

## Prevention of viral hepatitis: A literature review

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### Abstract

A gradual increase in the statistics proved that Hepatitis is recently wide spread disease and may attack higher count of population. In India, viral hepatitis is now recognized as a serious public health problem. It places a huge disease, social and economic burden on the affected individual, family, as well as the health system. Proper preventive measures can avoid the incurrence of disease. By disseminating the information and improving the awareness among community, nurses may play a pivotal role in prevention of this silent epidemic.

**Keywords:** Prevention, viral hepatitis, literature

### Introduction

Viral hepatitis is a widespread infectious disease normally caused by the hepatitis viruses A, B, C, D and E. The condition can be self-limiting or can progress to liver fibrosis (scarring), cirrhosis or liver cancer.

In South-East Asia, 100 million people are currently estimated to be living with hepatitis B, and 30 million with hepatitis C. In India, viral hepatitis is now recognized as a serious public health problem. It places a huge disease, social and economic burden on the affected individual, family, as well as the health system.

In India, as per latest estimates, 40 million people are chronically infected with hepatitis B and six to 12 million people are chronically infected with hepatitis C. HEV is the most important cause of epidemic hepatitis, though HAV is more common among children. Most acute liver failures diagnosed are attributable to HEV <sup>[1]</sup>.

### Definition

Hepatitis, a general term referring to inflammation of the liver, may result from various causes, both infectious (ie, viral, bacterial, fungal, and parasitic organisms) and noninfectious (eg, alcohol, drugs, autoimmune diseases, and metabolic diseases) <sup>[2]</sup>.

### Hepatitis A

- Hepatitis A is a viral liver disease caused by Hepatitis A Virus.
- The hepatitis A virus (HAV) is transmitted through ingestion of contaminated food and water or through direct contact with an infectious person.
- Unlike hepatitis B and C, Hepatitis A does not cause chronic liver disease and is rarely fatal but can cause fulminant hepatitis which may be fatal.
- Almost everyone recovers fully from hepatitis A with a lifelong immunity. However, a very small proportion of people infected with hepatitis A could die from

fulminant hepatitis.

- The risk of hepatitis A infection is associated with a lack of safe water, and poor sanitation and hygiene.
- A safe and effective vaccine is available to prevent hepatitis A.

### Transmission

- The hepatitis A virus is transmitted primarily by the faecal-oral route; that is when an uninfected person ingests food or water that has been contaminated with the faeces of an infected person.
- In families, this may happen though dirty hands when an infected person prepares food for family members.
- Waterborne outbreaks, though infrequent, are usually associated with sewage-contaminated or inadequately treated water.
- The virus can also be transmitted through close physical contact with an infectious person, although casual contact among people does not spread the virus.

### Who all are at risk???

- poor sanitation;
- lack of safe water;
- use of recreational drugs;
- living in a household with an infected person;
- being a sexual partner of someone with acute hepatitis A infection; and
- travelling to areas of high endemicity without being immunized.

### Prevention

- The spread of hepatitis A can be reduced by:
- adequate supplies of safe drinking water;
- proper disposal of sewage within communities;
- Following personal hygiene practices such as regular hand-washing with safe water.

- Avoiding roadside food.
- Fruits and vegetables should not be eaten unless they are cooked or can be peeled.
- Drinking water should be adequately purified by boiling or any other purification technique
- In addition, travellers to endemic areas should not drink untreated water or ingest raw seafood or shellfish <sup>[3]</sup>.

### Hepatitis B

- Hepatitis B is a viral infection that attacks the liver and can cause both acute and chronic disease.
- The virus is transmitted through contact with the blood or other body fluids of an infected person.
- An estimated 257 million people are living with hepatitis B virus infection (defined as hepatitis B surface antigen positive).
- In 2015, hepatitis B resulted in 887 000 deaths, mostly from complications (including cirrhosis and hepatocellular carcinoma).
- Hepatitis B is an important occupational hazard for health workers.
- However, it can be prevented by currently available safe and effective vaccine.

### Transmission

- Hepatitis B may spread by percutaneous or mucosal exposure to infected blood and various body fluids, as well as through saliva, menstrual, vaginal, and seminal fluids. Transmission of the virus may also occur through the reuse of needles and syringes either in health-care settings or among persons who inject drugs.
- In highly endemic areas, hepatitis B is most commonly spread from mother to child at birth (perinatal transmission), or through horizontal transmission (exposure to infected blood), especially from an infected child to an uninfected child during the first 5 years of life.

