**TRIBHUWAN UNIVERSITY**

**INSTITUTE OF MEDICINE**

**POKHARA NURSING CAMPUS**

**RAMGHAT-12, POKHARA**

**Lesson Plan on: Hepatitis**

**Submitted to: Submitted by:**

Respected madam, Sushmita Gurung

Saphalta Shrestha Roll no: 23

Lecturer BNS 2nd year

BNS 1st year

* Lesson plan on hepatitis

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| --- |
| Name of student teacher: Sushmita Gurung |
| Subject: Adult Health Nursing I |
| Unit: Common health problem of young Adult |
| Topic: Physical problem (Hepatitis) |
| Date: 2079- 11- |
| Venue: BNS 1st year |
| Time: |
| Duration: 1 hour |
| Number of participants: 38 |
| Level of participants: BNS 2nd year |
| Language: English + Nepali |
| Teaching/ Learning method: Brainstorming, interactive lecture, Discussion |
| Teaching, Learning media: PowerPoint, Whiteboard, poster |
| Name of supervisor: Respected madam,  Saphallta Shrestha |

General Objective:

At the end of session, BNS 1st year students will be able to explain about Hepatitis.

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| **SN**  1.  2.  3.  4.  5.  6.  7. | **Specific objectives**  At the end of the teaching session, participants will be able to:  introduce Hepatitis  state the classification of Hepatitis  state the types of viral hepatitis  enumerate phases of acute hepatitis  explain about viral hepatitis A  explain about Hepatitis B  explain about Hepatitis C | **Content**   * Greetings * Review of previous class * Introduction   . self  . topic  . objectives  . pretest  Introduction of Hepatitis  Classification of hepatitis  Types of viral hepatitis  Phases of acute hepatitis  Explanation about viral hepatitis A  Explanation about Hepatitis  Explanation about Hepatitis C | **Time**  2  min  3 min  2 min  3 min  2 min  3 min  5 min  10  Min  5  min | **Teaching/**  **Learning**  **Method**  Brainstorming  Question Answer  Interactive lecture  Interactive lecture  Interactive lecture+ discussion  Interactive lecture+ discussion  Lecture  Lecture  Lecture | **Teaching/ Learning**  **media**  picture  PowerPoint  Poster  PowerPoint  PowerPoint  PowerPoint  PowerPoint  PowerPoint | **Evaluation**  What do you know about  Hepatitis?  What is Hepatitis?  What are the classification of Hepatitis?  What are the types of viral hepatitis?  What are the phases of acute hepatitis?  What is Hepatitis A?  What is Hepatitis B?  What is Hepatitis C? |

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| 8.  9.  10.  11. | explain about Hepatitis D  explain about Hepatitis E  discuss nursing management about hepatitis  Summary of topic | Explanation about hepatitis D  Explanation about hepatitis E  Nursing management of hepatitis  Summarization  References  Question  Home assignment  Plan for next class | 5 min  5 min  10  min  3 min  1 min  1 min | Lecture  Lecture  Interactive lecture + discussion | PowerPoint  PowerPoint  PowerPoint | What is hepatitis D?  what is hepatitis E?  what are the nursing management of hepatitis? |

**Introduction**

* The word “hepatitis” comes from the ancient Greek word “hepar” meaning liver and English “itis” meaning inflammation.

Hepatitis is defined as the inflammation of liver characterized by inflammatory cell.

The condition can be self-limiting or can progress to fibrosis (scarring), cirrhosis or liver cancer. Hepatitis viruses are the most common causes of hepatitis in the world but other infections, toxic substances (e.g., alcohol, drugs) and autoimmune diseases can cause hepatitis.

Hepatitis can be acute or chronic.

