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FACULTY OF NURSING

# HEPATITIS



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# INTRODUCTION

- Hepatitis is a broad term that means inflammation of liver.
- It is most commonly caused by viruses but also be caused by drugs(alcohol), chemicals, autoimmune diseases and metabolic abnormalities.

# ETIOLOGY OF HEPATITIS

Viral hepatitis

Alcoholic hepatitis

Autoimmune hepatitis

Non- alcoholic  
steatohepatitis(NASH)

# VIRAL HEPATITIS

# INTRODUCTION

- Five types of hepatitis have been identified: Hepatitis A, B, C, D , E.
- Hepatitis A is always an acute, short-term disease, while hepatitis B, C, and D are most likely to become ongoing and chronic.
- Hepatitis E is usually acute but can be particularly dangerous in pregnant women.
- The hepatitis A and E viruses typically cause only acute, or short-term, infections.

- Other less common viruses can also cause liver disease. These include Cytomegalovirus(CMV), Herpes virus, Rubella virus, Epstein-barr virus(EBV).

# INCIDENCE

- Viral hepatitis is a major public health concern, 10 millions cases occur worldwide.
- It is nearly universal during childhood in developing countries.
- India is a hyperendemic for hepatitis A virus infection.
- Annually over 1 to 2 lakh Indians die due to illness related to HBV infection.
- Worldwide 170 million people are infected with Hepatitis C virus(HCV).



# HEPATITIS A(Hep A)

- A highly contagious liver infection caused by the hepatitis A virus(HAV).
- Hepatitis A virus is a ribonucleic acid(RNA) virus of the enterovirus family.
- It can cause acute hepatitis with jaundice. Also cause acute liver failure. It does not cause long term infection.
- Incubation period is 3-5 weeks with an average of 28 days.

- It is transmitted primarily through the fecal-oral route.
- Source of infection is Crowded conditions, poor personal hygiene, Poor sanitation, Contaminated food, water, shellfish, person with subclinical infections, infected food handlers.
- More prevalent in underdeveloped countries. People who travel to developing countries more likely to get Hep A.

# S/S

- Fatigue
- Fever
- Abdominal pain
- Nausea
- Jaundice
- Weight loss
- Itching
- Sharp pain in right upper quadrant of abdomen
- Anorexia

# D/E

Blood tests: 2 kinds of antibodies to the virus. IgM antibodies and IgG antibodies.

IgM antibodies show acute infection.

IgG antibodies show previous infection or immunization.

# MANAGEMENT

- There are no drug therapies for the treatment of acute hepatitis A.
- Rest according to patient's level of fatigue.
- Hospitalization.
- Small, frequent feedings of a high calorie, low fat diet, proteins are restricted.
- Vit K injection if PT is prolonged.
- I.V. fluid and electrolyte replacement.
- Antiemetic drugs.

# HEPATITIS B (Hep B)

Hepatitis B virus can cause acute and chronic infection.

Acute hepatitis B infection may last up to 6 months (with or without symptom) and infected persons are able to pass these virus during these time.

Chronic hepatitis B is defined as persistence of HBsAg for 6 months or more after acute infection with HBV.

- Incubation period is 2-5 months.
- Hepatitis B virus is a complex structure with 3 distinct antigens:
  1. **HBcAg**- Hepatitis B core antigen.
  2. **HBsAg**- Hepatitis B surface antigen.
  3. **HBeAg**- An independent protein circulating in the blood.
- Mode of transmission is mainly sexual contact. Recognized as STD. It is much more infectious than HIV.

Further mode of transmission are Parenteral or percutaneous exposure to blood or blood products, perinatal transmission.

Sources of infection are Contaminated needles, syringes, blood products. Homosexual men, Tattoo or body piercing with contaminated needles.

Occurrence is for all ages, but mostly affects young adults worldwide.

It is the main cause of cirrhosis and hepatocellular carcinoma worldwide.



# S/S

- Abdominal pain
- Dark urine
- Fever
- Joint pain
- Loss of appetite
- Nausea/ vomiting
- Fatigue
- Jaundice

# D/E

- **Blood tests:** AST, ALT, ALP,GGT, Serum proteins, PT, Urinary bilirubin, Urinary Urobilinogen, Total serum bilirubin.
- **Serological tests:** HBsAg, Anti-HBs, HBeAg, Anti-Hbe, Anti-HBe IgM, Anti- Hbe IgG, HBV genotyping.
- **Liver ultrasound:** Transient elastography can show the amount of liver damage
- Liver biopsy.
- Fibro tests

# MANAGEMENT

- Treatment of acute hepatitis B is indicated only in patients with severe hepatitis and liver failure. Rest, vitamin supplements, Avoid alcohol.
- Treatment of chronic hepatitis B:
- Nucleoside and Nucleotide analog such as Tenofovir, adenofovir, lamivudine.
- Interferon: Standard interferon( Intron A), Pegylated interferon ( PegIntron,)
- Liver transplant.

