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Liver Disease

Registrar Education Series

Updated February 2023

AAFP
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Quick reference

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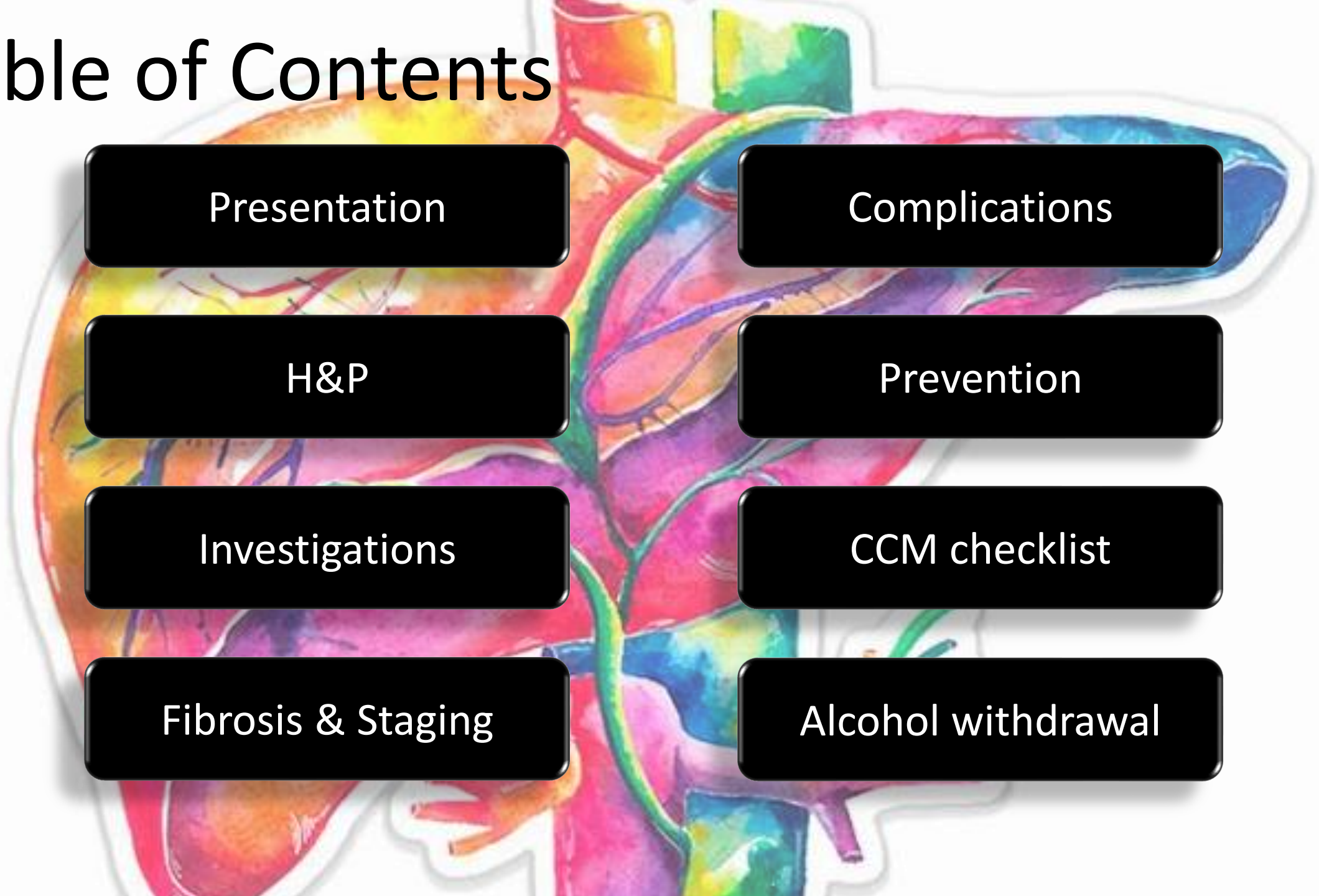

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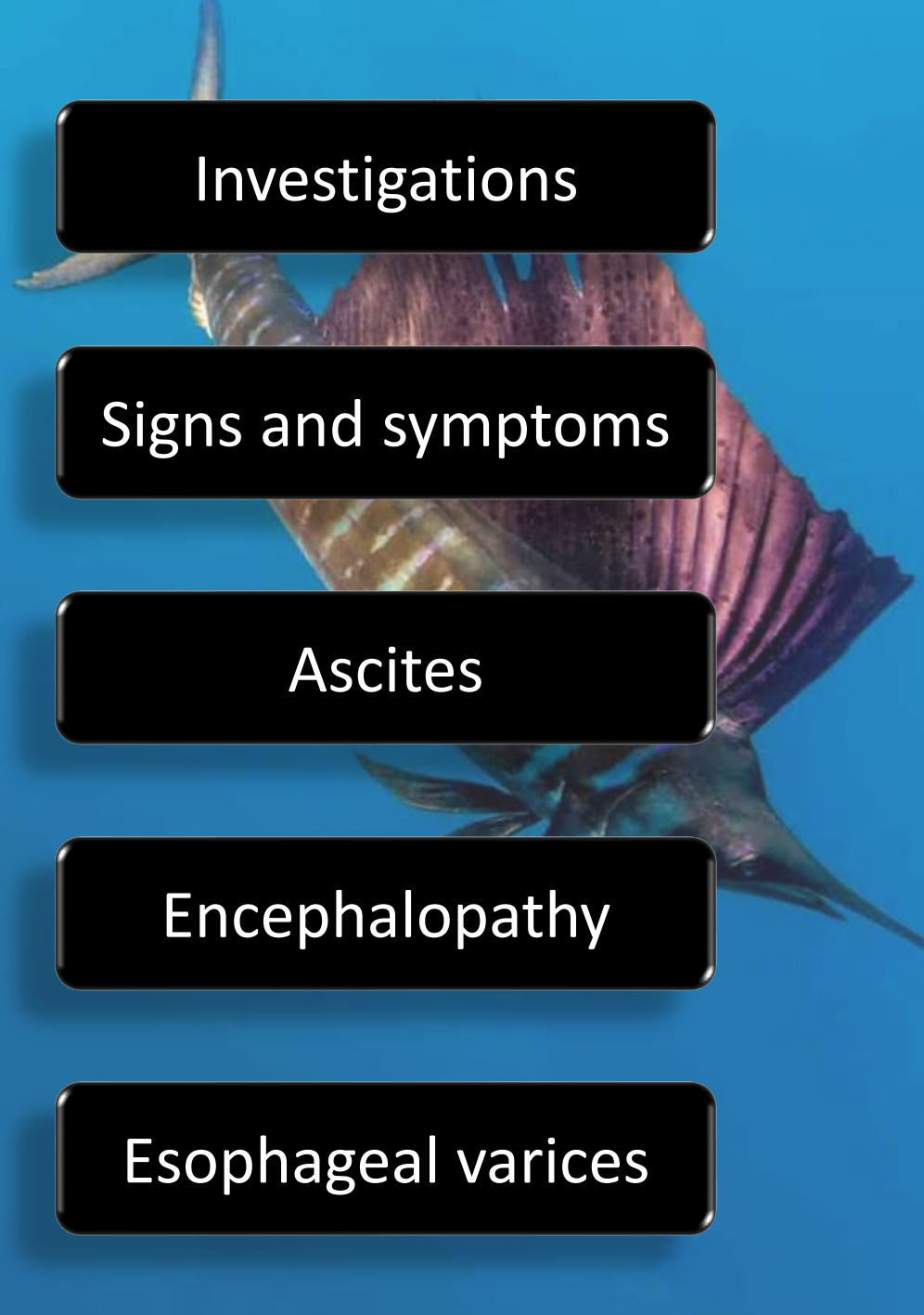