**Epidemiology**

The World Health Organization (WHO) estimates that during 2019:

* 296 million people worldwide are living with hepatitis B.
* 58 million people worldwide are living with hepatitis C.
* 1.5 million people were newly infected with chronic hepatitis B.
* 1.5 million people were newly infected with chronic hepatitis C.
* Every year 1.5 million cases of Hepatitis A virus (HAV) infections occurred due to low socio-economic condition and lack of access to clean drinking water.
* An estimated 12 million people worldwide have experienced HDV infection.
* Every year there are estimated 20 million HEV infections worldwide, leading to an estimated 3.3 million symptomatic cases of Hepatitis E.
* **Classification**

|  |  |
| --- | --- |
| * **Viral Hepatitis** | * Viral hepatitis is the most common type of hepatitis world widely. The most common causes of viral hepatitis are the five unrelated viruses A, B, C, D and E. Other viruses can also cause liver inflammation including also Cytomegalovirus, Epstein Barr Virus and yellow fever. |
| * **Bacterial Hepatitis** | * Bacterial infection of the liver commonly results in pyogenic liver abscess, acute hepatitis or granulomatous liver disease. Pyogenic abscess commonly involves enteric bacteria such as Escherichia coli and klebsiella pneumonia. Acute hepatitis is caused by Neisseria gonorrhoea, Neisseria gonorrhoea etc. Chronic or granulomatous hepatitis is seen with infection from mycobacterium species, Treponema pallidum and rickettsia species. |
| * **Toxic or drug induced hepatitis** | * Many chemical agents, including medications, industrial toxins and herbal and dietary supplements can cause hepatitis. The spectrum of drug induced liver injury varies from acute hepatitis to chronic hepatitis to acute liver failure. Some drugs such as paracetamol exhibit predictable dose-dependent liver damage while isoniazid cause idiosyncratic and unpredictable reactions that vary among individuals. |
| * **Alcoholic Hepatitis** | Excessive alcohol consumption is a significant cause of hepatitis and is the most common cause of cirrhosis. Alcoholic hepatitis is within the spectrum of alcoholic liver disease. This ranges in order of severity and reversibility from alcoholic steatosis (least severe, most reversible), alcoholic hepatitis, cirrhosis and liver cancer (most severe, least reversible). Hepatitis usually develops over years-long exposure to alcohol, occurring in 10% to 20% of alcoholics. The most important risk factor for the development of alcoholic hepatitis are quantity and duration of alcohol intake. Long term alcohol intake in excess of 80 grams of alcohol a day in men and 40 grams a day in women associated with development of alcoholic hepatitis (1 beer or 4 ounces of wine is equivalent to 12 g of alcohol). Alcoholic hepatitis can vary from asymptomatic hepatomegaly (enlarged liver) to symptoms of acute or chronic hepatitis to liver failure. |
| * **Autoimmune Hepatitis** | Autoimmune hepatitis is a chronic disease caused by an abnormal immune response against liver cells. Formerly called **lupoid hepatitis**, is a chronic, autoimmune disease of the liver that occurs when the body’s immune system attacks liver cells causing the liver to be inflamed.  Affected people are often positive for human leukocyte antigen. As in other autoimmune disease, circulating diseases, circulating auto-antibodies may be present and are helpful in diagnosis. |

**Viral Hepatitis**

* Viral Hepatitis is a systemic, viral infection in which necrosis and inflammation of liver cells produce a characteristic cluster of clinical, biochemical and cellular changes.
* It may present as:

1. Acute viral Hepatitis
2. Chronic viral Hepatitis

Acute viral hepatitis: Viral infections evolving within hours, days to few weeks (8 weeks). Some patient may be entirely asymptomatic or mildly symptomatic at presentation. Acute hepatitis lasts less than 6 months. Acute hepatitis can resolve on its own, progress to chronic hepatitis, or (rarely) result in acute liver failure.

Chronic Viral hepatitis: It is the inflammation of liver that continues beyond a period of 6 month. Acute viral hepatitis B, C and D may progress to chronic hepatitis with the exception of hepatitis A and E. Chronic hepatitis may progress to scarring of the liver (cirrhosis), liver failure and liver cancer.