# HEPATITIS C(Hep C)

- Hepatitis c virus is an RNA virus.
- Incubation period is 14-180 days(average 56).
- In most cases it is transmitted through blood or blood products, prior to 1992. It is also transmitted through unprotected sex, and contaminated or unsterile needles.
- It is found in I.V. drug users and renal dialysis patients.
- It can result in both acute and chronic illness.

- Chronic HCV infection results in liver cirrhosis.
- There is no Vaccine for HCV.

# D/E

- Hepatitis C antibody.
- HCV genotyping.

# MANAGEMENT

- In a patient with acute hepatitis C , treatment with **Pegylated interferon** within the 12-24 weeks of infection reduce the development of chronic hepatitis C.
- **Chronic HCV:** Pegylated interferon, Ribavirin Rebetol, Protease inhibitors such as incivek and Boceprevir.

# HEPATITIS D OR DELTA HEPATITIS

HDV is a defective single – stranded RNA virus that can not survive on its own. It requires hepatitis B to replicate.

Incubation period is 2-26 weeks.

Chronic carriers of HBV always at risk for transmission.

Source of infection are same as HBV.

HDV infection is only possible if a person is already infected with hepatitis B or a person can be infected with both viruses at the same time.



- Anti-HDV
- HDV Antigen.

# TREATMENT

- Interferon,

# HEPATITIS E

- Hepatitis E virus(HEV) is an RNA virus and incubation period is 15-64 days.
- HEV has a fecal-oral transmission route.
- Source of infection is contaminated water, poor sanitation. Found in Asia, Africa and Mexico.
- More common in adults and severe in pregnant women.
- Hepatitis E usually resolves on its own within four to six weeks. Treatment focuses on supportive care, rehydration and rest.

# D/E

- Anti-HEV IgM and IgG.
- HEV RNA quantification.

# TREATMENT

- There is no specific treatment capable of altering the course of acute hepatitis E.
- As the disease is usually self-limiting, hospitalization is generally not required. Hospitalization is required for people with Fulminant hepatitis.

# PATHOPHYSIOLOGY

- During an acute hepatitis , liver damage is mediated by cytotoxic cytokines and NK cells.
- CK and cytokines causes lysis of infected hepatocytes. It leads to cholestasis.
- Liver cells can regenerate after acute infection.
- A chronic viral infection causes chronic inflammation and cause fibrosis over decades .
- Fibrosis can lead to cirrhosis.

# CLINICAL MANIFESTATIONS

- Clinical manifestations of viral hepatitis are classified into acute and chronic phases.
- manifestations of acute hepatitis are as follows:  
Symptoms are similar to mild flu.

# ACUTE HEPATITIS

- Anorexia
- Nausea, vomiting
- Constipation or diarrhea
- Right upper quadrant discomfort
- Malaise
- Fever
- Headache
- Arthralgias
- Urticaria
- Hepatomegaly
- Splenomegaly
- Weight loss
- Jaundice
- Dark urine
- Light stools
- Decreased sense of smell or taste
- Bilirubinuria



# CHRONIC HEPATITIS

- Malaise
- Easy fatigability
- Hepatomegaly
- Myalgias
- Elevated liver enzymes.

# COMPLICATIONS

- Dehydration, hypokalemia.
- Chronic carrier hepatitis.
- Cholestatic hepatitis.
- Fulminant hepatitis.
- Liver cirrhosis.
- Hepatocellular carcinoma( HBV, HCV)

# PREVENTIVE MEASURES

# HEPATITIS A

- **GENERAL MEASURES:**

1. Hand washing
2. Proper personal hygiene
3. Environmental sanitation
4. Control and screening of food handlers
5. Active immunization: HAV vaccine.

- **USE OF IMMUNE GLOBULIN:**

1. Early administration (1-2 weeks after exposure )

2. Prophylaxis for travelers to areas where hepatitis A is common if not vaccinated with HAV vaccine.

➤ **FOR HEALTH CARE PERSONNEL:** Use infection control precautions and wash hands after contact with a Patient or removal of gloves.