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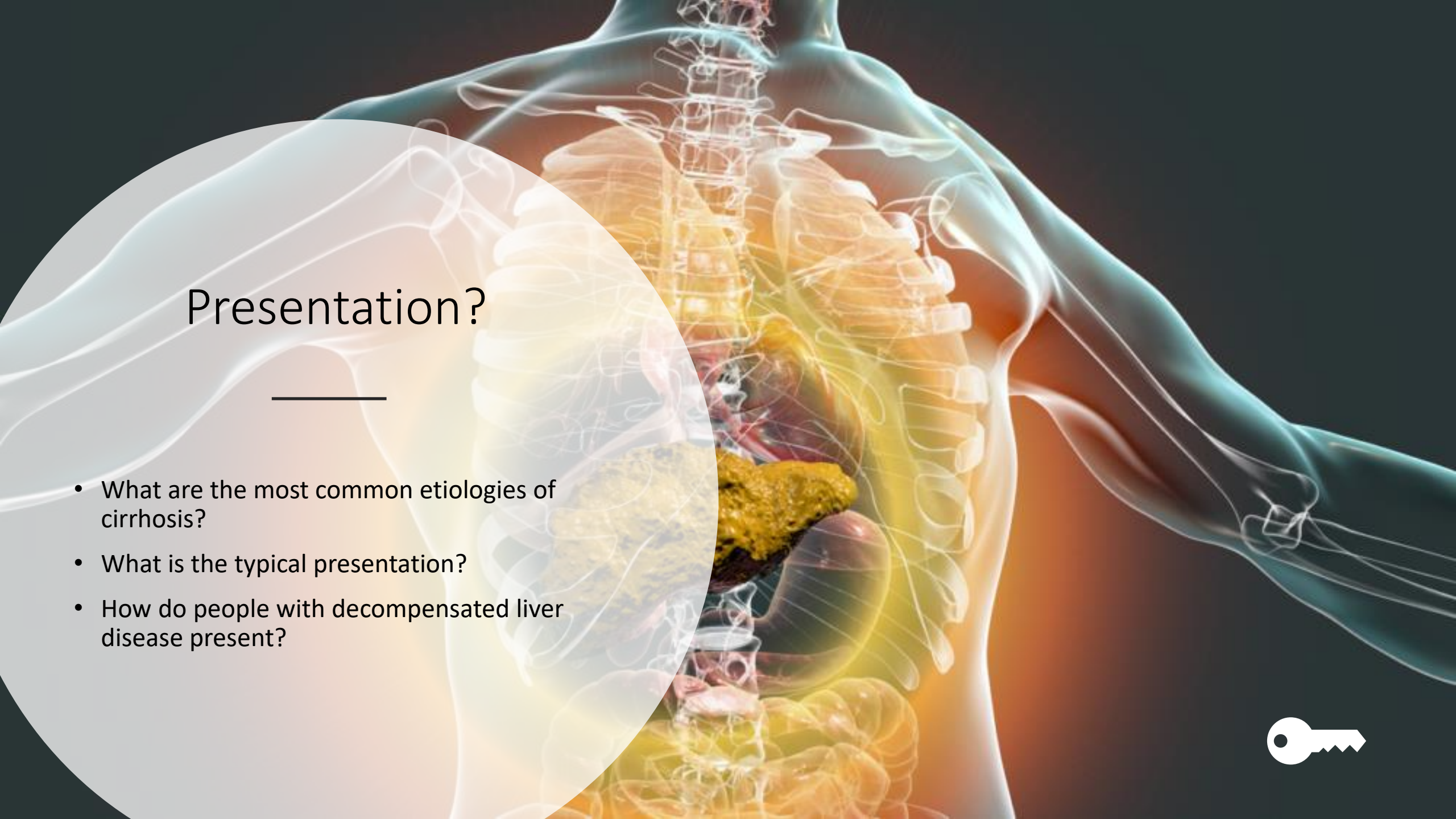
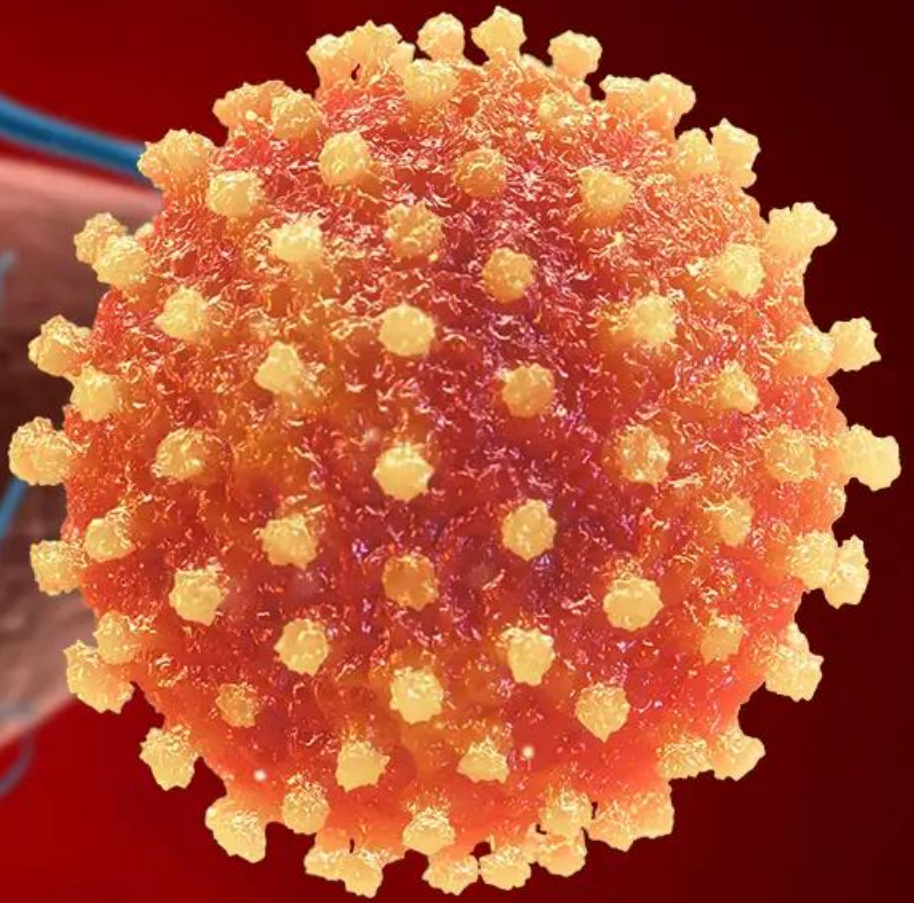


