Hepatitis

Dr. Mu’taz M Massad
Assistant Professor
Faculty of medicine- Hashemite University.

- Definition
- Types

Viral hepatitis

- While taking hx , you have to ask about risk factors, maternal and family hx.
- All hepatitis viruses are RNA viruses except Hepatitis B (DNA)

- CMV, EBV & herpes can cause hepatitis in immunocompromised pts.

- Presentation :
  Fatigue, Jaundice, itching, ..
  Increase transaminases, ALP, GGT, Bilirubin.

Viral hepatitis

- Hepatitis A
  caused by the hepatitis A virus (HAV). non enveloped , RNA virus member of the genus *Hepatovirus* in the family Picornaviridae.

Fecal-oral route.
Incubation period : 15-50 days , average 30 days. (you can infect others within 2 weeks after onset of jaundice)
Humans are the only known reservoir.

HAV infection is usually a self-limited illness that does not become chronic. Fulminant hepatic failure occurs in less than 1 percent of cases. Infection confers lifelong immunity and is preventable via vaccination.

- Usually pts start to have fatigue , loss of appetite , decreased smoking habits then start to have symptoms where the virus is in feces at that time then ALT, AST increase then IgM develop in your body.

- Extrahepatic manifestations :
  Nephritis , GN , Rash , Arthralgia & carditis.

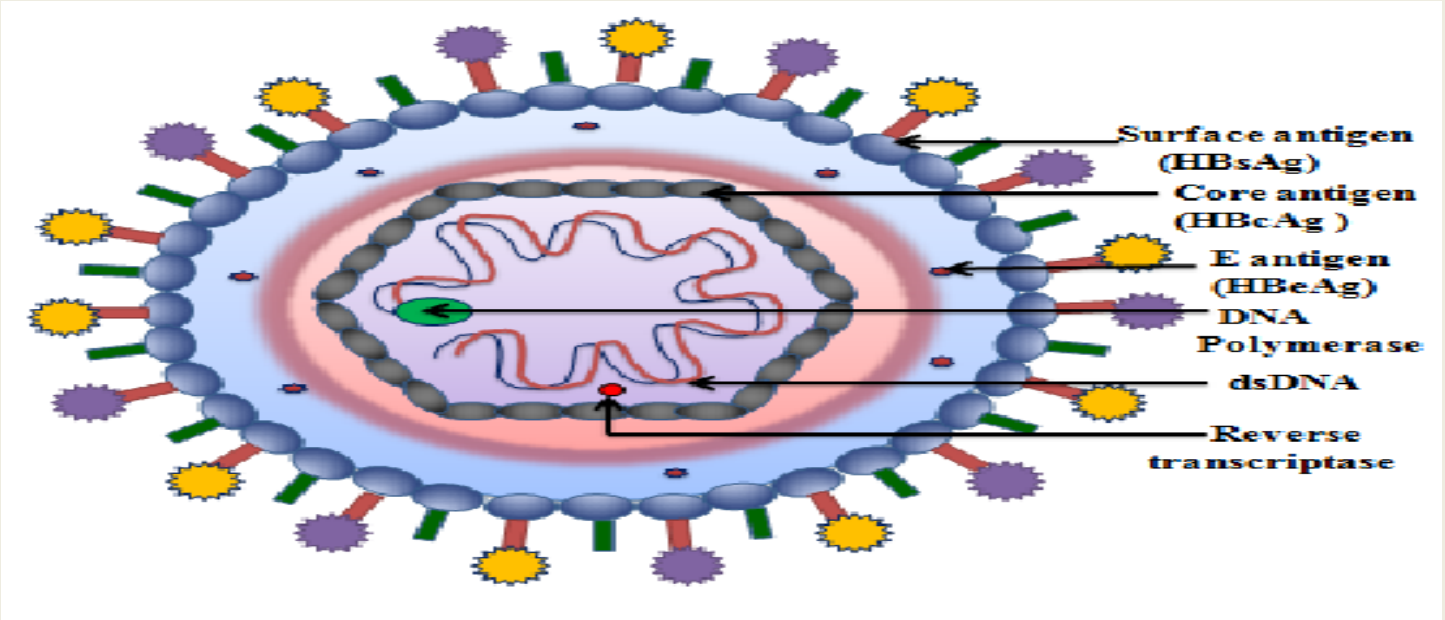
- Diagnosis : +ve IgM anti HAV antibody.
- Treatment : Supportive.
- Prevention : Vaccination (2 doses)
- Post exposure prophylaxis:

if healthy between 1- 40 yrs→ HAV vaccine within 2 weeks / HAV immunoglobulin.

