benefits and harms of screening.

(1) Adults at high risk for hepatitis C infection should be screened for the infection. (2) Health care professionals should offer 1-time hepatitis C screening to adults born between 1945 and 1965.

This fact sheet explains the recommendation and what it might mean for you.

What is hepatitis C infection?

Hepatitis C is one of several viruses that can damage the liver. The virus is transmitted through infected blood or body fluids. The most common way that people get infected today is by sharing needles or other equipment used to inject drugs. Rarely, hepatitis C can be transmitted during sex.
Epidemiology of HCV

• ≈ 170 M persons infected worldwide
• 2.7 - 4 M Americans infected
• High prevalence rates in USA
  – 2.5% of males
  – 3.2% of African Americans
  – 2.1% of Hispanic Americans
  – Peak age of persons born between 1946 - 1964

Projected Cases of Hepatocellular Carcinoma & Decompensated Cirrhosis Due to HCV

Gastroenterology 2010;138:513-521
**Treatment Evolution of HCV**

**Sustained Viral Response (SVR)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Treatments</th>
<th>SVR (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>IFN 6m</td>
<td>6%</td>
</tr>
<tr>
<td>1999</td>
<td>IFN 12m</td>
<td>16%</td>
</tr>
<tr>
<td>1999</td>
<td>IFN/RBV 6m</td>
<td>34%</td>
</tr>
<tr>
<td>2001</td>
<td>IFN/RBV 12m</td>
<td>42%</td>
</tr>
<tr>
<td>2011</td>
<td>Peg-IFN/RBV 12m</td>
<td>54-56%</td>
</tr>
<tr>
<td>2014</td>
<td>DAA + Peg-IFN/RBV 6-12m</td>
<td>&gt;90%</td>
</tr>
</tbody>
</table>

IFN: Interferon; m: months; RBV: Ribavirin; Peg: Pegylated; PI: Protease inhibitor; DAA: Direct Acting Antiviral
55 year old male with a history of alcoholic cirrhosis presents to clinic for follow up. He has ascites well controlled on spironolactone 100mg and Lasix 40mg. He has recently undergone EGD for variceal screening 3 months ago which was reported as normal. He is up to date on his vaccinations and his current MELD is 14. He underwent surveillance for hepatocellular carcinoma two years ago. In regards to his cirrhosis what other preventive measures should be ordered?

1. Repeat EGD
2. Liver Ultrasound
3. Echo with bubble study
4. Order AFP
Hepatocellular Carcinoma

• Diagnosed in more than half a million people worldwide every year, including approximately 20,000 new cases in the United States.

• 5-year cumulative risk for the development of hepatocellular carcinoma in patients with cirrhosis ranges between 5% and 30%, depending on:
  – Etiology (highest risk those infected with HCV)
  – Region or ethnic group (17% in the United States and 30% in Japan)
  – Stage of cirrhosis (highest with decompensated disease)
Underutilization of Surveillance

- 126,670 patients with HCV
- 13002, with cirrhosis
- Routine surveillance: 12%
- Inconsistent Surveillance: 58.5%
- No Surveillance: 29.5%

HCC Surveillance

• In 2005 a RCT led to the recommendation of Surveillance by AASLD
  – RTC of 18,816 patients with AFP and US in HBV with cirrhosis. Adherence to surveillance was suboptimal (<60%) but in the group that did get surveillance the HCC related mortality was reduced by 37%.
  – Recommended US and Alpha Fetoprotein every 6 mths.

