Hepatitis B Virus Disease

Hepatitis B Virus (HBV) is in the Hepadnavirus family and is an enveloped DNA virus with a partially double-stranded circular genome. This virus can produce several disease types including acute hepatitis with recovery and clearance of the virus, a nonprogressive chronic hepatitis, progressive chronic disease resulting in cirrhosis, and fulminant hepatitis with massive liver necrosis. Patients can also be asymptomatic carriers. HBV induced chronic liver disease is also an important precursor for the development of hepatocellular carcinoma of the liver. In the United States, acute HBV infections typically affect adults and the majority of individuals have mild or no symptoms. Some experience nonspecific constitutional symptoms such as fever, anorexia, RUQ pain, or jaundice and is usually self limited. In areas of high prevalence of HBV, perinatal transmission is common. When infants are affected via perinatal transmission, the rate of becoming a chronic carrier is significantly increased, with approximately 90% of newborns with HBV becoming a chronic carrier as compared to 10% of adults who become chronic carriers. HBV is commonly associated with several other diseases including membranous glomerulonephritis, polyarteritis nodosa, and a serum sickness like syndrome.



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Can turn chronic
Old Crone
Unlike hepatitis A, hepatitis B can turn into a chronic infection with both nonprogressive and progressive forms. Progressive chronic liver disease can cause cirrhosis and is also an important precursor for the development of hepatocellular carcinoma.

< 10% of adults become chronic carriers
Short 10% bar carried by old Crone
In the United States, acute HBV infections typically affect adults and the majority of individuals have mild or no symptoms. Some experience nonspecific constitutional symptoms such as fever, anorexia, RUQ pain, or jaundice and is usually self limited. Less than 10 percent of affected adults go on to become chronic HBV carriers.

90% of newborns become chronic carriers
90% bar has baby on top
In areas with high prevalence of HBV, perinatal transmission is common. When infants are affected via perinatal transmission, the rate of becoming a chronic carrier is significantly increased, with approximately 90% of newborns with HBV becoming chronic carriers.

Cirrhosis
C-roses-on-liver
Cirrhosis is characterized by the replacement of liver tissue by fibrosis, scar tissue, and regenerative nodules resulting in loss of liver function. HBV infection can cause progressive chronic hepatitis leading to cirrhosis.

Hepatocellular carcinoma
Liver Car-gnome
HBV induced chronic liver disease is an important precursor for the development of hepatocellular carcinoma of the liver.

Membranous Glomerulonephritis
Man-bra Glow-mare
Membranous glomerulonephritis is the second most common cause of nephrotic syndrome in adults characterized by the presence of subepithelial immune complex deposition along the glomerular basement membranes causing a spike and dome appearance. HBV infection is commonly associated as a secondary cause of membranous glomerulonephritis.

Polyarteritis nodosa
Poly-artist painting Nodosaur
Polyarteritis nodosa is an immune complex mediated transmural vasculitis that typically affects small to medium sized vessels. This vasculitis commonly affects renal and mesenteric vessels while classically sparing the pulmonary arteries. This disease has a strong association with hepatitis B infection.

Serum sickness like syndrome
Syrup Sickness
A serum sickness like syndrome is an occasional extrahepatic manifestation of hepatitis B infection. Serum sickness like reactions refer to symptoms that resemble serum sickness but in which immune complexes cannot be found. Serum sickness is characterized by immune complex deposition in the skin, joints, and organs that can cause fever, lymphadenopathy, arthralgias, cutaneous eruptions, GI disease, and proteinuria.

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