**Types of Viral Hepatitis:**

* Hepatitis A
* Hepatitis B
* Hepatitis C
* Hepatitis D
* Hepatitis E

**Acute Hepatitis:**

* The most common consequence of hepatotropic virus is acute inflammatory involvement of the entire liver.
* In general type A, B,C,D and E run similar clinical course and show identical pathologic findings.

**Acute Hepatitis is categorised into 4 phases:**

1. Incubation period
2. Pre-icteric or pre-dermal phase
3. Icteric phase
4. Post-icteric phase

* **Incubation Period**
* It varies among different hepatotropic viruses:
* Hepatitis A : 15 to 50 days (average 30 days)
* Hepatitis B: 28 to 160 days (average 70 days)
* Hepatitis C: 15 to 160 days (average 50 days)
* Hepatitis D: 21 to 140 days (average 35 days)
* Hepatitis E: 15 to 65 days (average 40 days)
* **Pre-icteric or pre- dormal phase:**
* Flu like symptoms
* Infection is easily transmitted during this phase
* This phase last for few days to 2 weeks
* **Sign and symptoms:**
* Anorexia
* Nausea and vomiting
* Malaise and fever
* Weight loss
* Hepatocellular injury (elevated transaminases)
* **Icteric phase**
* Continue for 2 to 6 weeks
* This is a hepatic manifestation and this phase is continuing as actual phase of illness.
* Onset of clinical jaundice and the constitutional symptoms diminish.
* Others features include dark coloured urine, clay-coloured stools, hepatomegaly and weight loss
* Diagnosis is based on: Deranged Liver Function Test

Prolonged prothrombin time and hyperglobulinemia

Serological detection of hepatitis antigen and antibody

* **Post- icteric or recovery phase:**
* last for 1 to 14 weeks
* Occurs in all cases and takes about 2 to 12 weeks when symptoms and icterus resolve and liver enzymes return to normal.
* The recovery phase is more prolonged in hepatitis B and hepatitis C.
* Up to 1% cases of acute hepatitis may develop severe form of the disease   
  (fulminant hepatitis) and 5-10% of cases progress on to chronic hepatitis. Evolution into the carrier state (except in HAV and HEV infection) has already been described above.

**Types of Viral Hepatitis**

* **Hepatitis A**

Hepatitis A, previously known as infectious hepatitis.

* **Aetiology**: Hepatitis A Virus (HAV), HAV is a RNA virus of the Entero virus family.
* **Mode of transmission:**
* Faecal-oral route (the ingestion of food or liquid infected by the virus)
* Waterborne
* Foodborne
* Poor sanitation
* Oral anal contact during sex

**NOTE: not spread by kissing, sneezing, saliva**

* **Excretion of virus:**

Excreted through faeces for about 2 weeks before the onset of jaundice and for one week thereafter also excreted in urine. Therefore, most infectious during 2 weeks before onset of symptoms.

* **Incubation period**: 15 -50 days (average 30 days)
* **Clinical manifestations**:
* Symptoms may appear 2 to 7 weeks after exposure to the virus and usually children younger than age 6 may have no symptoms. But most people do not have any symptoms. If symptoms of Hepatitis A occur, they include:
* Pre-icteric phase: fatigue, headache, malaise, anorexia, joint pain, abdominal pain and hepatomegaly.
* membranes, the patient may also have dark coloured urine and pale stool.
* **Diagnosis:**
* History Taking
* Physical Examination
* Detection of Antibody:
* Enzyme Linked Immunosorbent Assay
* Anti- HAV IgM in acute infection
* Anti- HAV IgG for recovery and immunity to virus
* Biochemical test: Liver Function Test
* Stool analysis for Hepatitis A antigen
* **Treatment:**
* Bed rest during Acute stage and nutritious diet.
* During anorexia, patient should receive frequent small feeding and supplement through intravenous with glucose if necessary.
* Gradual but progressive ambulation hastens recovery, provide patient adequate rest after activity.
* Mostly recover completely without any medicine or treatment.
* **Prevention:**
* Scrupulous hand hygiene, safe water supplies and proper control of sewage disposal.
* Hepatitis A vaccine within 2 weeks of exposure. Passive immunity is produced after 6- 8 weeks. Immunoglobulin suppress over the symptoms of this disease.
* Pre-exposure prophylaxis for people age 2 and older who are travelling to or working in developing countries should strongly consider the Hepatitis A vaccine.

