

# Acute Viral Hepatitis

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# Definition

## Hepatitis

Any disease process characterized by a diffuse inflammatory infiltrate of liver tissue, with or without a degree of hepatocellular necrosis and local fibrosis

# History

Highly variable: entirely asymptomatic to fulminant hepatic failure

The classic presentation of infectious hepatitis involves 4 phases

## Phase 1 - Viral replication

- Patients are asymptomatic
- serologic and enzyme markers of hepatitis

## Phase 2 - Prodromal phase

- anorexia, nausea, vomiting, alterations in taste, arthralgias, malaise, fatigue, urticaria, pruritus, aversion to cigarette smoke

## Phase 3 - Icteric phase

- dark urine, pale-colored stools, icteric, RUQ pain

## Phase 4 - Convalescent phase

- Symptoms and icterus resolve
- Liver enzymes return to normal

# Physical

- Low-grade fever/ absent.
- Signs of dehydration such as tachycardia, dry mucous membranes, loss of skin turgor
- Icterus of the sclerae or mucous membranes
- Liver may be tender and diffusely enlarged with a firm, sharp, smooth edge
- Cervical adenopathy (10-20%)
- Splenomegaly (10-20%)



# Causes

Hepatitis A virus (HAV)

Hepatitis B virus (HBV)

Hepatitis C virus (HCV)

Hepatitis D virus (HDV)

Hepatitis E virus (HEV)

Hepatitis G virus (HGV)

Transfusion Transmitted Virus (TTV)

HSV, VZV, EBV, CMV, HIV

# Transmission

	<b>HAV</b>	<b>HBV</b>	<b>HCV</b>	<b>HDV</b>	<b>HEV</b>
<b>Fecal-oral</b>	+++				+++
<b>Parenteral</b>	+	+++	+++	++	
<b>Perinatal</b>		+++	+	+	
<b>Sexual</b>		+++	+	++	

# Differential Diagnosis

- GB diseases
- Liver abscess
- Drug-induced hepatitis
- Autoimmune hepatitis
- Hepatocellular cancer
- Pancreatic cancer
- Gram negative Sepsis
- Flare up chronic hepatitis

# Laboratory Studies

- **IgM anti-HAV**: acute infection with HAV
- **IgM anti-HBc\*\***: acute HBV infection
- **HBsAg**: present in acute infection / chronic carriers
- **IgM anti-HCV**: within 4-10 weeks of infection
- **HCV RNA\*\***: most specific test of HCV infection and helpful in diagnosing acute HCV infection before antibodies have developed
- **IgM anti-HDV, HDV RNA**: acute infection with HDV
- **IgM anti-HEV, HEV RNA**: acute infection with HEV
- LFT, KFT, PT, USG, CT, Liver Bx

• \*\* screening

# Complications

- Chronic hepatitis
- Cirrhosis
- Hepatic failure
- Hepatocellular carcinoma (HBV, HCV)

## Pre-exposure prophylaxis

- **HAV:** (1 yr) Vaccine: months 0, 6
- **HBV:** (at birth) Vaccine: months 0,1,6

## Post-exposure prophylaxis

- **HAV:** HAIG: 0.02 cc/kg IM and complete course of vaccine
- **HBV:** HBIG: 0.06 cc/kg IM and complete course of vaccine

# Indication of admission

Bilirubin > 20 mg/dl

Hypoglycemia

Abnormal PT (> 3 seconds )

Hypoalbuminemia

Poor oral intake

Encephalopathy

Intractable vomiting

Significant electrolyte or fluid disturbances

Significant comorbid illness

Immunocompromised

> 50 years

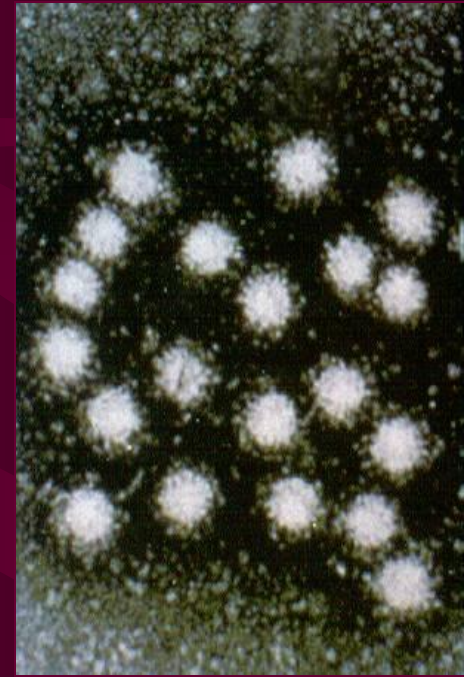
# Hepatitis A

## Epidemiology

In India, anti HAV community rate is 91.2 %

## Clinical course

- The incubation period of hepatitis A virus is 2-7 weeks (avg 28 days)
- Presentation similar to gastroenteritis or a viral respiratory infection
- Fatigue, nausea, vomiting, fever, jaundice, dark urine, anorexia
- Usually occurs as a mild self-limited disease and confers lifelong immunity
- Chronic infection does not occur



ssRNA

## **Morbidity and death**

- Infection confers lifelong immunity against HAV
- Complications include acute liver failure, cholestatic hepatitis
- Overall mortality rate is 0.01%
- Children < 5 years and adults > 50 years have highest case-fatality rates