Presentation?

- What are the most common etiologies of cirrhosis?
- What is the typical presentation?
- How do people with decompensated liver disease present?

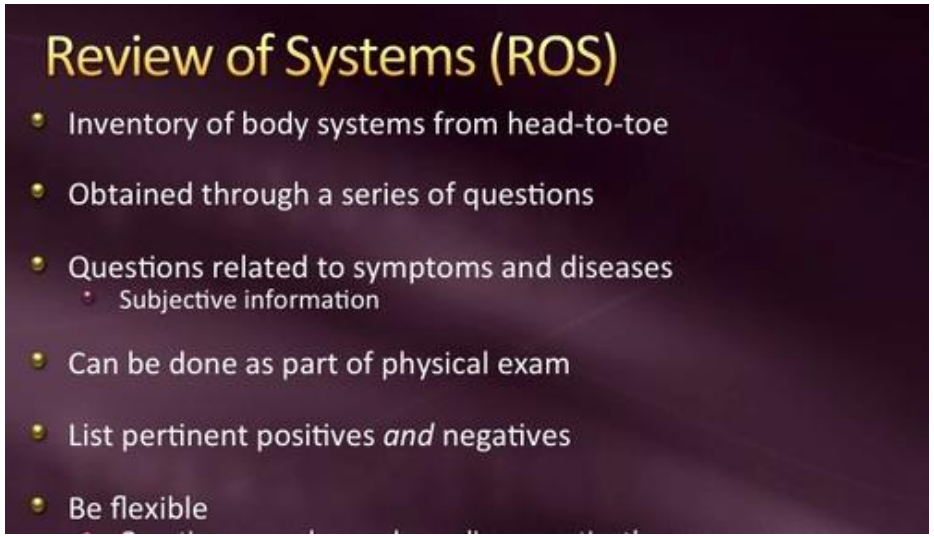
Presentation

- Etiologies: Viral, Alcohol, Non-alcoholic fatty liver disease
- Usually asymptomatic
- Can present with fatigue, weakness, decreased appetite, RUQ discomfort, unexplained weight loss
- If decompensated can present with jaundice, ascites, peripheral edema, confusion and disordered sleep



History & Physical?

- What history should be obtained if someone is suspected of having liver disease?
- What review of systems suggest liver disease?
- What are physical exam findings that are suggestive of liver disease?



History and Physical

HISTORY

- Alcohol use, hepatotoxic medications, family history of liver disease, risk factors for viral hepatitis

REVIEW OF SYMPTOMS

- Change in the color of the skin, eyes, urine or stool, RUQ discomfort, easy bruising or bleeding, decreased appetite, nausea/vomiting, abdominal distention, leg swelling

PHYSICAL EXAM

- Muscle wasting, asterixis, drowsiness, confusion, fetor hepaticus, jaundice, parotid enlargement, scleral icterus, spider nevi, gynecomastia, ascites, caput medusae, contracted or enlarged liver, hemorrhoids, splenomegaly, clubbing, Dupuytren's contracture, palmar erythema, Terry nails, distal erythema of legs, edema, petechiae

Investigations?

- What investigations should be ordered if liver disease is suspected?
- What investigations should be ordered if there are signs/symptoms of liver disease?

Investigation

If the diagnosis is suspected:

