

Viral Hepatitis

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Background

- Viruses commonly affect the liver, resulting in a **transient** and **harmless hepatitis**.
- Viruses which **target the liver** are primarily described as **hepatotropic viruses**, and each of these can lead to clinically significant hepatitis and in some cases to the development of **chronic viral hepatitis** with **viral persistence**.

Background

- Five human viruses have been well described to date, including hepatitis
 1. A (HAV)
 2. B (HBV)
 3. C (HCV)
 4. D (HDV)
 5. E (HEV)

Hepatitis A

- **Hepatitis A virus (HAV)** is a major cause of **acute hepatitis worldwide**, accounting for up to 25% of clinical hepatitis in the developed world.
- HAV is an **enteric virus** and the **fecal oral route** is the main mechanism of transmission.
- The virus is particularly **contagious** and constitutes a public health problem throughout the world.

Hepatitis A

- The virus may go unnoticed by the patient particularly in children. However, HAV can cause **acute liver failure in less than 1% of patients** who are typically **older adults**.
- Types A is classically associated with an acute and sometimes severe hepatitis which is always **self-limited**, but **occasionally fatal**.

Hepatitis A

- The virus is particularly prevalent in areas of **poor sanitation**, and often associated with **water- and foodborne epidemics**.



Hepatitis A

- Hepatitis A has a relatively **short incubation period (2–7 weeks)**, during which time the virus replicates and abnormalities in liver function tests can be detected.