**Hepatitis B:**

Also known as Serum hepatitis. It is a serious disease caused by a virus that is hepatitis B virus that infect the liver and can cause lifelong infection, cirrhosis, liver cancer and death.

* **Aetiology**: Hepatitis B virus (HBV), HBV is a double shelled DNA of enterovirus family.
* **Incubation period**: 28 to 160 days average 70 days
* **Mode of transmission**:
* Unprotected sexual intercourse with infected partner.
* Sharing needle/ accidental needle prick
* Blood transfusion
* Haemodialysis
* Maternal to foetal route

**NOTE: HBV is found in the blood and bloody fluids like saliva, semen, vaginal secretion etc of an infected person.**

* **Diagnosis:**
* History Taking
* Physical Examination
* Serological tests:
* Enzyme Linked Immunosorbent Assay (ELISA)
* HBsAg (Hepatitis B surface Antigen)
* HBsAb (Hepatitis B Surface Antibody)
* Anti- HBc IgM: marker of acute infection
* Anti-HB-lgG: marker of past or chronic infection
* Biochemical test:
* Liver function test
* Prothrombin time
* Total protein, albumin, serum globulin
* Complete blood count
* Coagulation studies
* **Treatment:**
* Bed rest until symptoms subside.
* Activities restricted until Hepatic enlargement and level of serum bilirubin and liver enzyme decreased.
* Adequate nutrition
* Protein restriction if symptoms indicate that liver metabolizing ability impaired.
* Drug therapy:
* Anti emetic and antacid
* If vomiting persists need hospitalization and fluid therapy
* Anti-viral drugs: lamivudine and adefovir
* Alpha Interferon for chronic hepatitis
* **Prevention:**
* Practice safe sex
* Screening of blood donors and pregnant women for HBsAg
* Proper disposal of used syringes/needles
* Clinical laboratory and haemodialysis unit disinfected daily.
* Follow universal precaution
* Hepatitis B vaccination

**Hepatitis C**

Also known as non-A and non-B Hepatitis previously. HCV is a virus that is carried in the blood stream to the liver. It can then affect and damage the liver. This virus can also affect other parts of the body such as digestive, nervous and immune system.

* **Aetiology:** Hepatitis C virus (HCV), HCV is an RNA virus of enterovirus family.
* **Incubation period:** 15 to 160 days (average 50 days)
* **Mode of transmission:**
* Blood and Sexual contact
* Parenteral means such as contaminated needle or needlestick injury
* Tattooing, body piercing and acupuncture
* Mother to child (>5%)
  + **Note: Hep C is not transmitted through breast milk, food or water or by casual contact such hugging, kissing, sharing foods.**
* **Clinical Manifestation:**
* Symptoms are usually mild such as fever, fatigue decreased appetite, nausea, vomiting abdominal pain.
* However, a chronic carrier state is an increased risk of chronic Liver disease, cirrhosis of liver or liver cancer.
* **Diagnosis:**
* History Taking
* Physical Examination
* Detection of Antibody: ELISA
* Anti-HCV antibody in acute infection
* Polymerases chain reaction test: confirms presence of circulating active virus
* Liver function test
* Ultrasound scan
* Liver biopsy
* **Treatment:**
* The main aim is to clear the HCV virus from the body and prevent severe damage leafing to cirrhosis.
* Combination of two anti-viral agents peginterferon and ribavirin (Rebetol) is effective in producing effective improvement in patient with Hepatitis C and treating relapses.
* Avoid alcohol and follow good diet.
* Liver transplant for advanced cirrhosis
* **Prevention:**
* Screening blood
* Safe sex practice
* Public health awareness program about Hep C
* Avoid sharing personal care items that might have blood on them i.e., Razors, toothbrush, nail clippers
* Follow universal precaution and safe handling of needle and other sharp objects

**Hepatitis D**

Also known as delta virus. Unlike the other forms, hepatitis D occurs in Hepatitis B infected person.