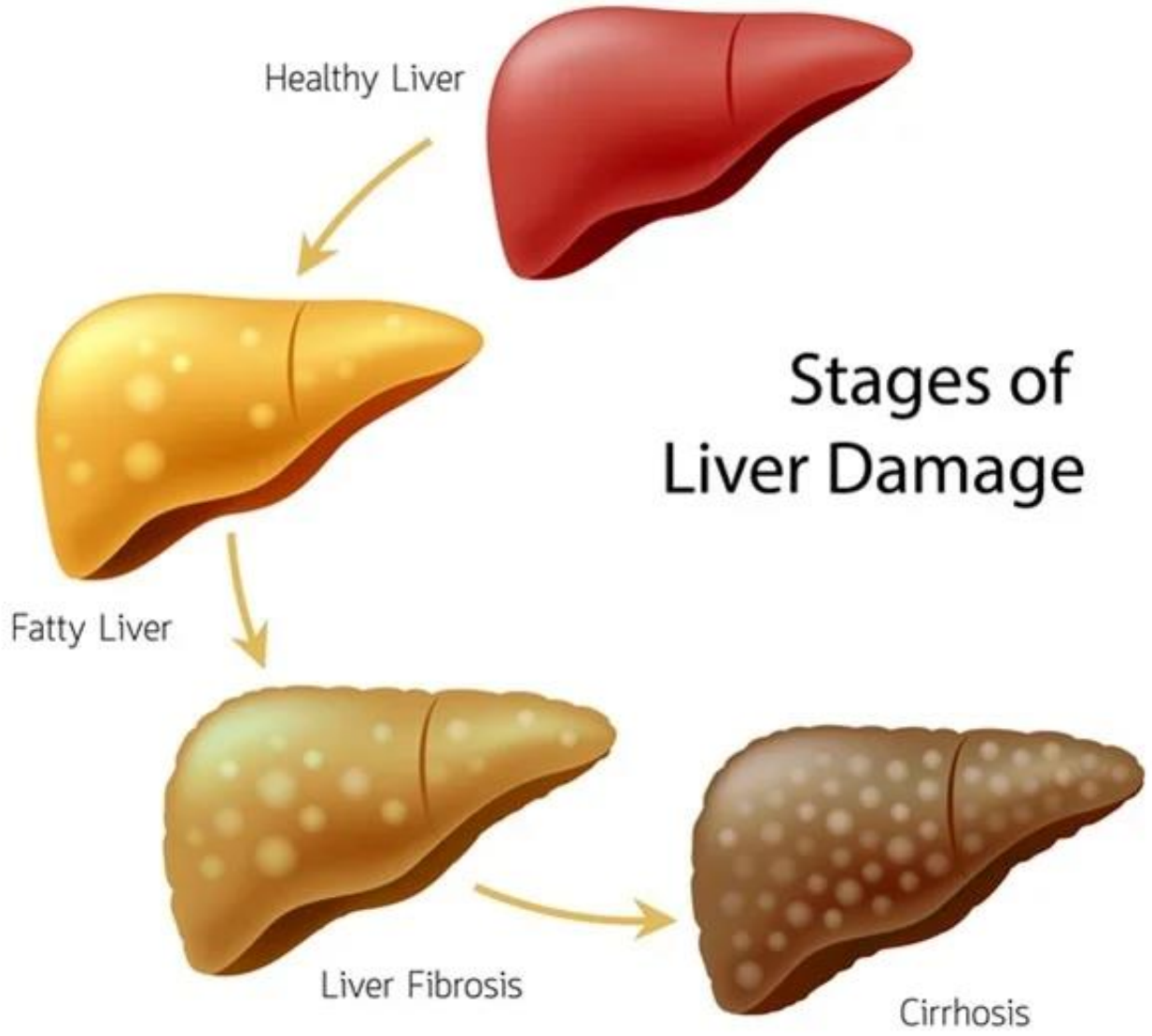
- Order CBC, LFTs, GGT, PT/INR
- If early and/or compensated labs can be normal
- Clues: albumin <35, platelets <160, AST:ALT > 1, elevated bilirubin, prolonged PT/INR

If clinical signs/symptoms are present

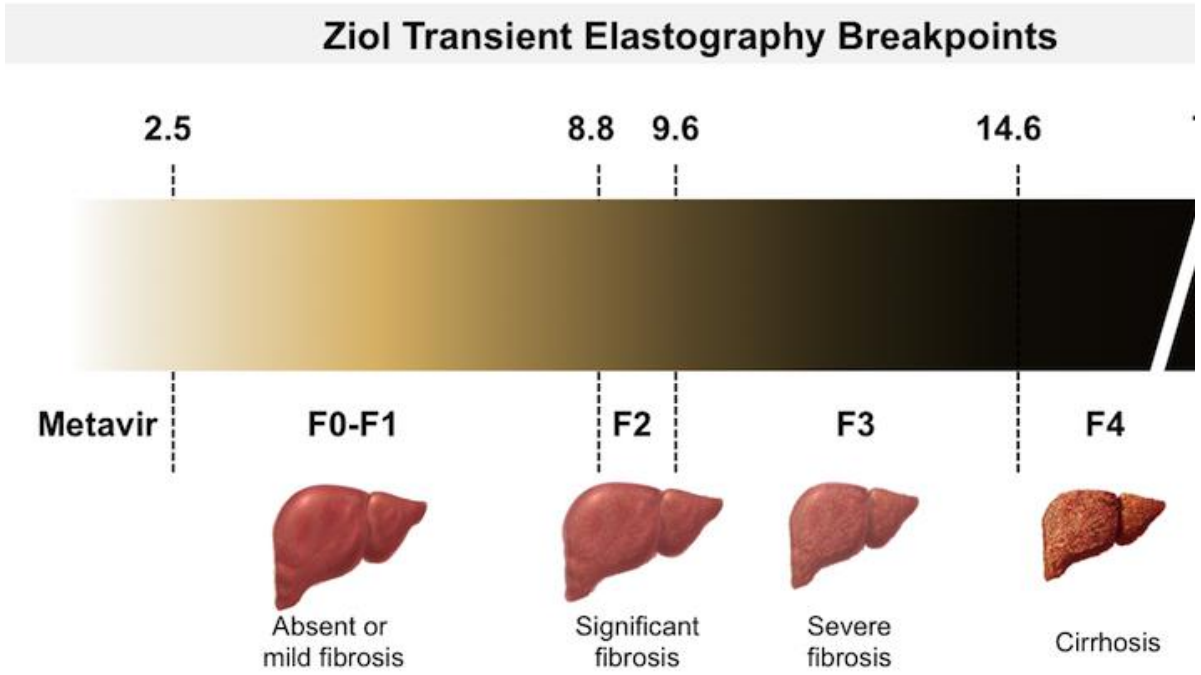
- Order CBC, LFT, GTT, PT/INR, viral hepatitis serologies, abdominal ultrasound
- Concern for NAFLD: A1C, lipid
- Concern for autoimmune hepatitis: ANA, smooth muscle ab ≥ 1:80
- Concern for hemochromatosis: ferritin ≥ 250M and ≥200F, and transferrin saturation ≥ 45%

Fibrosis Score and Staging?

- What does the fibrosis score correlate to?
- What methods are used to quantify or calculate the fibrosis score?
- When are non-invasive scores useful?
- What should be used for cirrhosis staging?