If >40 yrs, immunocompromised, has chronic liver disease→ HAV vaccine & HAV immunoglobulin.

- **Prolonged cholestatic hepatitis**: prolonged (> 3months) period of cholestasis after acute hepatitis episode.

- **Relapsing hepatitis**: relapse after complete resolution of acute hepatitis.



- Hepatitis B
  caused by hepatitis B virus
  Double stranded DNA virus of the hepadnaviridae family.

- Mood of Transmission?
- Acute Hepatitis B
  Incubation period : 1-4 months.
  70%→ mild subclinical anicteric hepatitis.(most ALT,AST >1000 IU/L)
  30%→ Acute icteric hepatitis
  <1% → Acute fulminant hepatitis.

HBsAg is the first serologic marker to appear in a new acute infection,

>95% → Recover completely.

<5% → chronic infection. (>90 % in children).

Treatment of acute hepatitis B :

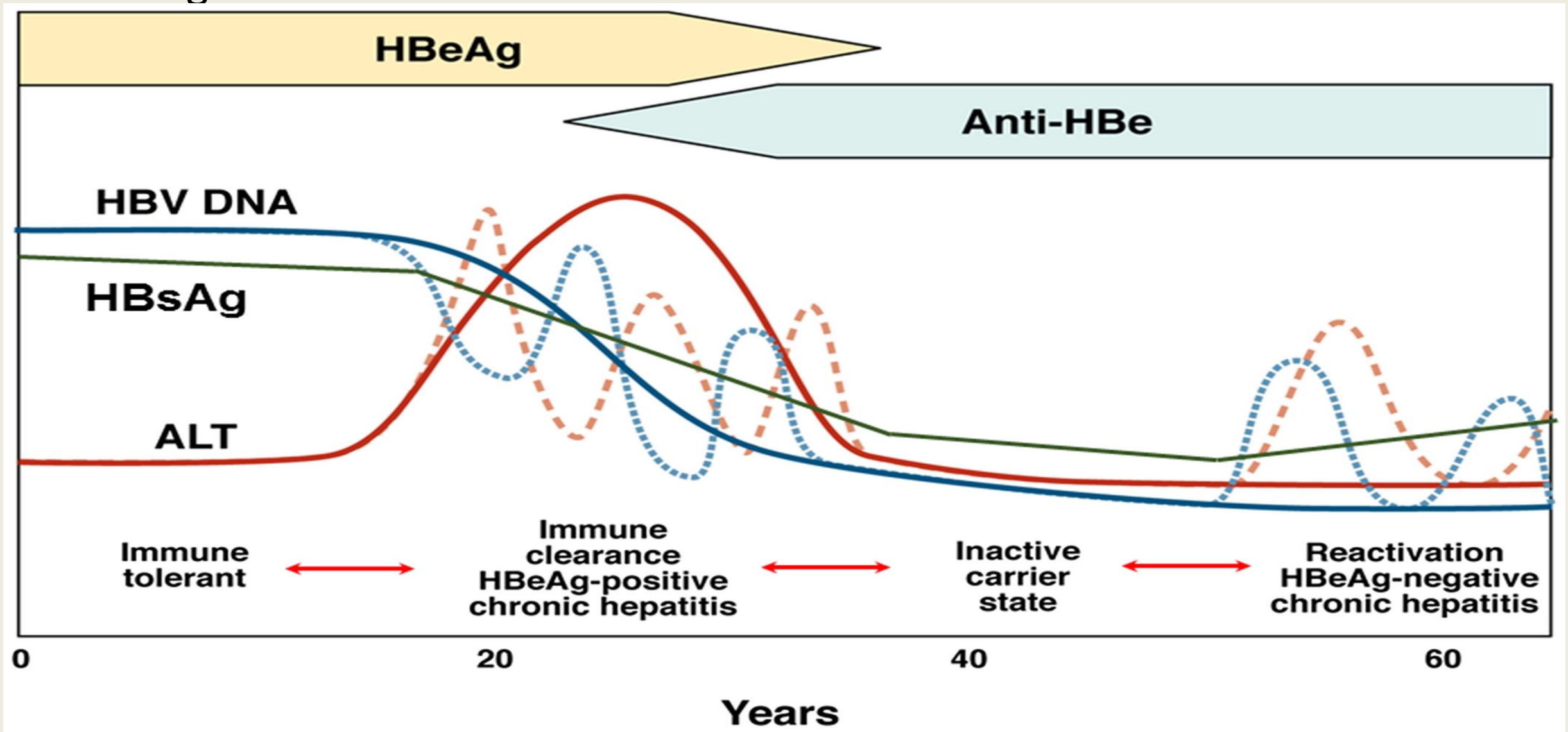
Supportive.

