CHAPTER-X
HEPATITIS

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Hepatitis is swelling and inflammation of the liver.
LIVER
TYPES

Acute Hepatitis: Short-term hepatitis.
- Body’s immune system clears the virus from the body within 6 months

Chronic Hepatitis: Long-term hepatitis.
- Infection lasts longer than 6 months because the body’s immune system cannot clear the virus from the body
CAUSES

- Immune cells in the body attacking the liver and causing **autoimmune Hepatitis**
- Infections from viruses (such as Hepatitis A, B, or C)
- Liver damage from alcohol, poisonous mushrooms, or other poisons
- Over dose medications
Healthy Liver

Cirrhosis Liver
Hepatitis Types

- Alcoholic hepatitis
- Autoimmune hepatitis
- Drug-induced hepatitis
- Hepatitis A
- Hepatitis B
- Hepatitis C
SYMPTOMS

- Abdominal pain
- Breast development in males
- Dark urine and pale or clay-colored stools
- Fatigue
- Fever, usually low grade
- General itching
• Jaundice (yellowing of skin or eyes)
• Loss of appetite
• Nausea and vomiting
• Weight loss
Hepatitis A Virus
Hepatitis A Virus Transmission

- Close personal contact
  (e.g., household contact, sex contact, child day care centers)
- Contaminated food, water
  (e.g., infected food handlers, raw shellfish)
- Blood exposure (rare)
  (e.g., injecting drug use, transfusion)
## Global Patterns of Hepatitis A Virus Transmission

<table>
<thead>
<tr>
<th>Endemicity</th>
<th>Disease Rate</th>
<th>Peak Age of Infection</th>
<th>Transmission Patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Low to High</td>
<td>Early childhood</td>
<td>Person to person; outbreaks uncommon</td>
</tr>
<tr>
<td>Moderate</td>
<td>High</td>
<td>Late childhood/young adults</td>
<td>Person to person; food and waterborne outbreaks</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
<td>Young adults</td>
<td>Person to person; food and waterborne outbreaks</td>
</tr>
<tr>
<td>Very low</td>
<td>Very low</td>
<td>Adults</td>
<td>Travelers; outbreaks uncommon</td>
</tr>
</tbody>
</table>
Hepatitis A Prevention Method

- Vaccination
- Good hygiene
- Sanitation
HEPATITIS A

Diagnosis

- Blood test
- Detection of the HAV specific IGM antibody only present in the blood
- Initial one to two week’s up to 14 week’s
TREATMENT

- No medicine or treatment to make it go away
- Avoided a rest fatty food & alcohol
- Eat well – balanced diet

DRUGS

- acetaminophan (anti pyretic)
- Metoclopramide (anti emetics)
Hepatitis B - Clinical Features

- Incubation period: Average 60-90 days
  Range 45-180 days
- Clinical illness (jaundice): <5 yrs, <10%
  5 yrs, 30%-50%
- Acute case-fatality rate: 0.5%-1%
- Chronic infection: <5 yrs, 30%-90%
  5 yrs, 2%-10%
- Premature mortality from chronic liver disease: 15%-25%
SPECTRUM OF CHRONIC HEPATITIS B DISEASES

1. Chronic Persistent Hepatitis - asymptomatic
2. Chronic Active Hepatitis - symptomatic exacerbations of hepatitis
3. Cirrhosis of Liver
4. Hepatocellular Carcinoma
## Concentration of Hepatitis B Virus in Various Body Fluids

<table>
<thead>
<tr>
<th>High</th>
<th>Moderate</th>
<th>Low/Not Detectable</th>
</tr>
</thead>
<tbody>
<tr>
<td>blood</td>
<td>semen</td>
<td>urine</td>
</tr>
<tr>
<td>serum</td>
<td>vaginal fluid</td>
<td>feces</td>
</tr>
<tr>
<td>wound exudates</td>
<td>saliva</td>
<td>sweat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tears</td>
</tr>
<tr>
<td></td>
<td></td>
<td>breastmilk</td>
</tr>
</tbody>
</table>
Hepatitis B Virus
Modes of Transmission

- **Sexual** - sex workers and homosexuals are particular at risk.

- **Parenteral** - IVDA, Health Workers are at increased risk.

- **Perinatal** - Mothers who are HBeAg positive are much more likely to transmit to their offspring than those who are not. Perinatal transmission is the main means of transmission in high prevalence populations.
A battery of serological tests are used for the diagnosis of acute and chronic hepatitis B infection.

- **HBsAg** - used as a general marker of infection.
- **HBsAb** - used to document recovery and/or immunity to HBV infection.
- **anti-HBc IgM** - marker of acute infection.
- **anti-HBcIgG** - past or chronic infection.
TREATMENT

- **Interferon** - for HBeAg +ve carriers with chronic active hepatitis. Response rate is 30 to 40%.

- **Lamivudine** - a nucleoside analogue reverse transcriptase inhibitor. Well tolerated, most patients will respond favorably. However, tendency to relapse on cessation of treatment. Another problem is the rapid emergence of drug resistance.

- Successful response to treatment will result in the disappearance of HBsAg, HBV-DNA, and seroconversion to HBeAg.
PREVENTION

- Vaccination
- Hepatitis B Immunoglobulin
- Other measures
Hepatitis C - Clinical Features

Incubation period: Average 6-7 wks
Range 2-26 wks

Clinical illness (jaundice): 30-40% (20-30%)

Chronic hepatitis: 70%

Persistent infection: 85-100%

Immunity: No protective antibody response identified
Risk Factors Associated with Transmission of HCV

- Transfusion or transplant from infected donor
- Injecting drug use
- Hemodialysis (yrs on treatment)
- Accidental injuries with needles/sharps
- Sexual/household exposure to anti-HCV-positive contact
- Multiple sex partners
- Birth to HCV-infected mother
Laboratory Diagnosis

- Serological test
- Liver function test
TREATMENT

- **Interferon** - may be considered for patients with chronic active hepatitis. The response rate is around 50% but 50% of responders will relapse upon withdrawal of treatment.

- **Ribavirin** - there is less experience with ribavirin than interferon. However, recent studies suggest that a combination of interferon and ribavirin is more effective than interferon alone.
Prevention of Hepatitis C

- Screening of blood, organ, tissue donors
- Proper sterilization of equipments
- Sanitation