Fibrosis Score & Staging



- Liver fibrosis score: F0 no fibrosis, F1 minimal scarring, F2 significant, F3 advanced, F4 fibrosis and cirrhosis
- Non-invasive scoring is good for F0 and F3-4, not accurate for low-indeterminate
- Calculators
  - Lok index , Fibrometer, Hepascore, APRI, *Fibrosis 4 score*, *NAFLD fibrosis score*, Fibrostat, Fibroscore
- Transient elastography is the preferred non-invasive procedure for fibrosis scoring
  - 81% SN, 88% SP, NPV >90% for fibrosis and cirrhosis
- Abdominal ultrasound
  - Steatosis 94% SN, 84% SP, Fibrosis 40% SN, cirrhosis 57% SN
- Liver biopsy is still the Gold Standard but typically only used if other scoring methods are indeterminant or etiology still needs to be confirmed
- Calculate stage with the *Child-Pugh* and *MELD* scores for 3 month and 1 year mortality rates

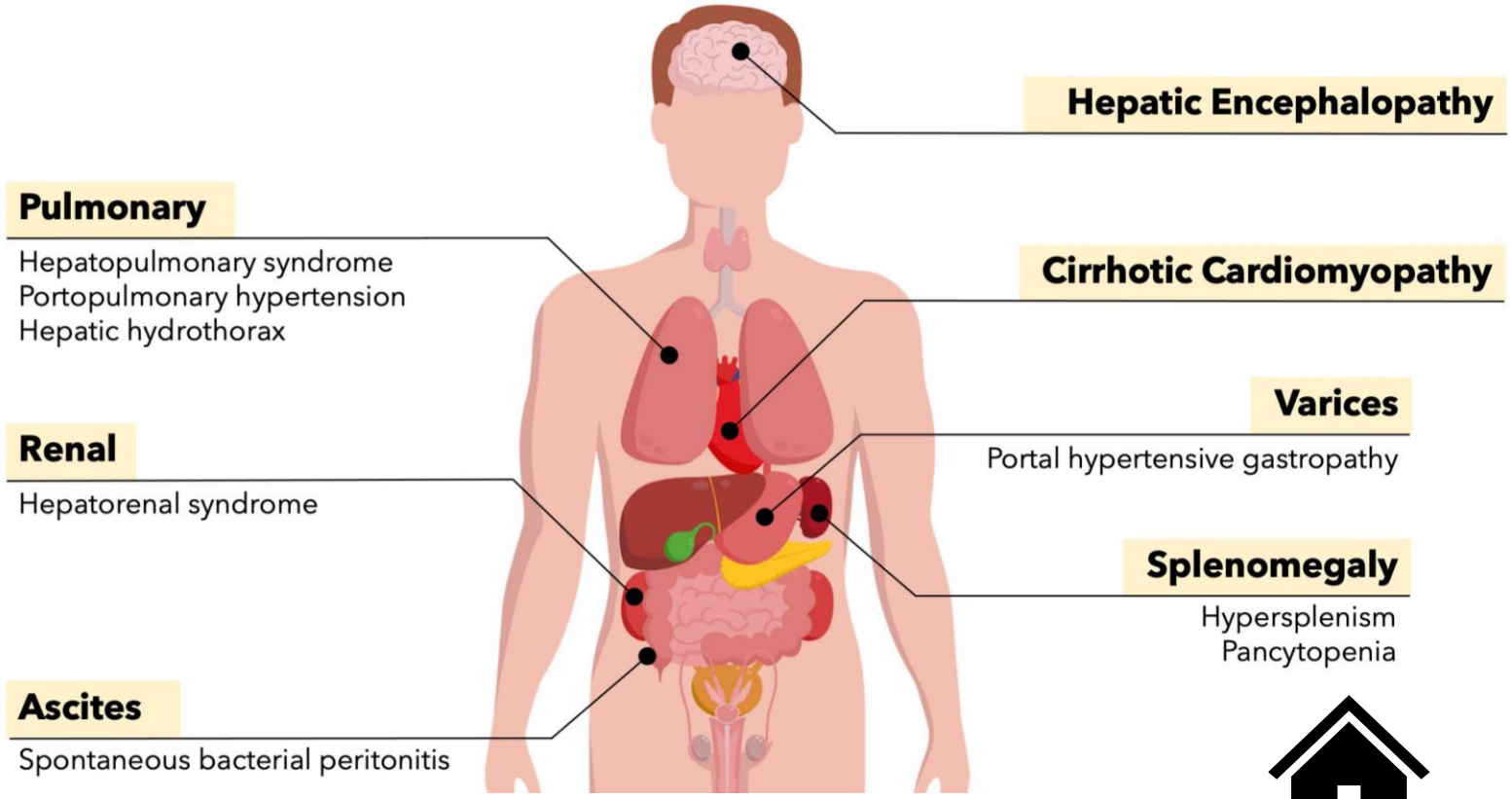
Complications?

- What are the complications of cirrhosis?
- What is the treatment for the complication?
- What prevention is there for the complication?

Complications

- Ascites
- Encephalopathy
- Esophageal varices
- Hepatocellular carcinoma
- Spontaneous Bacterial Peritonitis

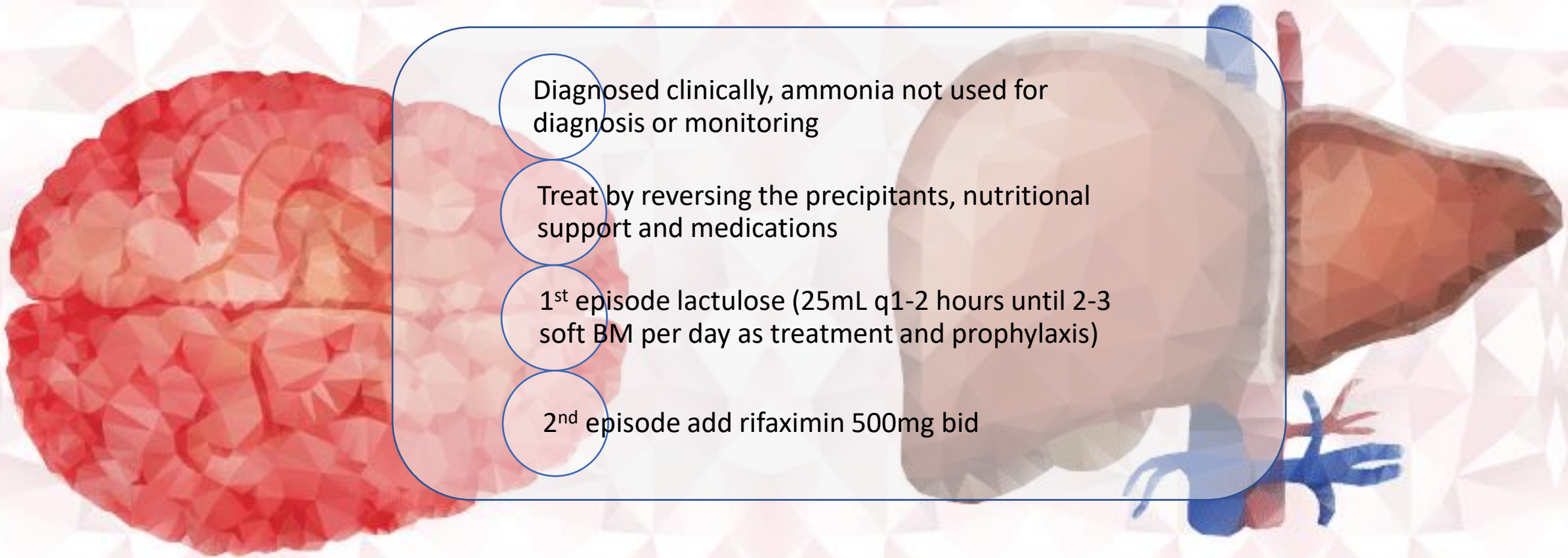
Click complication box for more information