# Hepatitis B

## Epidemiology

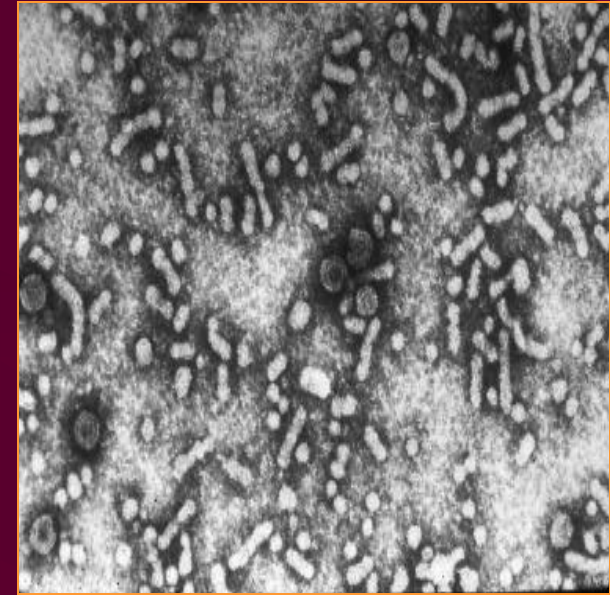
In India, 3-4% are HBsAg positive

## Transmission

- HBeAg tend to have higher viral titers and thus greater infectivity

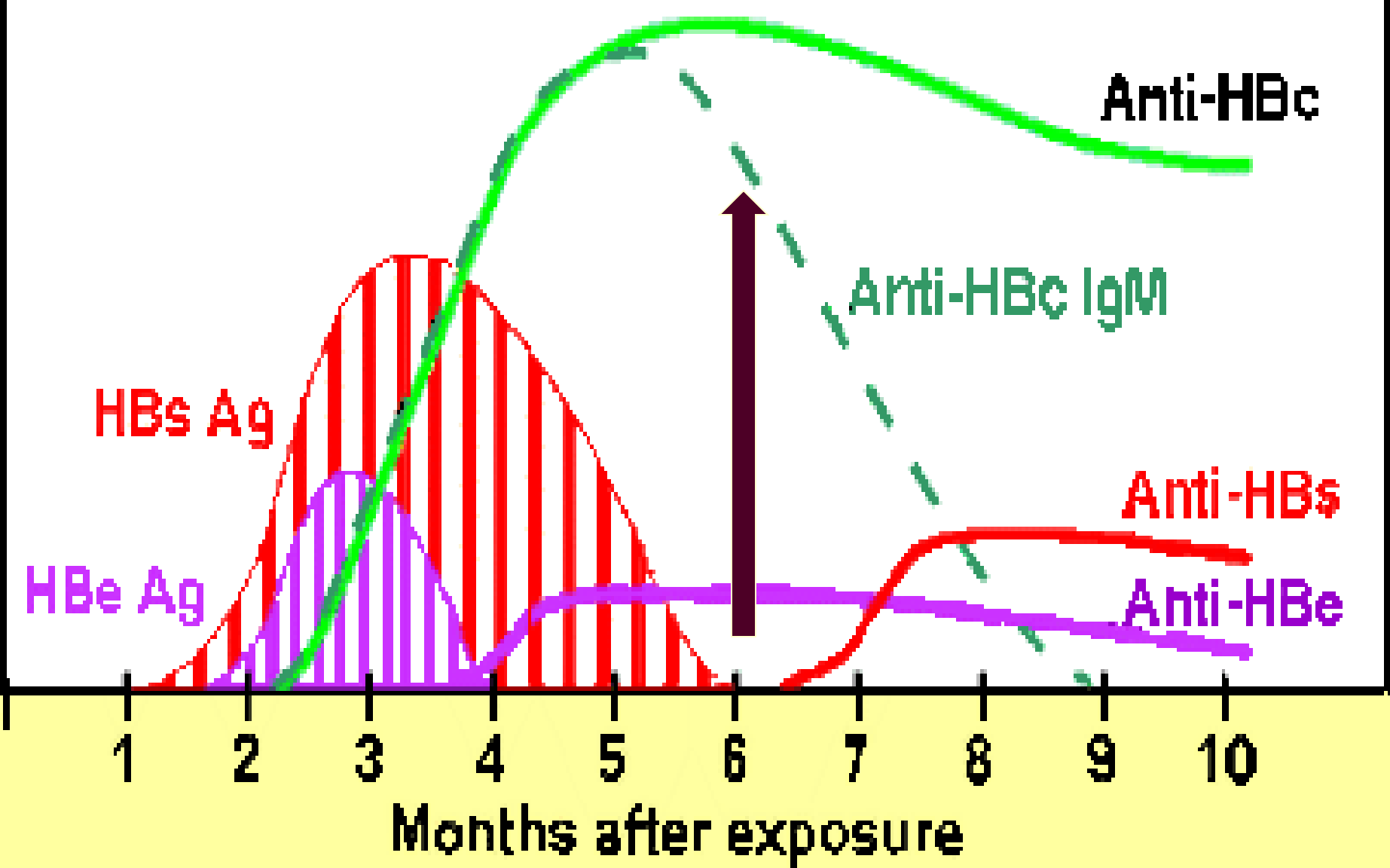
## Clinical course

- The incubation period 30-180 days (avg 75 days)
- 30% asymptomatic
- Rapid improvement



ds Hepadnaviridae 50 to 100 times more infective than HIV

**Illness**



# Interpretation of Serologic Markers

	Acute hepatitis B	Recovery from acute hepatitis B	Chronic HBeAg + disease	Chronic HBeAG – disease	Successful Vaccination	Resistance to antiviral agents
HBsAg	✓		✓	✓		
Anti-HBs		✓			✓	
Anti-HBc IgM	✓					
Anti-HBc	✓	✓	✓	✓		
HBeAg	✓		✓			
Anti-HBe		✓ (in some cases)		✓		
HBV DNA	✓		✓	✓		✓ (sequence <i>pol</i> region)



acute vs chronic

# Complication

- Chronic HBV infection - chronic active hepatitis, cirrhosis of liver
- Patients infected at early age have greatest risk of developing chronic HBV infection
- While 90% of those infected at birth develop chronic HBV, only 5-10% of older children or adults develop chronic infection
- HCC- develops 25-30 years after initial infection
- Fulminant hepatic failure

# Treatment

**Severe cases of acute HBV infection**

**24 weeks**

Lamivudine

Adefovir

Entecavir

Telbivudine

Tenofovir

# Hepatitis C

## Epidemiology

In India, 1.5 % are anti HCV positive

## Clinical course

- Incubation period is 15-150 days
- 80% patients are asymptomatic and do not develop icterus

## Complications

- Fulminant hepatic failure
- 70-90% - chronically infected
- 5-20% - cirrhosis (progression - 20 years)
- Hepatocellular cancer - develops after 30 years

# Treatment

**Acute HCV infection**

**24 weeks**

**IFN-alfa-2b**

# Hepatitis D

## Epidemiology

- In India, HDV -10.6 % of HBV +
- requires presence of HBV to replicate
- HDV infection develops only in patients who are HBsAg +
