

<p><b>Transmission</b></p> <ol style="list-style-type: none"> <li>1. Infected blood: contaminated objects.</li> <li>2. sexually.</li> <li>3. From mother to child.</li> </ol> <p>✓ risk of transmission of HCV through sexual contact is very low.</p>	<p><b>HBV</b></p> <p><b>Family : hepadnaviridae.</b></p> <p>The complete virus particle is 42-nm in diameter . It consists of an outer <b>envelope</b> containing hepatitis <b>B surface antigen (HBsAg)</b>. And internal <b>core</b> ( nucleocapsid) composed of <b>hepatitis B core antigen (HBcAg)</b>. The viral genome is small partially circular <b>ds-DNA</b>.</p>	<p><b>Complications</b></p> <p><b>1.Cirrhosis:</b> a chronic diffuse liver disease, with <b>fibrosis &amp; nodular formation</b>. Results from liver cell necrosis &amp; the collapse of hepatic lobules. <b>Symptoms</b>, ascites, coagulopathy (bleeding disorder), portal hypertension, hepatic encephalopathy, vomiting blood, weakness, weight loss.</p> <p><b>2.Hepatocellular carcinoma ( HCC ):</b> most common cancer in the world, deadly if not treated.</p> <p>✓ Hepatitis B &amp; C viruses are the leading cause of chronic liver diseases.</p>
<p><b>Clinical out come</b></p> <p><b>90 % →acute hepatitis B →recover completely.</b></p> <p>9 % →chronic hepatitis B.</p> <p>1 % → fulminant hepatitis B → liver necrosis →liver failure → death.</p>	<p><b>HBV: Particles</b></p> <ol style="list-style-type: none"> <li>1. Large number of small spherical free HBsAg particles .</li> <li>2. Some of these HBsAg particles are linked together to take the form of filaments .</li> <li>3. In addition to the complete HBV-particles ( Dane particles ) .</li> </ol>	<p><b>Diagnosis</b></p> <p>Detection of HBsAg in the <b>blood</b>.</p>
<p><b>Acute hepatitis B</b></p> <p>Usually asymptomatic anicteric</p> <p><b>1.Aicteric phase:</b> Low grade fever, anorexia, malaise, N &amp; V, right upper quadrant abdominal pain.</p> <p><b>2.Icteric phase:</b> jaundice, dark urine &amp; pale stool.</p> <p><b>3.Convalescent phase.</b></p> <p>✓ lasts for weeks to less than 6-months .</p>	<p><b>Markers (MCQ)</b></p> <ol style="list-style-type: none"> <li>1. Hepatitis B surface antigen (HBsAg) → infection.</li> <li>2. Hepatitis B e antigen (HBeAg) → active virus replication (present in all body fluids).</li> <li>3. Antibody to hepatitis B e antigen (Anti-HBe) → low infectivity.</li> <li>4. Antibody to hepatitis B surface antigen (Anti-HBs) → immunity.</li> <li>5. Antibody to hepatitis B core IgG (Anti-HBc IgG ) → exposure.</li> </ol>	<p><b>Vaccine</b></p> <p>Highly purified preparation of HBsAg particles , produced by genetic engineering in yeast. It is a recombinant and sub-unit vaccine . It is <b>not</b> live attenuated <b>nor</b> killed vaccine . Administered in 3 dose, safe &amp; protective.</p>
<p><b>Chronic hepatitis B</b></p> <p>Usually asymptomatic or have mild fatigue only. Symptoms: right upper quadrant abdominal pain, enlarged liver &amp; spleen . Jaundice may or may not developed, fatigue.</p> <p><b>Presence of HBsAg or HBV-DNA in the blood for more than six - months.</b></p>		<p><b>Treatment</b></p> <ol style="list-style-type: none"> <li>1. <b>Pegylated alpha interferon</b>, one injection per week, for 6- 12 months.</li> <li>2. <b>Lamivudine.</b></li> <li>3. <b>Adefovir.</b></li> </ol>

<p><b>HCV</b></p> <p>Outer envelope , icosahedral core &amp; the viral <b>ss-RNA</b>.</p> <p>1 – 6 , genotype 4 is the dominant in Saudi patients</p> <p>Transmission --- like HBV.</p>	<p><b>Markers (MCQ)</b></p> <ol style="list-style-type: none"> <li>1. Hepatitis C virus – RNA → infection(after 2 weeks).</li> <li>2. hepatitis C core antigen → infection ( after 3 weeks).</li> <li>3. IgG Antibody to hepatitis C → after 50 days.</li> </ol>	<p><b>Clinical out come</b></p> <p><b>20 % →acute hepatitis C →self-limiting →recover completely.</b></p> <p>80 % chronic hepatitis C.</p> <p>1 % →fulminant hepatitis C →liver failure &amp; death.</p>	<p><b>Diagnosis</b></p> <p>By both:</p> <ol style="list-style-type: none"> <li>1. HCV-RNA in the blood using PCR.</li> <li>2. detection of antibody to HCV.</li> </ol> <p><b>Treatment</b></p> <p><b>Pegylated alpha interferon &amp; ribavirin.</b></p>
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<p><b>HDV (delta virus)</b></p> <p>A defective virus, cannot replicates by its own, <b>need helper virus (HBV)</b>. HBV provides the free HBsAg particles to be used as an envelope. Composed of <b>ss-RNA</b> genome, surrounded by delta antigen that form the nucleocapsid.</p>
<p><b>Types</b></p> <p><b>1.Co-infection:</b> The patient is infected with HBV and HDV at the same time, leading to <b>severe acute hepatitis</b>. Prognosis: recovery is usual.</p> <p><b>2.Super infection:</b> In this case, delta virus infects those who are already have chronic hepatitis B, leading to <b>severe chronic hepatitis</b>.</p>