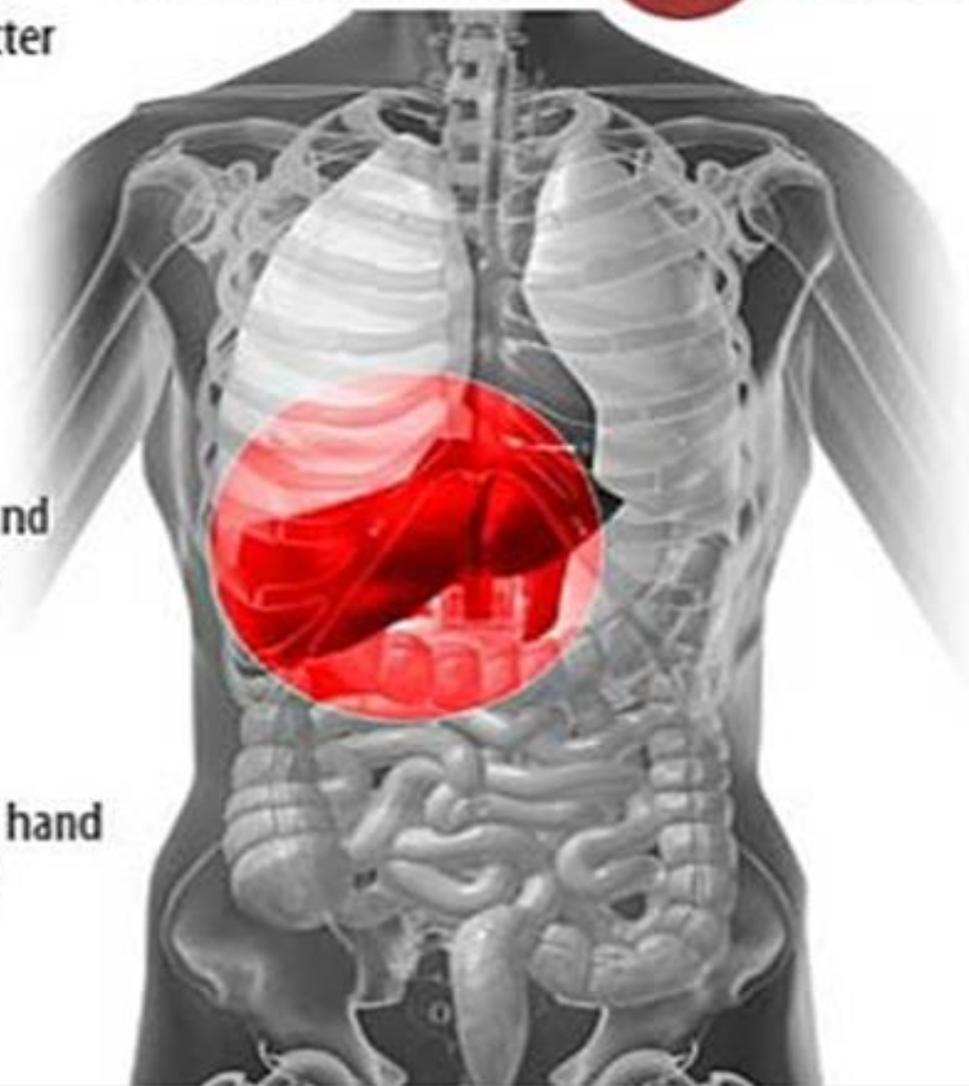
HEPATITIS **A** FACTS

- 1** Is a viral infection of the liver spread when faecal matter enters the mouth



- 2** May last several weeks and can be debilitating but most people recover completely

- 3** Preventable with careful hand washing, keeping toilets and bathrooms clean, avoiding infected water sources



SYMPTOMS INCLUDE

nausea



vomiting



SPREAD BY



direct contact



food & beverages



cups & spoons

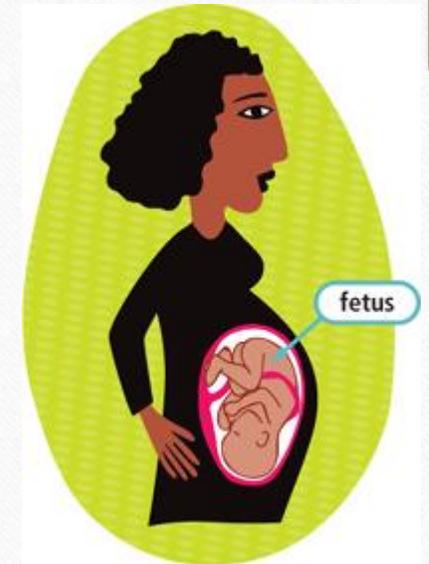
and any other objects handled by the infected person

Hepatitis B

- Up to **500 million** people worldwide are **chronically infected** with the hepatitis B virus (HBV).
- In endemic areas of **Africa** and the **Far East**, up to **15–20%** of the population are chronic carriers of HBV.

Hepatitis B

- The single most important **risk factor for the development of chronic HBV** infection is **vertical transmission** (i.e., mother-to-child transmission) at birth.



Hepatitis B

- Hepatitis B causes acute hepatitis in adults and 5% of patients become chronic carriers, while **95% of patients infected in the neonatal period are chronically infected.**



Hepatitis B

- Getting of **HBV in adulthood** is often via **sexual transmission**.
- HBV can also be transmitted **parenterally**, by the **transfusion of blood** or **blood products** and by **intravenous drug** use or **needle sharing**.



Hepatitis B

- **Acute HBV** infection has a **long incubation period of 3–6 months**, which is generally self-limiting and **does not require antiviral therapy**.
- Most patients **recover** within **1–2 months** of the **onset of jaundice**.

Hepatitis B

- It is estimated that **15–40%** of **chronic HBV** carriers will develop serious sequelae during their lifetime, namely
 - **liver cirrhosis**
 - **hepatocellular carcinoma**

Hepatitis B

- The primary goal in the management of chronic HBV infection is to prevent
 - **cirrhosis**
 - **hepatic failure**
 - **hepatocellular carcinoma**

Hepatitis B

- The **eradication of HBV** is **near impossible** because of the presence of extra-hepatic reservoirs of HBV and integration of HBV into the host genome.
- For this reason, the main goal of antiviral agents is **continuous viral suppression**.

