Hepatitis

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What Is Hepatitis?

- Hepatitis is an inflammation of the liver
- May be caused by drugs, alcohol use, or certain medical conditions, but in most cases, it's caused by a virus = viral hepatitis
- The types of viral hepatitis are:
  - Hepatitis A
  - Hepatitis B
  - Hepatitis C
  - Hepatitis D
  - Hepatitis E
  - Hepatitis G
- Rare causes can be by bacteria, such as streptococci (Salmonella) organisms & E.coli
- There is acute phase hepatitis and chronic phase hepatitis
- Antigen-antibody complexes between the virus and corresponding antibody form a circulating immune complex in the early stage = activate complement system
How Hepatitis A & B Affect the Liver?

https://www.youtube.com/watch?v=eSb-zIPY7gQ
Hepatitis A

- Is an RNA virus that is transmitted through the fecal-oral route
- Mainly transmitted by ingestion of food or liquid infected with the virus
- Rarely parental
- Unlike hepatitis B and C, hepatitis A infection does not cause chronic liver disease and is rarely fatal, but it can cause debilitating symptoms and fulminant hepatitis (acute liver failure), which is often fatal
- The incubation period of hepatitis A is usually 14–28 days
Hepatitis B

- Is a DNA virus that is transmitted in several ways:
  - Perinatally by mothers infected with Hep B
  - Percutaneously (ex: IV, drug use)
  - Sexually
  - Horizontally by permucosal exposure to infectious blood, blood products or other body fluids
- It has 3 distinct antigens: surface antigen HBsAg, core antigen HBcAg & e antigen
SYMPTOMS OF HEPATITIS B

- Jaundice
- Ascites
- Encephalopathy
- Itching of the skin
- Palmar erythema
- Bleeding from the esophagus and stomach
- Edema
- Violation of blood clotting
Hepatitis C

- Is an RNA virus that is primarily transmitted percutaneously (ex: IV, drug use)
- Most common way of transmitting Hep C is by sharing contaminated needles and equipment, among IV drug users
- Hep C has 6 genotypes & over 50 subtypes of it
- 80% of individuals who get Hep C will go onto developing a chronic infection
Hepatitis D, E & G

- Hepatitis D is an RNA virus that needs Hepatitis B to replicate itself, else it will not survive on its own.
- Hepatitis E is an RNA virus that is transmitted by the fecal-oral route & commonly transmitted via contaminated drinking water.
- Hepatitis G coexists with other viral infections such as Hep B, Hep C & HIV, and is transmitted parenterally and sexually.
The Following video explains Viral hepatitis (A, B, C, D, E) - causes, symptoms, diagnosis, treatment & pathology

https://www.youtube.com/watch?v=eocRM7MhF68
## Characteristics of Hepatitis Viruses (pg. 1218)

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>HEPATITIS A VIRUS (HAV)</th>
<th>HEPATITIS B VIRUS (HBV)</th>
<th>HEPATITIS C VIRUS (HCV)</th>
<th>HEPATITIS D VIRUS (HDV)</th>
<th>HEPATITIS E VIRUS (HEV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virus type</td>
<td>RNA</td>
<td>DNA</td>
<td>RNA</td>
<td>RNA</td>
<td>RNA</td>
</tr>
<tr>
<td>Incubation (days)</td>
<td>15-45</td>
<td>30-180</td>
<td>15-60</td>
<td>21-140</td>
<td>15-65</td>
</tr>
<tr>
<td>Transmission</td>
<td>Fecal–oral</td>
<td>Percutaneous, sexual, perinatal</td>
<td>Percutaneous, perinatal (uncommon)</td>
<td>HBV infection must precede HDV infection; percutaneous, sexual, perinatal</td>
<td>Fecal–oral</td>
</tr>
<tr>
<td>Acute hepatitis progressing to chronic disease</td>
<td>None</td>
<td>Adults: &lt;5%; preschoolers: 25%; neonates: 90%</td>
<td>70-80%</td>
<td>Usual in superinfection; rare in co-infection</td>
<td>None</td>
</tr>
<tr>
<td>Prevention</td>
<td>Immunization before and after exposure</td>
<td>Immunization before and after exposure</td>
<td>Blood donor screening, risk behaviour modification</td>
<td>Immunization for HBV prevents HDV infection</td>
<td>Ensure safe drinking water</td>
</tr>
</tbody>
</table>

Acute Phase

- Time of initial exposure to the particular virus
- Liver damage is mediated by cytotoxic cytokines and natural killer cells that cause lysis of infected hepatocytes; liver cell necrosis; however, they can normally regenerate
- Most individuals with acute hepatitis show no symptoms; people can go undiagnosed, but can recover quickly
- Acute phase symptoms if present, include:
  - Malaise
  - Anorexia
  - Fatigue, headache & fever
  - Nausea/occasional vomiting
  - Abdominal (RUQ) discomfort
  - Weight loss, light stools & constipation/diarrhea
  - Jaundice
  - Dark urine
- No specific treatment or therapy
Chronic Phase

- Almost all acute phases do not progress to chronic phases
- Many Hep B and Hep C infections can result in chronic disease
HEPATITIS

A

Ingestion of contaminated
food and water

Acute

Rarely results in chronic liver
diseases

B

Parenteral contact with contaminated
body fluids

Acute or Chronic

Results in fulminant
hepatitis or acute liver failur

C

Parenteral contact with contaminated
body fluids

Chronic

Results in fulminant
hepatitis or acute liver failur

D

Parenteral contact with contaminated
body fluids

Acute or Chronic

Results in fulminant
hepatitis or acute liver failur

Spread

Acute vs Chronic

Complications

Pediaa.com
Drug Therapy

- For chronic Hep B and Hep C, the focus is on decreasing the viral load, AST & ALT levels, and the rate of disease progression
  - Drugs include: Interferon (Intron), Pegylated Interferon, lamivudine (Heptovir), Telbivudine (Sebivo), Entecavir (Baraclude), Adefovir (Hespera) & Tenofovir (Viread)
- Hepatitis A vaccine and immune globulin (IG) are used to prevent Hep A
- Hep B immunization is the most effective way of preventing Hep B infection
- Currently no vaccine to prevent Hepatitis C, but treatment includes a combo of Pegasys Ribavirin (RBV) or Pegetron (PEG-Intron and RBV)
- Most patients with hepatitis will be cared for at home, so the nurse must assess the patients knowledge and provide teaching
Fulminant Hepatitis

- An acute clinical syndrome that results in severe impairment or necrosis of liver cells & potential liver failure
- Occurs in a small % of patients
- Can develop with Hep B and Hep D
- It is a complication, but can sometimes occur due to toxic reactions to drugs and congenital metabolic disorders
Autoimmune Hepatitis

- Is a chronic inflammatory disorder of unknown cause
- Its symptoms include:
  - Autoantibodies
  - High levels of serum immunoglobulins
  - Frequent association with other autoimmune diseases
- Is treated with corticosteroids or other immunosuppressive agents
References