Ascites

- Paracentesis if new moderate-severe ascites or concern for SBP
- Large grade ascites treat with paracentesis and albumin infusion
- Diurese with mineralocorticoids for treatment and prophylaxis
- Moderate sodium diet
  - (No added salt or prepared meals)
- Spironolactone 100mg daily titrate q3 days to max 400mg daily
  - Goal is no more than 0.5-1 kg weight loss/day
- Add furosemide if not responsive or if limited by adverse effects
- Use lowest effective doses

Encephalopathy



- Diagnosed clinically, ammonia not used for diagnosis or monitoring
- Treat by reversing the precipitants, nutritional support and medications
- 1st episode lactulose (25mL q1-2 hours until 2-3 soft BM per day as treatment and prophylaxis)
- 2nd episode add rifaximin 500mg bid

Esophageal varices

EGD at diagnosis or only in those with clinically significant portal HTN

Repeat

- If decompensation develops
- Q2-3 if no varices
- Q1-2 if small varices

Treat with band ligation or non-selective beta-blockers

Beta blocker therapy should be indefinite

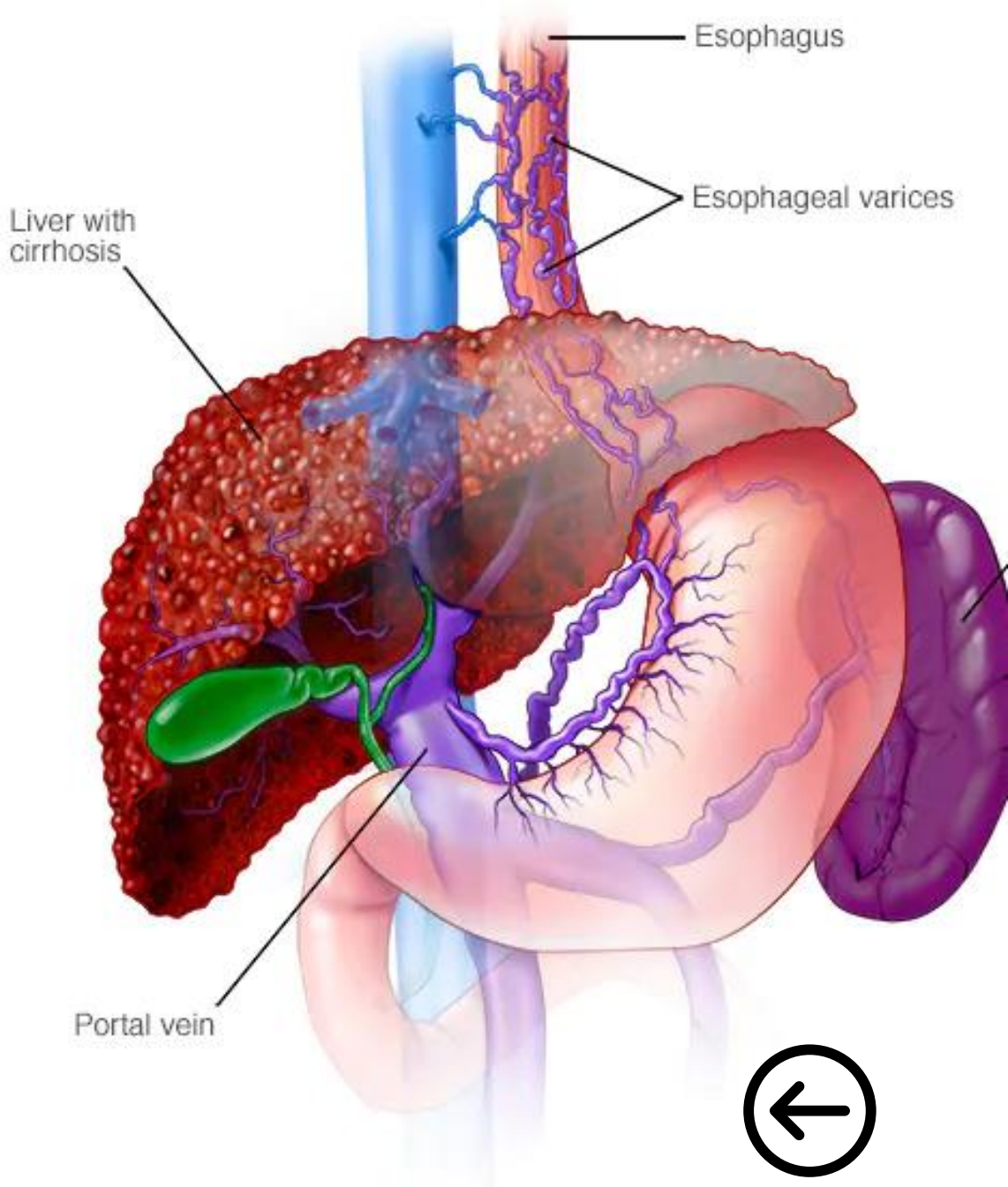
- Propranolol: 20 to 40 mg twice daily; maximum: 160 to 320 mg per day
- Nadolol (Corgard): 20 to 40 mg daily; maximum: 80 to 160 mg per day
- Carvedilol (Coreg): 6.25 mg daily; maximum: 12.5 mg per day.

