

Location: Office visit

Vitals: BP: 120/80 mmHg; HR: 84/min; RR: 14/min; Temp: 37.2C(99F)

C.C: "I am not feeling well, can't eat anything and my urine has become dark yellow"

HPI:

A 34-year-old white male photographer comes to the office complaining of ill health for last 1-week. His symptoms began with low-grade fever, generalized body aches and fatigue. He has been nauseated; appetite is poor, with occasional loose stools and vomiting. He has not had any fever for last 2 days but his urine has become dark yellow in color and the stools seem to be very light colored. He also complained of right upper quadrant dull ache. He denied any hematemesis, melena, weight loss or dysuria. There is no history of jaundice or blood transfusion in the past. He has no allergies and is not taking any medications. The patient was a heavy smoker but has developed distaste for cigarettes since his illness started. He denied any alcohol use. He had been to Mexico on an assignment 3 weeks ago. He is married, lives with his wife and daughter. He is heterosexual, with only one sexual partner. Family history is non-contributory. Rest of the review of systems is unremarkable.

How would you approach this patient?

A patient with non-specific constitutional symptoms and dark yellow colored urine suggests that this could be a patient with jaundice. His vital signs and history suggest that he can be managed as an outpatient and does not need admission. Before ordering any tests, order a complete physical examination to confirm your suspicion. This will also help you in formulating a differential diagnosis and ordering the relevant tests.

Order physical exam:

Complete physical examination

Results of Physical Examination:

General appearance: Well built male, ill looking, not in distress. HEENT: Icteric sclera present; No JVD. Lungs are clear to auscultation and percussion bilaterally; cardiovascular: S1 S2 normal, no murmurs, rub or gallop. Abdomen is soft; tenderness is present in the right upper quadrant, but there is no rigidity, rebound or guarding; normal bowel sounds; liver is enlarged about 2 cm below the right costal margin, tender to palpation, firm in consistency with a smooth edge and surface; no splenomegaly or free fluid. Rectal: Normal sphincter tone, no hemorrhoids or fissures, stool is heme negative. Extremities: no edema, clubbing or cyanosis, no calf tenderness; peripheral pulses are full. Skin: no palmar erythema, no spider angioma. CNS: normal, no asterixis. Rest of the examination is within normal limits.

Order No. 1:

LFTs, stat

CBC with differential, stat

Reticulocyte count, stat

BMP, stat

PT/INR, stat

*Call me when the lab results available

Results for Order No. 1:

LFT: Total bilirubin - 6.0 mg %, Direct bilirubin - 4.0 mg %, ALT - 980 IU/L, AST - 700 IU/L, Alkaline phosphatase - 190 IU/L, Protein- 7.4 g/dl, albumin-3.8 g/dl.

PT= 13.2 sec,

CBC: Hgb- 15 g/dl, WBC - 9,000/uL, Platelet - 250,000/mm³, normal differential count

Peripheral smear: normal; Reticulocyte count: normal

BMP: BUN - 18, Creatinine-1.1, Sodium -138 meq/L, Potassium - 3.8 meq/L, Chloride -105 meq/L, Bicarbonate - 26 meq/L.

Discussion:

The etiology of jaundice can be divided into three broad categories - hemolytic, hepatocellular and obstructive. The hemolytic jaundice is characterized by a triad of anemia, mild jaundice, and splenomegaly but the hyperbilirubinemia is unconjugated (predominantly indirect bilirubin). The peripheral smear may show some abnormal cells suggestive of hemolysis and reticulocyte count is elevated. This patient has jaundice with conjugated hyperbilirubinemia (predominantly direct acting bilirubin) narrowing the possibility to hepatocellular and obstructive pathology. The significant elevation of aminotransferases and only mild elevation of alkaline phosphatase in this patient makes the possibility of obstructive jaundice (e.g. stones, strictures or cancer) less likely. This implies that this patient most likely has a hepatocellular cause. The causes of acute hepatocellular jaundice would include infections (mainly viral), drugs (e.g. acetaminophen), toxins (e.g. mushroom), alcohol and ischemic. Remember that in acute alcoholic hepatitis the AST/ALT ratio is $>2:1$, but transaminases are never >300 .