Hepatitis B

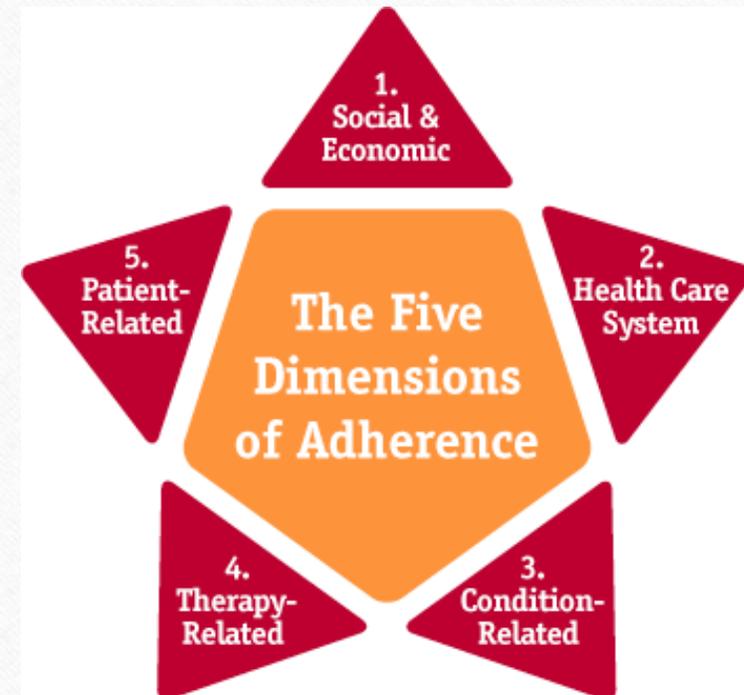
- Potent oral antiviral agents **tenofovir** and **entecavir** as **first-line monotherapies**.
- While these two agents have emerged as the leading oral antivirals, the **weaker** and more outdated agents such as **telbivudine**, **lamivudine** and **adefovir** are **still widely used**.

Hepatitis B

- The use of **lamivudine** or **adefovir** as monotherapy is no longer recommended and should be avoided if at all possible, owing to the **high rates of resistance** reported with these drugs.
- While reported rates of **resistance** is **extremely low with entecavir**, and **none reported with tenofovir**.

Hepatitis B

- When **start oral antiviral agents**, the patient must be aware they are potentially goin **on a lifelong course of treatment**.



Hepatitis B

- **Pegylated interferon (peginterferon) alfa-2a** has re-emerged as a viable alternative to oral antiviral agents in the treatment of chronic HBV.
- **Peginterferon alfa-2a** dose is **180 mcg SC once weekly for 48 weeks.**

Hepatitis B

- Interferon therapy advantages:
 - fixed treatment course
 - good rates of surface antigen loss in selected patients

Hepatitis B

- The earlier stated advantages must be weighed against the disadvantages associated with an **injection-based therapy (48 weeks)** and the **interferon side effect**.



Hepatitis B

- **Peginterferon alfa-2a** side effects include
 - influenza-like symptoms
 - decrease in hematological parameters (haemoglobin, neutrophils, white blood cell count and platelets)
 - gastrointestinal complaints
 - psychiatric disturbances (anxiety and depression)
 - hypo- or hyperthyroidism

Hepatitis C

- Over **170 million** people worldwide are **chronically infected with hepatitis C virus (HCV)**.
- Hepatitis C rarely causes an acute hepatitis but up to **85% of patients become chronic carriers**.
- It is estimated that more than **2.7 million people in the USA** are chronically infected with HCV, where it is the leading cause of death from liver disease.

Hepatitis C

- HCV is a predominantly **blood borne virus** with **greater infectivity** than the **human immunodeficiency virus** (HIV).