* **Aetiology**: Hepatitis D virus (HDV), HDV is a RNA virus of enterovirus family.
* **Incubation period**: 21 to 140 days (average 35 days)
* **Mode of transmission:** Blood or bloody fluid as with HBV
* **Clinical manifestation**:
* Similar to Hepatitis B virus and include:
* Yellowing of skin and eyes (jaundice)
* Gastrointestinal (GI) issue such as nausea, vomiting and abdominal pain
  + **Diagnosis:**
* History Taking
* Physical Examination
* Detection of Antibody:
* ELISA
* Anti- HDV antibody in acute infection
* Polymerase Chain Reaction (PCR) to detect virus
* Liver Function Test
* **Treatment:**
* Currently interferon alpha is the only licensed drug available in the treatment for hepatitis viral infection
* Symptomatic management
  + **Prevention:**
* Preventing HBV also prevents HDV
* Getting vaccinated against Hepatitis B

**Hepatitis E**

Usually self-limiting and resolve within 4-6 weeks. Occasionally acute liver failure develops which can lead to death. HEV has no known carrier state and plays no role in the production of chronic hepatitis or cirrhosis. HEV is more severe in pregnant women, especially in the third trimester.

* **Aetiology**: Hepatitis E virus (HEV), HEV is a RNA virus of enterovirus family.
* **Incubation period**: 15 to 65 days (40 days)
* **Mode of transmission:** feco-oral route due to faecal contamination of drinking water.
* **Clinical manifestation:**
* Symptoms are similar to Hepatitis A
* Jaundice, anorexia, hepatomegaly, abdominal pain and tenderness
* Nausea
* Vomiting and fever

**Diagnosis**

* History Taking
* Physical Examination
* Detection of Antibody test:
* ELISA
* Anti- HEV antibody in acute infection
* Polymerase Chain Reaction
  + Liver Function Test
* **Treatment:**
* Immediately after exposure immunoglobulin treatment should be done.
* Usually self-limiting, hospitalization is not generally acquired but in fulminant hepatitis and pregnancy may need to hospitalize.
* Avoid alcohol
* Symptomatic treatment of flu like illness
* **Prevention:**
* Maintaining quality standards for public water supplies
* Proper disposal system for human faeces
* Maintain hygienic practices