Titrate every two to three days

- Goal 25% heart rate reduction
- Keep heart rate > 55 beats per minute

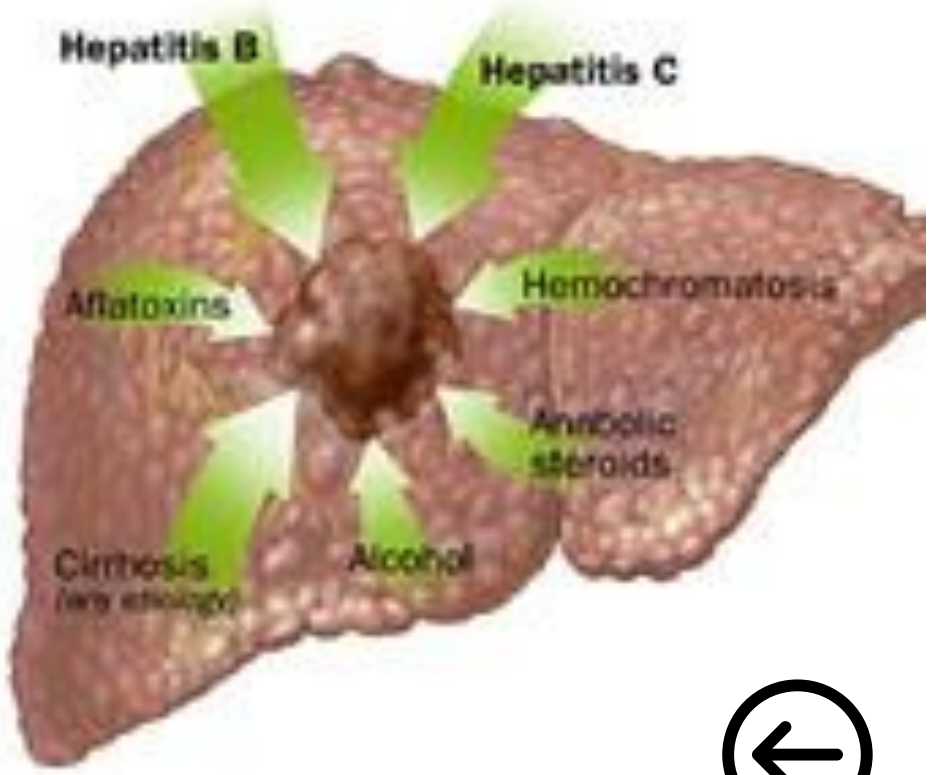
Discontinue if:

- Hemodynamic instability: sepsis, spontaneous bacterial peritonitis, acute gastrointestinal bleeding, refractory ascites, systolic blood pressure < 90 mm Hg, sodium concentration < 120 to 130 mEq per L (120 to 130 mmol per L), or acute kidney injury



Hepatocellular Carcinoma

- Screen with RUQ ultrasound every 6 months
- +/- alpha fetoprotein
  - ≥200 SN 36.3%, SP 100%
  - Increase ≥ 7mcg/L/month SN 71%, SP 100%



Spontaneous Bacterial Peritonitis

Diagnosis is clinical and confirmed with a paracentesis demonstrating an ascitic fluid neutrophil count > 250

Community acquired: third-generation cephalosporin or piperacillin/tazobactam (Zosyn)

- Cefotaxime 2 g IV every eight to 12 hours
- Ceftriaxone 2 g IV every 24 hours
- Piperacillin/tazobactam, 3.375 g IV every six hours

Prophylaxis:

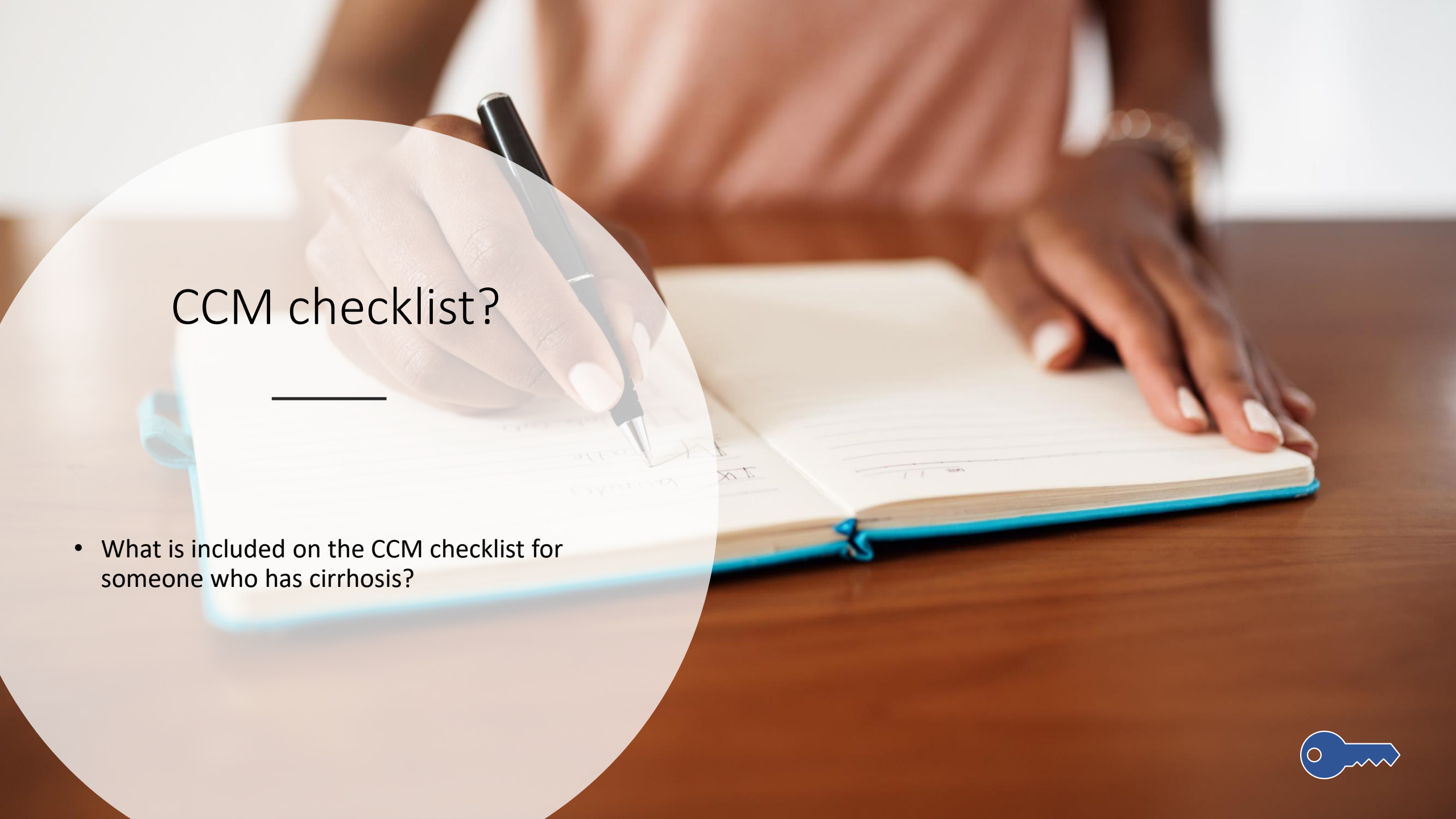
- Ceftriaxone 1 g IV per day for seven days if acute gastrointestinal bleeding and Child-Pugh grade B/C
- Trimethoprim/sulfamethoxazole 800-mg/160-mg tablet per day OR ciprofloxacin 500 mg per day OR Norfloxacin, 400 mg per day if acute gastrointestinal bleeding and Child-Pugh grade A, History of spontaneous bacterial peritonitis, ascitic protein < 1.5 g per dL and advanced liver disease (Child-Pugh score ≥ 9 or bilirubin ≥ 3 mg per dL) or kidney disease (creatinine ≥ 1.2 mg per dL, sodium ≤ 130 mmol per L)