This patient's recent visit to Mexico (developing nation), incubation period of 2 weeks after return from Mexico, onset with fever during the anicteric phase, fever resolving with onset of jaundice and aversion to cigarettes suggest viral hepatitis A. Hepatitis A is the most common form of acute viral hepatitis in the USA and worldwide. He does not have risk factors for hepatitis B or C. Remember, that although feco-oral route is the most common mode of hepatitis A infection, homosexual men and IV drug users are also at an increased risk. Its incubation period varies from 15 to 50 days.

Confirming the diagnosis: The diagnosis of acute viral hepatitis can be confirmed by ordering anti-HAV antibodies. These are of two types- IgM and IgG. Both the antibodies may be present in the serum soon after the onset of illness. But the presence of the IgM anti-HAV antibody confirms the diagnosis of hepatitis A. The IgM antibody peaks during first week and disappears within 3-6 months. The presence of IgG anti HAV antibody in the absence of IgM indicates a previous exposure, non-infectivity and immunity against recurring hepatitis A infection.

Order No. 2:

Anti-HAV antibodies (IgM and IgG)

*Could also order a Hepatitis B (HBsAg, IgM anti-HBc ab), Hepatitis C (Hep C antibody) screening panel if risk factors were present.

Rest at home

Antiemetics PRN (Phenergan, oral, continuous because there is no PRN (as needed) option in software)

Reassure patient

Regular diet

No alcohol

No smoking

Hepatitis precautions counseling

No acetaminophen or hepatotoxic drugs (these are 2 not available in software)

May send the patient home, repeat appointment once the results available

Results for order No. 2:

Patient comes for return visit the next day

IgM anti HAV antibody positive

IgG anti HAV antibody positive

Order:

Interim history and brief focused physical exam

Results:

Patient feels weak, continues to have poor appetite; vitals stable

Patient questions about prophylaxis for his wife and daughter (May not happen in real exam)

Order No. 3:

May send the patient home again and schedule appointment for 3 days

LFTs in 3 days

PT in 3 days
Notify public health department

* Hepatitis A immune globulin and Hepatitis A Vaccine for wife and daughter (May not happen in real exam)

Results for order No. 3:

Patient comes for a return visit

LFT- Total bilirubin - 8.0 mg %, Direct bilirubin -5.0 mg %, ALT - 1500 IU/L, AST - 1300 IU/L, Alkaline phosphatase - 210 IU/L

PT/INR- 14.0 sec, INR=1.36

**Patient still feels weak, continues to have poor appetite but vitals stable*

Order No. 4:

May send the patient home

LFT in 3 days

PT/INR in 3 days

Repeat appointment with lab results

Results for order No. 4:

Patient comes for a return visit

LFT- Total bilirubin - 5.0 mg %, Direct bilirubin -3.0 mg %, ALT - 800 IU/L, AST - 700 IU/L, Alkaline phosphatase -190 IU/L

PT- 14.0 sec, INR=1.36

**Patient feels better, nausea is less and appetite improved; vitals stable*

If the case still continues, order:

Examine the patient 3 days later

Order, repeat LFT and PT/INR in 3 days

Final Diagnosis:

Acute Hepatitis A

Discussion:

Hepatitis A causes a self-limiting acute hepatitis. There are no chronic or carrier forms of hepatitis A. Given the generally benign nature of hepatitis A, most patients can be treated at home with symptomatic and supportive therapies. No specific antiviral treatment is available. Intake of alcohol, acetaminophen and other potentially hepatotoxic substances should be avoided. Remember that conjugated hyperbilirubinemia is seen in viral hepatitis and do not be fooled by light colored stools. These are acholic stools because of cholestatic phase seen in infectious hepatitis causing a picture similar to obstructive jaundice. Do not be scared by high and rising levels of aminotransferases. The aminotransferases may be as high as 5000 IU/L and may show a rising trend for couple of weeks before starting to resolve. Recovery occurs in 3-16 weeks, although LFT may be impaired till one year. Encephalopathy and coagulopathy point towards hepatic failure and the need for admission.

Does this patient need vaccination?

No, since Hepatitis-A infection leads to life-long immunity.