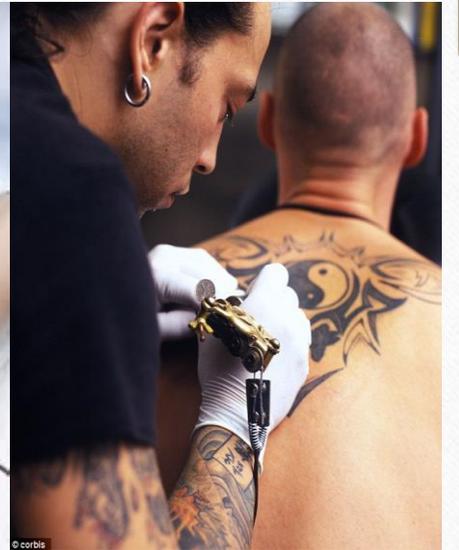


Hepatitis C

- HCV is transmitted **parenterally**, most commonly through **intravenous contaminated blood** and **blood products**, and **the sharing of contaminated needles**.
- The vertical transmission rate from HCV infected mother to child is **less than 3%**.

Hepatitis C

- There remains a **small risk of HCV infection** associated with tattooing, electrolysis hair removal, ear piercing, acupuncture and sexual contact.



Hepatitis C

- The **primary aim** of treating patients with chronic HCV is **viral clearance** that defined as the absence of viraemia 6 months after antiviral therapy has been discontinued.
- **Viral clearance**
 - **improves the patient's quality of life**
 - **reduces the risk of cirrhosis and hepatocellular carcinoma**

Hepatitis C

- **Pegylated interferon** and **ribavirin** combination therapy are now the standard care of chronic HCV.
- The **treatment duration**, however, can be individualized based on the
 - **baseline viral load**
 - **virological response during treatment**

Hepatitis C

- Patients failing to achieve a significant **reduction in viral load** after **12 weeks** will normally have therapy discontinued.
- The current standard of care combination therapy is limited by
 - **the side effect profile (already stated in HBV)**
 - **complications of therapy**
 - **poor patient tolerability**

Hepatitis C

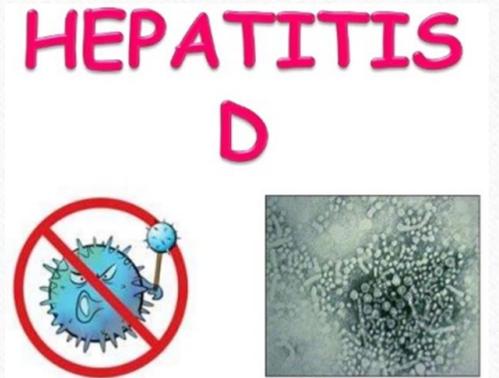
- It is accepted that these side effects are a major obstacle preventing completion of therapy by
 - **hindering compliance**
 - **enforcing significant dose reductions**
- While **erythropoietin** and **antidepressants** may alleviate some side effects.

Hepatitis D

- Hepatitis D virus (HDV) is an incomplete virus that can establish infection only in patients simultaneously infected by HBV.
- It is estimated that **5% of HBV** carriers worldwide are **infected with HDV**.

Hepatitis D

- It is endemic in the **Mediterranean** area and is transmitted **sexually**.
- In other geographical areas, it is confined to **blood transfusions** and **intravenous drug users**.



Hepatitis E

- **Hepatitis E virus (HEV)** is endemic in
 - **India**
 - **Asia**
 - **Middle East**
 - **parts of Latin America**

Hepatitis E

- It is transmitted **enterically** (i.e., via contaminated water and food) and leads to **acute hepatitis**.
- The symptoms of HEV are no different from other causes of viral hepatitis, with an average incubation **period of 42 days**.
- Hepatitis E infection **during pregnancy**, especially in the third trimester, is characterized by a more severe infection that sometimes results in **increasing maternal and fetal mortality and morbidity**.

Hepatitis E

- A vaccine to prevent hepatitis E virus infection has been developed and is licensed in China, but is not yet available elsewhere.
- As an acute disease is usually self-limiting.
- Immunosuppressed people with chronic hepatitis E benefit from specific treatment using ribavirin, an antiviral drug. In some specific situations, interferon has also been used successfully.



**Thank
You!!!**

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