

Hepatitis: inflammation of liver; presence of inflammatory cells in organ tissue

The causes of hepatitis are varied and include viruses, bacteria, and protozoa, as well as drugs and toxins (eg, isoniazid, carbon tetrachloride, and ethanol).

Acute hepatitis: symptoms last less than 6 months

Viral hepatitis: is inflammation of the liver induced by viral infections

The clinical symptoms and course of acute viral hepatitis can be similar, regardless of etiology, and determination of a specific cause depends on laboratory tests.

These **viruses** are not cytopathic but they are Immunological Response

Intro **بجربنا**

H.A: Picornavirus: +ssRNA, Non enveloped (infectious hepatitis)

H.E: Hepevirus, +ssRNA non enveloped (Enterically transmitted hepatitis)

H.B: Hepadnavirus Ds DNA, Partial, has enzyme, enveloped (serum hepatitis)

80% كاشف لمنصة 5+6 Lecture 5+6 viral hepatitis

H.D: Deltaviruses, Defective -ssRNA virus (dependent on co-infection with H.B)

H.C: Flavivirus, +ssRNA genome, enveloped (Post-translational)

Another name (**Enterovirus 72**) (typical) / RNA/Nonenveloped

It has only **one serotype** & 4 **serotypes** know for it

It replicates in **Liver** & excreted in the **Bile** & then

Excreted in **feces** of infected persons for about **2 weeks** before

clinical illness & up to **one week** post-symptoms.

40-50% It the **causative agent** of acute hepatitis

fecal-oral transmission

Contaminated food

water

humans are major natural hosts of Hepatitis A virus.

No chronic infx.

IgM Antibody Response followed by IgG (life long immunity)

Epidemiology of Hepatitis A



Commonly seen in children & young adults, 90% of infected children & up to 25 to 50% of adults have asymptomatic but protective with it.

fec-oral transmission

contaminated food

water

humans are major natural hosts of Hepatitis A virus.

No carrier or chronic stage

More than 90% Adult population in many developing countries, show evidence of previous hepatitis A & travellers who enter endemic areas

Hepatitis E Virus

Hepatitis E virus is a non enveloped, single stranded RNA virus.

The viral particles in stool are spherical, 27 to 34 nm in size, and unenveloped and exhibit spikes on their surface.

Faecal-oral transmission

Waterborne epidemics of hepatitis

High mortality rate in pregnant women & immunosuppressed people

No chronic stage

Incubation period is 40 days and demonstrating by presence of IgM

No treatment available but supportive

incubation (2-8 wks)

bilirubin is higher

Jandice is deeper & landmark

Hepatitis B Virus

Hepadnavirus: Partially - Double stranded circular DNA genome.

Enveloped

Icosahedral nucleocapsid

Antigens: HBsAg, HBeAg, HBcAg, HBsAg, HBeAg, HBcAg

The main components of the virus include the core - hepatitis B core antigen (HBcAg) and HBeAg, outer capsid (HBsAg) and the DNA polymerase

HBsAg is the major surface antigen

HBV is 5 million copies per ml

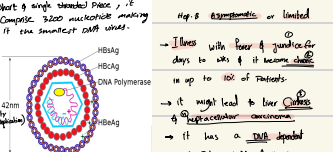
Transmission: Parenteral via blood or plasma, needle stick injury

Vertically: mother to baby

Body fluids

Risk groups: Health care workers, Drug abusers, Recipients of blood or its products (blood should be ideally screened), Dialysis patients, Homosexual men.

the virus can be found in the semen & saliva



Hepatitis B

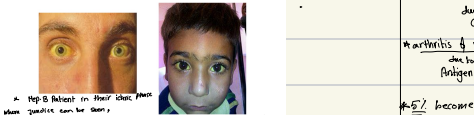
Pathogenesis: Blood borne / liver cells - hepatocytes injury and necrosis (transaminase increase)

Clinically: Incubation period: 1-4 months (infectious dose)

Asymptomatic: 80% of children and 50% of adults (increased liver enzymes)

Symptomatic: Pruritic pruritus (flu like symptoms nausea, anorexia, malaise), Icteric phase: jaundice, pale stool, dark coloured urine, increased liver enzymes and bilirubin

Acute vs Chronic: Acute is 10% of people, Chronic is 90% of people. Progression to chronic disease is inversely related to the age of infection.



Clinical Manifestations

The infectious dose less than 100 particles.

The contagiousness 2wks before symptoms

Incubation period: 2-6 WEEKS

Most HAV infections are asymptomatic.