• In 2011 AASLD altered those recommendations to only an US every 6 mths
  – AASLD noted lack of sensitivity and specificity for AFP therefore removed it from the guidelines

Modified from AASLD guidelines 2011
HCC surveillance

AASLD has identified surveillance for the following groups:

<table>
<thead>
<tr>
<th>A. Patients with High Risk for HCC for Whom Surveillance Is Indicated</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Patients with liver cirrhosis</td>
</tr>
<tr>
<td>- Hepatitis C with cirrhosis</td>
</tr>
<tr>
<td>- Hepatitis B with cirrhosis</td>
</tr>
<tr>
<td>- Stage 4 primary biliary cirrhosis</td>
</tr>
<tr>
<td>- Hemochromatosis with cirrhosis</td>
</tr>
<tr>
<td>- Alpha 1-antitrypsin deficiency with cirrhosis</td>
</tr>
<tr>
<td>- Cirrhosis secondary to other etiologies</td>
</tr>
<tr>
<td>b) High risk hepatitis B patients</td>
</tr>
<tr>
<td>- Asian male HBV carrier aged 40 or more</td>
</tr>
<tr>
<td>- Asian female HBV carrier aged 50 or more</td>
</tr>
<tr>
<td>- HBV carrier with family history of HCC</td>
</tr>
<tr>
<td>- African American HBV carrier aged 20 or more</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Patients with increased risk for HCC for whom surveillance indication is uncertain*</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Male hepatitis B carriers younger than 40</td>
</tr>
<tr>
<td>- Female hepatitis B carriers younger than 50</td>
</tr>
<tr>
<td>- Hepatitis C with stage 3 fibrosis</td>
</tr>
<tr>
<td>- NAFLD without cirrhosis</td>
</tr>
</tbody>
</table>
54 yo male with a medical history of hepatitis C cirrhosis presents to clinic for follow up. He states that he has been doing fairly well, he denies any problems with melena, hematemesis or fluid accumulation. He does note that he feels fatigued during the day and believes this fatigue is due to his inability to sleep at night. At last visit his MELD score was 13. On physical exam he has stigmata of cirrhosis characterized by spider angiomata and palmer erythema. No appreciable edema or ascites is present. He would like to have something to help him sleep, what do you recommend?

1. Clonazepam 0%
2. Lactulose 0%
3. Zolpidem 0%
4. Alprazolam 0%
Encephalopathy

• Encompasses a wide array of transient and reversible neurologic and psychiatric manifestations usually found in patients with chronic liver disease, but also seen in patients with acute liver failure.

• Overt HE develops in 21-50% of patients with cirrhosis.

• A poor prognostic indicator, with projected 3-year survival rates 23% without liver transplantation.
Minimal Hepatic Encephalopathy

- MHE has a specific deficit profile on psychomotor testing:
  - Attention deficits (major finding)
  - Defect in visuo-motor coordination
  - Defect in construction ability
  - Defect in speed of mental processing
- > 50% progress to Overt HE over 3-4 years
- Affects up to 2/3 of cirrhotic patients
<table>
<thead>
<tr>
<th>Grade</th>
<th>Mental status</th>
<th>Asterixs</th>
<th>EEG</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Euphoria/depression</td>
<td>Yes/no</td>
<td>Usually normal</td>
</tr>
<tr>
<td></td>
<td>Mild confusion</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Slurred speech</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Disordered sleep</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Lethargy</td>
<td>Yes</td>
<td>Abnormal</td>
</tr>
<tr>
<td></td>
<td>Moderate confusion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Marked confusion</td>
<td>Yes</td>
<td>Abnormal</td>
</tr>
<tr>
<td></td>
<td>Incoherent</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sleeping but arousable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Coma</td>
<td>No</td>
<td>Abnormal</td>
</tr>
</tbody>
</table>
Hepatic Encephalopathy Therapy