- Co-infection, super-infection

## Transmission

–IV drug abuse MC



ssRNA

# Clinical course

- Incubation period is 35 days
- Patients co-infected with HBV and HDV often have an acute, self-limited infection
- <5% of these patients develop chronic HDV infection
- Patients super-infected with HBV and HDV tend to have more severe acute hepatitis; 80% of these patients develop chronic HDV infection
- May lead to fulminant acute hepatitis and severe chronic, active hepatitis with progression to cirrhosis
- Over long term, 70-80% of patients have evidence of CLD with cirrhosis, compared to 15-30% of patients with chronic HBV alone

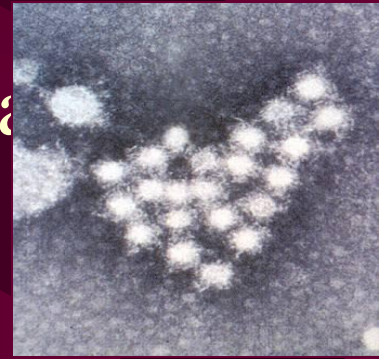
# Hepatitis E

## Epidemiology

- In India, HEV - 42 % of new cases / year of acute sporadic hepatitis

## Clinical course

- Incubation period is 2-9 weeks (avg 45 days)
- Usually causes acute self-limited disease
- Fulminant disease occur -10%
- No reports of chronic infection



# Hepatitis E

- In pregnant women, case-fatality rate of 15-20%
- Particularly those in their third trimester
- Decrease in cellular immunity during pregnancy, coupled with high levels of steroid hormones
- Recent data suggest that pregnancy might **not** adversely affect liver failure outcomes with mortality **not** increased above that recorded in pregnant women with other viral causes

(Bernuau J, Hepatology 2008)

# Hepatitis G virus

- Associated with acute and chronic liver disease
- Not clearly implicated
- Transmitted through blood and blood products

## TTV (Transfusion Transmitted Virus)

- unenveloped, single-stranded DNA virus
- no compelling evidence of causative agent in liver disease of any kind

## CMV, EBV, HSV, VZV

- do not primarily target the liver

# Thank you

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<http://dramiteshaggarwal.yolasite.com>

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