**Nursing Management**

* **Assessment**
* Vital signs, abnormal breathing and any abnormal bruising or bleeding
* Activity intolerance
* Nutritional status
* Identify level of knowledge
* Asses for sign of jaundice, ascites, Gi bleeding
* Assess the result of liver function test
* Palpate rt upper quadrant for liver tenderness
* **Nursing Diagnosis:**
* Pain and discomfort related to enlarged tender liver and ascites
* Activity intolerance related to fatigue, lethargy and malaise
* Imbalanced nutritional less than body requirement related to abdominal distention, discomfort and anorexia
* Risk for impaired skin integrity related to pruritus due to bilirubin pigmentation deposit in skin and oedema
* Risk for elevated body temperature (hyperthermia) related to inflammatory process of liver or cirrhosis of liver.
* **Nursing Intervention**
* Increased level of comfort:
* Maintain bed rest when patient experiences abdominal discomfort.
* Administer antispasmodic and analgesic as prescribed.
* Observe, record and report presence and character of pain and discomfort
* Reduce sodium and fluid intake if prescribed
* Encourage the use of distracting activities such as music, reading or meditation.
* Reduce in fatigue and increased ability to participate in activities:
* Assess level of activity tolerance
* Assist with activities and hygiene when fatigued.
* Encouraged rest when fatigued and abdominal discomfort.
* Assist with selection and pacing of desired activities and exercise.
* Provide diet high in carbohydrate with protein intake consistent with liver function
* Administer supplement vitamin (A, B complex, C and K)
* Meets nutritional requirement:
* Assess dietary intake and nutritional status through diet history and daily weight measurement.
* Provide diet high in carbohydrates with protein intake consistent with liver function.
* Assist identifying low sodium foods.
* Elevate the head of bed during meals.
* Provide oral hygiene before meals and pleasant environment for meals at meal time.
* Offer smaller, more frequent meals.
* Encourage to eat meals and supplementary feedings
* Eliminate alcohol.
* Administer medication as prescribed for nausea, vomiting, diarrhoea and constipation.
* Decrease potential for pressure ulcer development:
* Assess the level of discomfort
* Note and record degree of jaundice and oedema
* Keep patient’s fingernail short and smooth
* Provide frequent skin care
* Massage every 2 hour and change position at every 2 hours.
* Avoid the use of harsh detergent and restrictive clothing
* Restrict sodium as prescribed
* Elevate oedematous extremities whenever possible.
* Maintenance of body temperature, free from infection
* Record temperature every 4 hourly.
* Encourage fluid intake
* Apply cool sponges or ice bag for elevated body temperature.
* Administer antibiotics as prescribed.
* Avoid exposure to infections
* Keep patient at rest when temperature is elevated.
* Assess for abdominal pain, tenderness.
* Use sterile technique for all invasive procedures.
* **Summarization**
* Hepatitis is defined as inflammation of liver characterized by inflammatory cell. The condition can be self-limiting or can progress to fibrosis, cirrhosis or liver cancer. There are many causing factors responsible for hepatitis such virus, bacteria, drug, alcohol and autoimmune disease, whereas, viral hepatitis are the most common causes for the inflammation of liver cell in the worldwide. Viral hepatitis can be acute and chronic. Viral hepatitis B and C can progress to chronic viral hepatitis where Hepatitis A and E usually resolves itself without progressing to chronic. Hepatitis can be asymptomatic to severe symptomatic causing hepatomegaly, cirrhosis of liver and even death. Anti-viral therapy and symptomatic management are usually done in viral hepatitis. Proper sanitation with good hand hygiene, safe sex practices, getting vaccinated etc can be done for the prevention of Viral hepatitis.
* **Question**
* **True/False**

1. Hepatitis E is transmitted by sharing infected needle. \_\_\_
2. Proper waste disposal is one of the preventive measures of viral Hepatitis. \_\_
3. False
4. True

**Assignment:**

* Define Hepatitis. Classify different types of Hepatitis.
* Explain about Hepatitis C, it’s causes, mode of transmission, clinical manifestation and treatment.
* **Plan for next class:**
* We will discuss about Tuberculosis in our next class.
* **References**
* Basavanthappa B. (2015), Medical Surgical Nursing volume 1, third edition, Jaypee Brothers Medical Publishers (P) Ltd, page no 571 to 574.
* Hinkle J.L, and Cheever k.H., (2015), Brunner and Suddarth’s Textbook of Medical Surgical Nursing Volume 2, 13th Edition, Wolters Kluwer (India) Pvt Ltd page, page no 1358 to 1377.
* https://www.cdc.gov/hepatitis/abc/index.htm#:~:text=Hepatitis%20means%20inflammation%20of%20the,medical%20conditions%20can%20cause%20hepatitis
* Mandal G. (2014), A Textbook of Medical Surgical Nursing, third edition, Makalu Publication House, page no 174 to 177.
* Shrestha H., Poudyal p., and Giri S. (2072) A Textbook of Medical Surgical Nursing I and II, Heritage Publishers and Distributors Pvt Ltd, page no 129 to 134.

THE END