

HEPATITIS B

Epidemiology

Source: Human only

Anatomical source

Blood
Internal body fluid
Other: semen, vaginal fluids, saliva

Transmission

- Sexual
- Perinatal
- Percutaneous/per mucosal exposure, needles

Incubation
90 days (45-160 d)

Clinical case definition

Acute HBV: Discrete onset of symptoms. Prodromal phase (malaise, weakness, anorexia, myalgia, arthralgia, macular rash, thrombocytopenia, papular macrodermatitis); then jaundice, liver enzyme abnormalities.

Chronic HBV: asymptomatic or nonspecific symptoms (fatigue)

Complication:

Fulminant hepatitis B,
Primary hepatocellular carcinoma,
Polyarteritis nodosa,
Glomerular disease
Death: Fulminant hepatitis, primary hepatocellular carcinoma, cirrhosis

Asymptomatic Carriers = Chronic Hepatitis B

10% of persons with acute HBV become chronic carriers and are infectious for life.

LA 2000:

New: 1,300 New infections, 100-200 new reports, incidence 0.25 /100K

Carriers: 21,000 carriers, prevalence 0.5%

Risk of chronic liver disease: 2,000, 5-10% of carriers

Diagnosis

Hepatitis B Virus: DNA-containing, 42 nm Ø hepadnavirus with Outer lipoprotein envelope (ps1, ps2, HBsAg), serotypes adw, ayw, adr and ayr
Inner nucleocapsid:
Hepatitis B core antigen HBcAg
Hepatitis e Antigen secreted by injured hepatocytes

Suspect: HBsAg positive but no other confirmatory lab results

Confirmed:

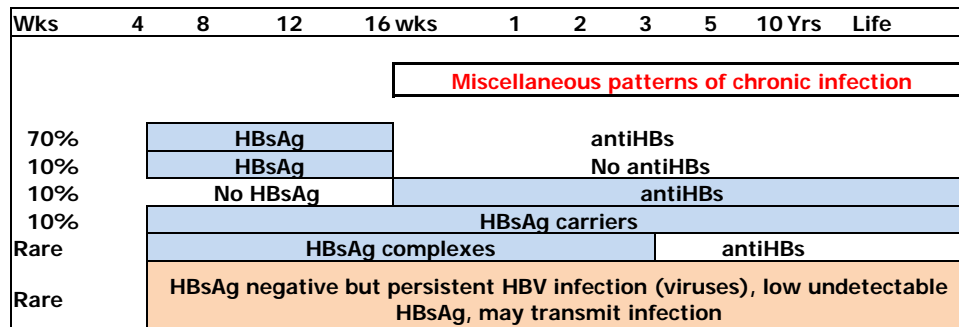
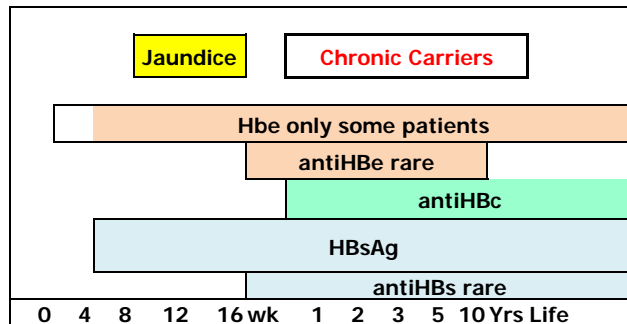
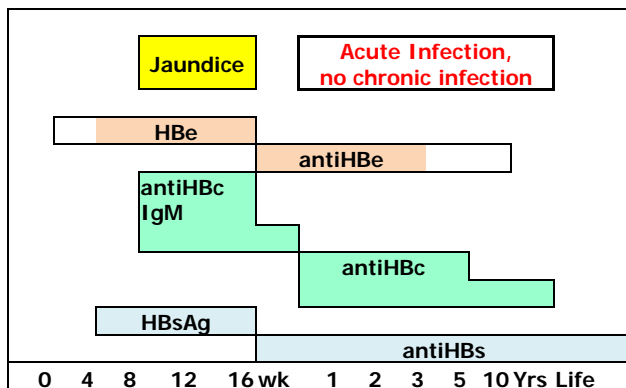
Acute- Clinically compatible,
+ high ALT
+ IgM anti-HAV negative
+ IgM anti-HBc positive
or HBsAg positive

Chronic : regardless of illness
+ anti-HBc IgM negative
+ HBsAg positive,
+ anti HBc positive,
or HBeAg positive,
or HBV DNA positive;
or HBsAg positive 2 times at 6 months interval

Lab Diagnosis

-demonstration of viral antigens & antibodies

- **Hepatitis B surface antigen (HBsAg)**- detectable prior to onset (1 mo. after exposure), persists 3-4 mos. After onset. HBsAg positive indicates acute HBV, **or chronic carrier of antigen without history of acute disease exposure
- **e antigen of HBV (HBeAg)**- Indicates infectivity
- **Anti-HBc IgM**- positive indicates acute or recent infection
- **Nucleic acid tests**- hybridization assays & gene amplification techniques (PCR) detect & quantitate HBV DNA



Treatment, Prophylaxis

Treatment

- No specific treatment is available for acute HBV
- Chronic HBV in adults can be treated with: interferon-alfa, lamivudine, adefovir, or entecavir
- 25-40% of adults with chronic HBV infection achieve long term remission (loss of detectable HBV DNA or loss of HBeAg) after treatment with interferon-alfa
- Halt progression of liver disease

Prophylaxis

- Immunization is available and should be given to all infants at birth.
- Vaccine is given in 3 doses
- All household contacts should receive vaccine series
- Anyone exposed to an HBsAg-positive source (i.e., needle exposure, sexual contact, blood/body fluid exposure) should receive vaccine series in addition to Hepatitis B Immune Globulin (HBIG)

Standard precautions

Control

Routine Immunization

- 3 doses
- Given to all children at birth
- All unimmunized children/teens
- Any high-risk adults (health care workers, anyone with occupational exposure to blood, staff/residents of institutions for people with developmental disabilities, anyone undergoing hemodialysis, international travelers)

Vaccine is 90-95% effective at preventing HBV infection

Prevention of perinatal HBV infection (routine screening of all pregnant women; appropriate treatment of children born to HBsAg positive women)