# HEPATITIS B & C

- **GENERAL MEASURES:**

1. Hand washing
2. Avoid sharing toothbrushes and razors.
3. Active immunization: HBV vaccine.
4. HBIG administration for one time exposure such as needle stick, contact of mucous material.

- **SEXUAL TRANSMISSION:**

1. Acute exposure: HBIG administration to sexual partner of HBsAg positive person.
2. Condoms use for sexual intercourse
3. HBV vaccine series administered to uninfected sexual partners.

- **PERCUTANEOUS TRANSMISSION:**

1. **Screening for donated blood for HBsAg and Anti-HCV.**
2. Use of disposable needles and syringes.

- **FOR HEALTH CARE PERSONNEL:**

1. **Reduce contact with blood or blood containing secretions.**
2. Dispose the needles properly.
3. Use infection control precautions.



# NURSING MANAGEMENT

# NURSING ASSESSMENT

- Assess for systemic and liver related symptoms.
- Obtain history such as I.V. drug use, sexual activity, travel and ingestion of possible contaminated food or water to assess for any mode of transmission of the virus.
- Assess size and texture of liver to detect enlargement or characteristics of cirrhosis.
- Obtain vital signs, including temperature.

# NURSING DIAGNOSES

- Imbalanced nutrition less than body requirements related to the effects of liver dysfunction.
- Deficient fluid volume related to nausea vomiting.
- Activity intolerance related to anorexia and liver dysfunction.
- Risk for injury related to coagulopathy because of impaired liver function.
- Deficient knowledge
- Disturbed thought process related to encephalopathy.

# NURSING INTERVENTION

# MAINTAINING ADEQUATE NUTRITION

- Encourage small frequent feedings of high-calorie ,low fat diet.
- Avoid large quantities of protein during acute phase of illness.
- Encourage taking pleasing meals in an environment with minimal noxious stimuli.
- Administer or teach self administration of antiemetic as prescribed.
- Encourage eating meals in a sitting position to decrease pressure on the liver.

# MAINTAINING ADEQUATE FLUID INTAKE

- Provide frequent oral fluids as tolerated .
- Administer I.V. fluids for patients with inability to maintain oral fluids.
- Monitor intake and output.

# MAINTAINING ADEQUATE REST

- Promotes periods of rest during symptom producing phase.
- Provide emotional support and diversional activities.
- Encourage gradual resumption of activities and mild exercise during convalescent period.
- Promote comfort by administering analgesics as prescribed.

# ENSURE PREVENTION OF DISEASE TRANSMISSION

- Stress importance of proper public and home sanitation and proper preparation of foods.
- Encourage specific protection for close contacts such as Immune globulin as soon as possible to household contact of HAV.
- HBIG as soon as possible to blood or body fluids contact of HBV patients, followed by HBV vaccine series.
- Explain precautions to patient and family about transmission and prevention of transmission.



# PREVENTING AND CONTROLLING BLEEDING

- Monitor and teach patient to monitor and report sign of bleeding.
- Monitor PT and administer Vitamin K as ordered.
- Avoid trauma that may cause bruising.

# MONITORING THOUGHT PROCESS

- Monitor for sign of encephalopathy
- Monitor for worsening of condition from stupor to coma
- Maintain calm, quiet environment and reorient patient as needed.

# PATIENT EDUCATION

- Identify persons or groups at high risk such as I.V. drug abusers or their sexual contacts and those living in crowded conditions.
- Educate adolescents about the risk of piercing and tattooing in transmission of HCV.
- Encourage vaccination for HBV with series of 3 shots ( Birth, 1 and 6 months) and high risk patients such as health care workers .
- Stress the need to follow precautions with blood and secretions until the patient is deemed free of HBsAg.
- Explain to HBV carriers that their blood and secretions will remain infectious.

# AUTOIMMUNE HEPATITIS

It is a chronic inflammation of liver of unknown cause.

It is characterized by the presence of autoantibodies, serum IG.

Majority of patients are women.

There is an autoimmune reaction against normal hepatocytes.

In Diagnosis serological markers are useful such as antinuclear antibodies , anti-DNA antibodies.

Prednisone with or without azathioprine is the recommended treatment for active autoimmune hepatitis.

Patient who do not respond to prednisone and azathioprine , Cyclosporine, Budesonide, methotrexate are used.

# ALCHOLIC HEPATITIS

- Alcoholic hepatitis is a diseased, inflammatory condition of the liver caused by heavy alcohol consumption over an extended period of time.
- Diagnosis are CBC, Liver function tests, Ultrasound, CT scan, blood clotting tests, liver biopsy.
- Patients needs to stop receive drinking.



THANK YOU