Causes of Elevated Bilirubin

Elevated unconjugated bilirubin

- ☐ Gilbert's syndrome
- ☐ Crigler-Najjar syndrome
- ☐ Hemolysis (intravascular and extravascular)
- ☐ Ineffective erythropoiesis
- ☐ Resorption of large hematomas
- ☐ Neonatal jaundice
- ☐ Hyperthyroidism
- ☐ Medications
- ☐ Post-blood transfusion

Elevated conjugated hyperbilirubinemia

- ☐ Bile duct obstruction
  - ☐ Choledocholithiasis
  - ☐ Malignant obstruction
  - ☐ Bile duct flukes
- ☐ Bile duct stricture
- ☐ AIDS cholangiopathy
- ☐ Viral hepatitis
- ☐ Toxic hepatitis
- ☐ Medications or drug-induced liver injury
- ☐ Acute alcoholic hepatitis
- ☐ Ischemic hepatitis
- ☐ Cirrhosis
- ☐ Primary biliary cirrhosis
- ☐ PSC
- ☐ Infiltrative diseases of the liver
  - ☐ Sarcoid
  - ☐ Granulomatous hepatitis
  - ☐ Tuberculosis
  - ☐ Metastatic cancer
  - ☐ Lymphoma
- ☐ Hepatocellular carcinoma
- ☐ Wilson disease (especially fulminant Wilson's disease)
- ☐ Autoimmune hepatitis
- ☐ Ischemic hepatitis
- ☐ Congestive hepatopathy
- ☐ Sepsis
- ☐ TPN
- ☐ Intrahepatic cholestasis of pregnancy
- ☐ Benign post-operative jaundice
- ☐ ICU or multifactorial jaundice
- ☐ Benign recurrent cholestasis
- ☐ Vanishing bile duct syndrome

Causes of Elevated Bilirubin (cont)

- ☐ Ductopenia

Continued

- ☐ Dubin-Johnson syndrome
- ☐ Rotor syndrome
- ☐ Sickle cell liver crisis
- ☐ Hemophagocytic lymphohistiocytosis

PSC, primary sclerosing cholangitis; TPN, total parenteral nutrition.

Algorithm Elevated (predominant unconjugated)

Elevated total bilirubin (predominant unconjugated)

1. History and physical exam

Assess liver transaminases and serum alkaline phosphatase

2. Review medications

Evaluate for hemolysis

Evaluate for Gilbert's syndrome

3. If persistent elevation is otherwise unexplained, may consider diagnostic testing for Gilbert's syndrome (UGT1A1 genotype) and evaluate for uncommon etiologies in Table 6

4. If persistent elevation is otherwise unexplained, is symptomatic, is worsening over time, and/or associated with abnormal transaminases

--> consider liver biopsyy

Algorithm Elevated (predominant conjugated)

Elevated total bilirubin (predominant conjugated)

1. History & physical exam

Assess liver transaminases and serum alkaline phosphatase

2. Review medications

Evaluate for clinically overt etiologies: sepsis, TPN, cirrhosis, & biliary obstruction

Perform right upper quadrant ultrasound

3. If ductal dilatation --> ERCP or MRCP

If no ductal dilatation --> check AMA, ANA, and SMA

4. If persistent elevation is otherwise unexplained, is symptomatic, is worsening over time, and/or associated with abnormal transaminases

--> consider liver biopsy

Source: http://acgblog.org/wp-content/uploads/2016/12/AJG-Kwo--et-al-ACG-Liver-Chemistries-Guideline-2017.pdf