Lever, anorexia, nausea, vomiting, jaundice

Abdominal pain, hepatomegaly, splenomegaly, Dark urine and clay-colored stools and elevated transaminase levels.

Resolve spontaneously in 2-4 weeks.

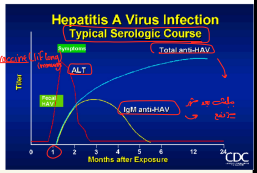
Hepatitis A Diagnosis:

Clinically: Liver enzyme: High AST and ALT, mild elevation of bilirubin

Serology: IgM, IgG (life long immunity)

IgM: Acute infection remains high for 3-6 months

IgG: Post infection or vaccine



Hepatitis A can be identified in stool.

Diagnosis of HBV: 1. Clinical picture, 2. Liver function tests, other tests to rule out other causes e.g. DNA EBV infection, 3. Serology, 4. Histology.

People with jaundice / post infection

Hepatitis B Virus

In children 10% less than adults.

Outcome: 90-95% recovery, 5-10% chronic carriers (>6 months), 1% fatality, 90% of adult carriers develop hepatocellular carcinoma.

Diagnosis of HBV: 1. Clinical picture, 2. Liver function tests, other tests to rule out other causes e.g. DNA EBV infection, 3. Serology, 4. Histology.

People with jaundice / post infection

Hepatitis D virus

Needs HBV to replicate (provide the envelop)

Route of transmission: As HBV

Co-infection with HBV

Super infection of HBV chronically infected patients (High risk of liver failure)

Diagnosis: serology

Rx: as HBV

الكور كما تري ... بي ما تبيته لا تذكر بتجربا ارجو

16:27 -> 19:13

استغفر الله العظيم واحمد الله

احضروا المحاضرة مع الدكتور مع التسبوع على العالجها في اي مستشفى مكتوب اكتبوه وخطو ملاحظاتهم وبالترتيب

Hepatitis C virus

Flavivirus, Enveloped, single stranded, positive sense RNA virus

No polymerase in the virus

Genotypes needed for Rx and medicolegal

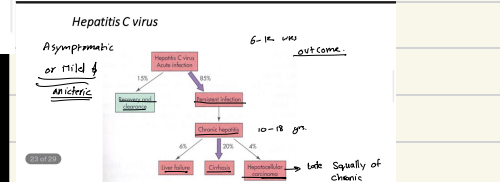
Spread via infected blood and sexual contact

6-8 week incubation period / most infections are sub-clinical

Clinical infections are generally less severe than HBV, damage due to cell mediated immune response

HVC has a higher incidence of chronic liver disease than HBV (70-80% of patients remain viremic for more than 1 year)

170 million cases globally



Hepatitis C virus Diagnosis: 1. Anti HCV IgM, 2. RNA detection

Treatment: Peg-interferon + Ribavirin

Antibody Response Remain negative for 1-3 wks after clinical onset

Public Health Service Guidelines for Counseling Anti-HCV-Positive Persons

- Anti-HCV positive persons should be counseled regarding infection
- Keep cuts and skin lesions covered
- Be informed of the need for sexual transmission
- Be informed of the potential for perinatal transmission
- Persons at risk to receive against pregnancy or breastfeeding
- Donate blood, organs, tissue, or semen
- Share household items (e.g., toothbrushes, razors)

Table 1 summary

Characteristic	Anti-HCV positive persons should	Anti-HCV positive persons should	Anti-HCV positive persons should	Anti-HCV positive persons should
Sexual transmission	Use condoms	Use condoms	Use condoms	Use condoms
Perinatal transmission	Not applicable	Not applicable	Not applicable	Not applicable
Organ donation	Do not donate	Do not donate	Do not donate	Do not donate
Blood donation	Do not donate	Do not donate	Do not donate	Do not donate
Sexual transmission	Use condoms	Use condoms	Use condoms	Use condoms
Perinatal transmission	Not applicable	Not applicable	Not applicable	Not applicable
Organ donation	Do not donate	Do not donate	Do not donate	Do not donate
Blood donation	Do not donate	Do not donate	Do not donate	Do not donate

Table 1 summary

Characteristics of anti-HAV, anti-HBs, anti-HBc, anti-HBe, anti-HBc IgG, anti-HBc IgM, anti-HBc IgA, anti-HBc IgE

Anti-HAV: 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks

Anti-HBs: 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks

Anti-HBc: 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks

Anti-HBe: 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks

Anti-HBc IgG: 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks

Anti-HBc IgM: 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks

Anti-HBc IgA: 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks

Anti-HBc IgE: 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks, 1-2 weeks