Indication for antiviral therapy in acute hepatitis B infection:

Acute fulminant hepatitis (HE , INR > 1.6)
Immunocompromised
coexisting HCV
other causes of chronic liver disease.
Protracted course (bilirubin > 10 mg/ dl for >4 weeks)

INF should be avoided

- Chronic hepatitis B
  HBsAg > 6months .
  Stages:



- Screen suspected patient with : HBsAg , HBsAb, HBcAb.

- Vaccinate those with HBsAb negative and do not have chronic infection.

  Presence of HbeAg means ?
  Is it possible to develop HCC in chronic Hepatitis B patients without cirrhosis ?

- Treatment is not recommended in immune tolerant & low replicative (inactive carrier).

- **Treatment** is indicated where there is evidence of inflammation combined with elevated HBV DNA level .

- For patients with cirrhosis : treat regardless of HBV DNA level.

- First line therapy for chronic hepatitis B :
  Entecavir (Nucleoside analogue) or tenofovir (Nucleotide analogue)

- Goal of treatment → -ve HBV DNA at week 48.

	HBsAg	Anti-HBs	Anti-HBc
Susceptible	Negative	Negative	Negative
Vaccinated	Negative	Positive	Negative
Past Infection	Negative	Positive	Positive
Acute Infection	Positive	Negative	IgM Positive
Chronic Infection	Positive	Negative	IgG Positive

Chronic Hepatitis B & pregnancy

- The decision to initiate therapy while pregnant depends upon the presence or absence of cirrhosis, HBeAg, and hepatitis B e antibody (anti-HBe), as well as the HBV DNA and aminotransferase levels.

- Management approach:
  measure HBV DNA at the end of second trimester (wk 26-28)
  If : mother has previous child with HBV +ve / if HBV DNA >200,000 IU/mL
  → treat (tenofovir is the preferred) .

- Indications for treatment of HBV in pregnancy
  Advanced fibrosis & cirrhosis .
  Active HBV infection with high viral load & elevated ALT.

- Most neonateal HBV transmission (>95%) occurs during delivery .
- → HBIG & vaccination to the newborn.
  → CS is NOT recommended

Occupational exposure to hepatitis B

Recommended PEP for Hepatitis B Virus:

Vaccination/Ag response status of exposed patient	Treatment when source patient is:		
	HBsAg positive	HBsAg negative	Source unknown or not available for testing
Unvaccinated/ non-immune	HBIG ×1; initiate HB vaccine series	Initiate HB vaccine series	Initiate HB vaccine series
Previously vaccinated, known responder	No treatment	No treatment	No treatment
Previously vaccinated, known non-responder	HBIG ×1 and initiate revaccination or HBIG ×2	No treatment	No treatment unless high-risk source; if high-risk source, treat as if source were HBsAg positive
Previously vaccinated, response unknown	Single vaccine booster dose	No treatment	No treatment unless high-risk source; if high-risk source, treat as if source were HBsAg positive
Still undergoing vaccinated	HBIG ×1; complete series	Complete series	Complete series

HIV /HBV coinfection

- IF pt. not on HAART & is not anticipated to be started on HAART:
  Rx w Peg INF alpha or Adefovir.
- IF pt. is starting HAART & HBV treatment
  Rx w Lamivudine & Tenofovir or Emtricitabine & Tenofovir.
- IF pt. is already on HAART
  Add Peg INF alpha or Adefovir.

Hepatitis C

- RNA virus of the Flaviviridae family.
- HCV is the MCC of chronic hepatitis & cirrhosis in USA.
- Transmission ?
- Screen : HCV-Ab if +ve → confirm with PCR
- Most Hepatitis C acute infections progress to chronic infection.
- All patients with HCV should receive standard adult vaccinations ; including HAV & HBV if not immune.
- Goal of therapy → SVR at 6 months (undetectable HCV RNA)

