

### **Acute Viral Hepatitis: Selected Queries**

**Q. 1. An 8-year-old child presented with jaundice and passage of dark colored urine of 10 days duration. What other questions should be asked to specify diagnosis of acute viral hepatitis (AVH)?**

A1. History of (a) prodrome that includes anorexia (highly specific), fever and vomiting; (b) upper abdominal discomfort; (c) improvement in anorexia and decrease or disappearance of fever following onset of jaundice (d) similar history in the family or in the vicinity or schoolmates.

**Q. 2. What other differential diagnosis should be considered in such a child? How can we clinically differentiate?**

A2. (i) Continuation of fever after the onset of jaundice suggests other differential diagnosis:

(a) Salmonella hepatitis - high fever, mild jaundice; (b) Malaria hepatopathy: high fever with chills/ rigors, usually mild jaundice and anemia; (c) Leptospirosis: geographical predisposition (common in Western and Southern parts of India), seasonal variation: high temperature with excessive rainfall, biphasic illness of initial phase of fever, myalgia followed by jaundice, azotemia and edema; (d) Dengue: fever, seasonal variation and bleeding manifestations; (e) Liver abscess: Fever, right upper quadrant pain,

tender hepatomegaly, and jaundice is uncommon; (f) Cholangitis due to choledochal cyst, biliary stones or worms: may have biliary colic.

(ii) *Drug induced hepatitis:*

Administration of hepatotoxic drugs including isoniazid rifampicin; valproic acid, carbamazepine; erythromycin, amoxi-cillin with clavulanic acid, and diclofenac.

**Q. 3. What are the causes of acute viral hepatitis in India?**

A3. Pooled Indian data of children (N = 588) has shown AVH due to hepatitis A virus (HAV) to be the commonest cause (53%), acute hepatitis E virus (HEV) 13%, acute hepatitis B virus (HBV) 11%, mixed infections 10%, non A-E 13%. Pooled data of 519 children revealed multiple virus infection in 14% cases (80% due to viral hepatitis A + E).

**Q. 4. Can you distinguish viral hepatitis A from viral hepatitis E or acute hepatitis B by history or by liver function tests?**

A4. Viral hepatitis A and E cannot be differentiated either by history or by liver function tests. However, history of similar illness in other children during this period in the family may be a clue to HAV rather than HEV. This is due to the fact that person to person spread is rare with HEV infection. However, other children may also suffer in HEV infection in case of a common source of infection e.g., water. In case of acute HBV infection

there may be (a) history of recent injections (in India commonest cause of HBV infection is intramuscular injections), blood or blood product transfusion; (b) family history of HBV infection (c) immuno-suppressed host (e.g., Down's syndrome, on chemotherapy and others). Liver function tests are not discriminatory.

**Q. 5. What minimum investigations should be ordered in acute viral hepatitis? What parameters in liver function tests will be helpful to support the diagnosis of acute viral hepatitis? What is the role of prothrombin time?**

A5. *Liver function tests:* Serum bilirubin (total), serum alanine aminotransferase (ALT) and albumin if available and affordable. There is no need to do viral markers for hepatitis A and E. However, one should preferably do HBsAg. Marked elevation in transaminases and normal serum albumin support the diagnosis of AVH. Prothrombin time (PT) or international normalized ratio (INR) is the most sensitive laboratory marker of liver function. This test is easy, cheap and widely available in our country. In a clinical setting of AVH most important complication is that of acute liver failure (ALF). PT gets deranged in ALF and thus serves as a useful marker to guide early diagnosis and therapy.

**Q. 6. Once diagnosed what advice would you give to the patient and the family?**

A6. Patient is advised high calorie diet. There should be no restriction of fat, proteins and other normally used food items. Consumption of high, dense and frequent

sugar solutions is not recommended. These may aggravate the symptoms of nausea and vomiting. Isolation is not required once the patient is in icteric phase and no drugs including so-called hepatoprotective agents be prescribed. Ursodeoxycholic acid (UDCA) has been found to be useful in cholestatic form (pruritus as a symptom affecting quality of life) that constitutes a small proportion of AVH cases. Pediatricians should explain natural history of the disease to reassure the patient and parents recovery of disease.

**Q. 7. Would you repeat LFT in a child diagnosed to have acute viral hepatitis? If yes when?**

A7. In an uncomplicated case of AVH repeat LFT should be done after 3-6 months of onset of disease to document biochemical recovery. In order to assess recovery of AVH clinical monitoring is sufficient. There is no correlation between the severity of hepatitis and the level of transaminases. Recovery can be adequately assessed by clinical features of disappearance of fever and pain/tenderness in the region of liver, improvement in appetite, gradual normalization of urine color and decreasing jaundice. Repeat LFT in patients with alarm symptoms, irrespective of duration of disease.

**Q. 8. What are the alarm symptoms in acute viral hepatitis and why is it important to monitor these features?**

A8. Alarm symptoms are as follows: (a) Altered sensorium indicates ALF but dehydration and dyselectrolytemia due to persisting vomiting or reduced intake may also result in altered sensorium without ALF; (b) Persisting fever after

the onset of jaundice is indicative of other infective conditions; (c) Cola color urine with anemia and deep jaundice suggest intravenous hemolysis that may be due to G6PD deficiency or as the manifestation of Wilson's disease or autoimmune liver disease; (d) Increasing intensity of jaundice; (e) Ascites: chronic liver disease, acute on chronic liver disease or acute hepatitis alone; (f) Persistent jaundice >12 weeks; (g) Prolongation of prothrombin time >3 seconds; (h) Bleeding manifestations suggest coagulopathy.

**Q. 9. A 5-year-old child presented with jaundice and passage of dark colored urine of 14 days duration. He was found to be HBsAg positive by investigations?**

**(a) Can this be acute hepatitis B infection? (b) Can this be chronic hepatitis B infection?**

A9 Yes, this could be either acute or chronic. HBsAg positive child in the above clinical setting may have (i) acute HBV infection or (ii) acute HBV infection on a pre-existing chronic liver disease due to other etiology e.g., Wilson's disease or (iii) the child has chronic HBV infection with a

superimposed AVH due to hepatitis A or E or (iv) reactivation of HBV. In this patient component of acute hepatitis can be substantiated by marked elevation of ALT. Evidence of chronic liver disease will come from clinical examination and low serum albumin. IgM-anti-HBc should be done to differentiate between acute HBV infection versus chronic HBV infection. In acute hepatitis B infection, IgM-anti-HBc is positive. If IgM-anti-HBc is positive this suggests possibility I or II as above. In such a situation one would repeat HBsAg after 6 months to look for clearance. However, IgM-anti-HBc may also be positive during HBV reactivation. In case of negative IgM-anti-HBc this child has most likely chronic HBV infection.

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