Routine use of antibiotic prophylaxis in ascites without spontaneous bacterial peritonitis or acute gastrointestinal bleeding is not recommended

What preventative measures and counseling are important for cirrhosis?

Prevention

Treat underlying cause as early cirrhosis can be reversed
Vaccinations: influenza, Hepatitis A and B, pneumococcal (PCV20)
Avoid alcohol
Avoid unnecessary surgical procedures
Avoid raw seafood and unpasteurized dairy
Do not use NSAIDs, use acetaminophen and limit to 2g per day
Low dose aspirin may be continued if CVD severity exceeds severity of cirrhosis
Metformin and statins should be continued
Avoid unnecessary use of PPI
Avoid excessive Vitamin A supplementation and MVI with iron
Treat Hepatitis C
Weight loss in NAFLD



CCM checklist?

- What is included on the CCM checklist for someone who has cirrhosis?

CCM Checklist

- CMP, CBC, PT/INR every 6months and calculate MELD and Child-Pugh scores
- Vaccinations Hepatitis A/B, influenza and pneumococcal (PCV20)
- RUQ ultrasound q 6 months (+/- alpha fetoprotein)
- Antibiotic prophylaxis for SBP if:
  - Acute gastrointestinal bleeding and Child-Pugh grade A, History of spontaneous bacterial peritonitis, ascitic protein < 1.5 g per dL and advanced liver disease (Child-Pugh score ≥ 9 or bilirubin ≥ 3 mg per dL) or kidney disease (creatinine ≥ 1.2 mg per dL, sodium ≤ 130 mmol per L
- Beta blockade for esophageal varices if present
- Spironolactone for ascites/edema
- Lactulose +/- rifaximin if there is a history of hepatic encephalopathy
- Refer for decompensated liver disease (varices, encephalitis or ascites) or a MELD > 15

Hepatitis C

Most important risk factor is past or current IV drug use

Treatment can be 8 weeks with many of the medication if:

- No prior HCV treatment, no or compensated cirrhosis that is Child A class, and a low viral load (<6millionIU/mL)
- Otherwise most medications will require 12 weeks of treatment

Treatment guidelines (no-cirrhosis)

Refer to GI or hepatologist if there is evidence of cirrhosis, HIV or hepatitis B coinfection

Treatment guidelines (cirrhosis)

Inpatient Alcohol Withdrawal

- *PAWSS* ≥ 4
- Daily multivitamin containing 400 mcg of folic acid
- Thiamine 100 mg daily for three to five days
  - If Wernicke encephalopathy is suspected increase to 500mg IV TID
- Symptom triggered *benzodiazepines* are preferred in-patient with a CIWA-Ar ≥ 8 to achieve a calm but alert state
  - Long-acting diazepam and chlordiazepoxide are preferred
  - If advanced liver disease, alcoholic hepatitis or >65yo lorazepam or oxazepam are preferred
- Front loading is preferred in high-risk patients who have a history of seizures or delirium tremens
- Use of adjunct therapies is controversial as the focus should be on benzodiazepine treatment

Benzodiazepines

Medication	Fixed schedule	Symptom-triggered
Day 1 Diazepam (Valium) Chlordiazepoxide (Librium) Lorazepam (Ativan)	10mg q6h 25-50mg q6h 2mg q8h	10mg q4h 25-50mg q4h 2mg q6h
Day 2 Diazepam (Valium) Chlordiazepoxide (Librium) Lorazepam (Ativan)	10mg q8h 25-50mg q8h 2mg q8h	10mg q6h 25-50mg q6h 2mg q6h
Day 3 Diazepam (Valium) Chlordiazepoxide (Librium) Lorazepam (Ativan)	10mg q12h 25-50mg q12h 1mg q8h	10mg q6h 25-50mg q6h 1mg q8h
Day 4 Diazepam (Valium) Chlordiazepoxide (Librium) Lorazepam (Ativan)	10mg at bedtime 25-50mg at bedtime 1mg q12h	10mg q12h 25-50mg q12h 1mg q12h
Day 5 Diazepam (Valium) Chlordiazepoxide (Librium) Lorazepam (Ativan)	10mg at bedtime 25-50mg at bedtime 1mg q12h	10mg q12h 25-50mg q12h 1mg q12h

Benzodiazepines with adequate nursing support

Symptom triggered	Front loading
CIWA-Ar ≥ 8: give diazepam 5 mg PO/IV, recheck in 4 hours	**Diazepam**: 5 to 10 mg IV every 5 to 10 minutes, until the appropriate level of sedation is achieved.
CIWA- Ar ≥ 15: give diazepam 10 mg PO/IV, recheck in 2 hours	**Lorazepam**: 2 to 4 mg IV every 15 to 20 minutes
CIWA-Ar ≥ 20: give diazepam 20 mg PO/IV, recheck in 1 hour	