Treatment OF HCV

Table 1. Direct-Acting Antiviral Drugs for HCV in the US	
Drug	FDA-Approved Indication
Daklinza – daclatasvir (BMS)	Genotypes 1, 3
Epclusa – sofosbuvir/velpatasvir (Gilead)	Genotypes 1-6
Harvoni – sofosbuvir/ledipasvir (Gilead)	Genotypes 1, 4, 5, 6
Olysio – simeprevir (Janssen)	Genotypes 1, 4
Sovaldi – sofosbuvir (Gilead)	Genotypes 1-4
Technivie – ombitasvir/ paritaprevir/ritonavir (Abbvie)	Genotype 4
Viekira Pak, Viekira XR – dasabuvir/ ombitasvir/paritaprevir/ritonavir (Abbvie)	Genotype 1
Zepatier – elbasvir/grazoprevir (Merck)	Genotypes 1, 4

Product	Brand name	Presentation	Posology
Sofosbuvir*	SOVALDI®	Sofosbuvir 400 mg (1 tablet)	One tablet once a day with or without food
Ledipasvir/sofosbuvir*	HARVONI®	Ledipasvir 90 mg/sofosbuvir 400 mg (1 tablet)	One tablet once a day with or without food
Daclatasvir*	DAKLINZA®	Daclatasvir 60 or 30 mg (1 tablet)	One tablet once a day with or without food
Asunaprevir*	SUNVEPRA®	Asunaprevir 100 mg (1 capsule)	One capsule twice a day with or without food
Ombitasvir/paritaprevir/ ritonavir*	VIEKIRAX®	Ombitasvir 12.5 mg/paritaprevir 75 mg/ ritonavir 50 mg (1 tablet)	Two tablets once a day with food
Dasabuvir*	EXVIERA®	Dasabuvir 250 mg (1 tablet)	One tablet twice a day with food
Elbasvir/grazoprevir*	ZEPATIER®	Elbasvir 50 mg/ grazoprevir 100 mg (1 tablet)	One tablet once a day with or without food
Glecaprevir/pibrentasvir*	MAVYRET®	Glecaprevir 100 mg/pibrentasvir 40 mg (1 tablet)	Three tablets once a day with food
Sofosbuvir/velpatasvir	EPCLUSA®	Sofosbuvir 400 mg/ velpatasvir 100 mg (1 tablet)	One tablet once a day with or without food
Sofosbuvir/velpatasvir/ voxilaprevir	VOSEVI®	Sofosbuvir 400 mg/ velpatasvir 100 mg/ voxilaprevir 100 mg (1 tablet)	One tablet once a day with food
Ribavirin*	VIRAMID®, RIBAVIRIN®	Ribavirin 200 mg (1 capsule)	If body weight <75 kg, 1,000 mg/day; If body weight ≥75 kg, 1,200 mg/day

*Approved by the Korean Ministry of Food and Drug Safety.

HCV/HBV coinfection

- If pt. on HBV therapy → continue treatment
- If pt. meets HBV treatment criteria → start HBV therapy before DAA treatment and continue HBV treatment indefinitely.
- If pt. Does NOT meet HBV treatment criteria → start HBV therapy before DAA treatment and continue HBV treatment 12 weeks post DAA treatment completion.

Occupational exposure of HCV

- Risk of transmission post accidental percutaneous exposure : 3%

Baseline → LFT & HCV-Ab
4-6 wks post exposure → HCV RNA
4- 6 months post exposure → LFT , HCV-Ab, HCV RNA .

15-25%: spontaneous resolve of their infection. Therefore no need to treat in the first 6 months. (Acute infection)

HCV sexual transmission

- Risk of transmission in monogamous couples (1/190,000)

  So , what do you recommend ?

Hepatitis D

- Defective RNA virus that requires HBV for its replication.
- Acquired by coinfection with HBV or by superinfection of pt. w chronic HBV.
- Clinical presentation : similar to acute HBV
  superinfection leads to chronic hepatitis in > 90% of cases .
- Can lead to rapidly progressive liver disease & cirrhosis.
- Diagnosis: +ve IgM anti HDV antibody. Confirm : HD RNA
- Treatment of choice Peg-INF alpha for 12 months if HDV RNA & ALT increased

Hepatitis E

- Non enveloped RNA virus of the hepevridae family.
- Wide host range : swine , cats, rats.
- Feco-oral rout.
- Incubation period : 60 days
- Discovered to cause chronic infection.
- Most pt. → self limited disease.
- Acute hepatitis E in pregnancy can lead to Fulminant hepatic failure with high mortality (up to 20%)
- 30-40% associated with neurological disorders as neuropathy, dementia,..

Autoimmune hepatitis

- Chronic inflammation characterized by :
  Circulating antibodies & characteristic histological finding on liver Bx
- Types ?
- Diagnosis :

  1)Elevated Igg
  2) Characteristic histologic features (interface hepatitis)

Treatment ?

Thank you