- Lactulose remains the mainstay of therapy
- Rifaximin is becoming a popular choice among physicians with low side effect profile and improved outcomes.
- Limiting issue seems to be cost
44 year old male with pmh of htn is admitted to the ICU with hypotension, ARF and diarrhea of 10-14 watery bowel movements daily. Diarrhea has been ongoing for the past 2 months and this is his second hospitalization for diarrhea and ARF. After volume resuscitation his ARF and hypotension resolve. His workup for his diarrhea during included stool studies, c.dif, stool O&P all were negative. His only medication is olmesartan for his HTN, although has had breaks in therapy due to his ARF with his prior hospitalization. He underwent several empiric trials as an outpatient including metronidazole, cholestyramine without success. With fasting in the hospital his diarrhea improved. Just prior to his ICU admission he underwent an EGD and colonoscopy which were reported as normal. However duodenal biopsies revealed total villous atrophy and acute and chronic inflammation in the lamina propria. His anti-TTG was negative, HLA DQ 2/8 were negative and antienterocyte antibody was negative. What is best next step?

1. Start gluten free diet 0%
2. Start Oral Vancomycin 0%
3. Send Gastrin level 0%
4. Stop Olmesartan 0%
Olmesartan

- 22 patients (13 women) had a median age of 69.5 years (range, 47-81 years).
- Most patients were taking 40 mg/d of olmesartan (range, 10-40 mg/d).
- Chronic diarrhea and weight loss was most common presentation.
- Intestinal biopsies showed both villous atrophy and variable degrees of mucosal inflammation in 15 patients, and marked subepithelial collagen deposition (collagenous sprue) in 7.
  - Tissue transglutaminase antibodies were not detected.
  - A gluten-free diet was not helpful.
- Clinical response, with a mean weight gain of 12.2 kg, was demonstrated in all cases.
- Histologic recovery or improvement of the duodenum after discontinuation of olmesartan was confirmed in all 18 patients who underwent follow-up biopsies.
Spruelike Enteropathy

- Since publication of this article:
- October 2012, researchers at the American College of Gastroenterology meeting noted a link to another 40 cases
- 7-13-2013 FDA required a label change to olmesartan that included celiac like sprue to the list of side effects.
A 19 yo male comes to the ER with the complaint of a food impaction. He states that he was eating fried chicken approximately 2 hours ago and felt like the food got stuck midsternum. He states that he has had food “hang up” in the past, but usually would pass with drinking water. He denies any complaints of reflux or dyspepsia. He undergoes endoscopy with successful removal of the food bolus. On endoscopy his esophagus is described as feline in appearance with no evidence of a stricture or narrowing. Which of the follow is likely to improve his symptoms?

1. Calcium channel blockers
2. Nitroglycerin
3. Amitriptyline
4. Oral Fluticasone
Eosinophilic Esophagitis

- A recently recognized, disorder characterized by esophageal mucosal eosinophilia in association with dysphagia.
- Was first described in a few case reports in adults in the 1980s.
- Over the next decade, was mainly viewed as a childhood disease.
- The US prevalence estimate is 56.7/100,000 persons

• Common clinical manifestations seen in adults include
  – Dysphagia (most common)
  – Food impaction
  – Chest pain that is often centrally located and does not respond to antacids
  – Gastroesophageal reflux disease-like symptoms/refractory heartburn
  – Upper abdominal pain

• Diagnosis:
  – based upon symptoms, endoscopic appearance, and histological findings.
  – Histology >15 eosinophils per high power field
Endoscopy of Eosinophilic Esophagitis
Treatment

• Pharmacologic:
  – Trial of acid suppression with ppi
  – Oral fluticasone
  – Oral Budesonide
1. Remember the Oropharyngeal “-Ations”- Initiation, Aspiration, Nasal Regurgitation, Lateralization.

2. Patients treated with statin therapy with chronic liver disease did not have any excess toxicity compared to those taking placebo.

3. Osteoporosis occurs in up to one-third of patients with PBC.

4. Remember to screen patients that were born between 1945-1965 for HCV.

5. Screen patients with cirrhosis for HCC every 6 months with an ultrasound.

6. If a cirrhotic has trouble sleeping think about encephalopathy prior to a sleep agent.

7. In patients on olmesartan if they start to develop diarrhea or symptoms of malabsorption, discontinue.
• Questions?

• Thanks