### Who all are at risk???

- Persons born in places where hepatitis B infection is common (especially China, Southeast Asia, the Pacific Islands, sub-Saharan Africa, and the Amazon basin in South America).
- Injecting drug users
- Persons who frequently require blood or blood products
- Hemodialysis patients
- Recipients of organ transplantation
- Health care and public safety workers who may have contact with blood
- People having sex with an HBV-infected partner
- Men who have sex with men
- Household contact with an HBV-infected person
- Travellers to places where hepatitis B infection is common who will have extended, close contact with the local population.

### Prevention

- The best way to prevent hepatitis B is with vaccination. The hepatitis B vaccine offers excellent protection against HBV. The vaccine is safe and highly effective. Vaccination consists of 3 doses of vaccine (shots) over

the course of 6 months. Protection lasts for 20 years to life.

- Nurses should advise the persons to follow below given points:
- Do not inject drugs. If you do inject drugs, stop and get into a treatment program. If you can't stop, never share needles, syringes, water, or "works"
- Do not share personal care items that might have blood on them (razors, toothbrushes)
- If you are a health care or public safety worker, follow universal blood/body fluid precautions and safely handle needles and other sharps
- Consider the risks if you are thinking about tattooing, body piercing, or acupuncture – are the instruments properly sterilized?
- If you're having sex with more than one steady partner, use latex condoms each time correctly to prevent the spread of sexually transmitted diseases, including viral hepatitis and HIV
- In case of needle stick injury, follow post exposure prophylaxis <sup>[4]</sup>.

### Perinatal Hepatitis

- Testing of all pregnant women for hepatitis B infection
- If the mother is HBV-infected, she will pass the infection to the baby during the birth process, unless the baby gets immunized within hours of birth
- Giving the infant HBIG (hepatitis B immune globulin) and HBV vaccine right away will reliably prevent infection of the infant
- Other family members should best tested for hepatitis B too, and given vaccine if they are not already infected or immune <sup>[5]</sup>.

### Hepatitis C

- Hepatitis C is a liver disease caused by the hepatitis C virus. The virus can cause both acute and chronic hepatitis, ranging in severity from a mild illness lasting a few weeks to a serious, lifelong illness.
- Globally, an estimated 71 million people have chronic hepatitis C infection.
- A significant number of those who are chronically infected will develop cirrhosis or liver cancer.
- Approximately 399 000 people die each year from hepatitis C, mostly from cirrhosis and hepatocellular carcinoma.
- The hepatitis C virus is a blood borne virus and the most common modes of infection are through exposure to small quantities of blood. This may happen through injection drug use, unsafe injection practices, unsafe health care, and the transfusion of unscreened blood and blood products.
- Antiviral medicines can cure more than 95% of persons with hepatitis C infection, thereby reducing the risk of death from liver cancer and cirrhosis, but access to diagnosis and treatment is low.
- There is currently no vaccine for hepatitis C; however research in this area is ongoing.

### Who all are at risk???

People can become infected with the hepatitis C virus

during such activities as:

- Sharing needles, syringes, or other equipment to prepare or inject drugs
- Needlestick injuries in health care settings
- Babies born to Hepatitis C infected mothers

#### **Less commonly, a person can also get hepatitis C virus through**

- Sharing personal care items that may have come in contact with another person's blood, such as razors or toothbrushes
- Having sexual contact with a person infected with the hepatitis C virus
- Getting a tattoo or body piercing in an unregulated setting

#### **Prevention**

- Prevention is based on avoiding known risks of HCV transmission. Avoiding the following activities can prevent from getting HCV:
- Sharing needles for drug use or any other reason
- Having a medical procedure or an injection with unsterilized equipment
- Getting a needle-based tattoo
- Getting body piercings
- Sharing personal items that may have blood on them, such as razors, earrings, toothbrushes
- Having unprotected sex with someone who could have HCV
- Healthcare workers are also at risk of exposure to HCV from patient blood, needles, glass, or equipment. Wearing gloves and disposing of sharp objects properly decrease the risk of becoming infected with HCV.
- Unlike hepatitis A or hepatitis B, there is still no vaccine to prevent hepatitis C infection<sup>[6]</sup>.

#### **Hepatitis D**

- Hepatitis D, also known as the hepatitis delta virus,
- Unlike the other forms, hepatitis D can't be contracted on its own. It can only infect people who are already infected with hepatitis B.
- There's currently no cure or vaccine for hepatitis D.
- With prevention of hepatitis B, hepatitis D can also be prevented.

#### **Who all are at risk???**

An increased risk of getting hepatitis D are there if the individual:

- has hepatitis B
- man who has sex with other men
- often receive blood transfusions
- use injectable or intravenous (IV) drugs, such as heroin

#### **Prevention**

The only known way to prevent hepatitis D is to avoid infection with hepatitis B. Individuals can be educated for following these preventive measures to reduce the risk for hepatitis B:

- Get vaccinated. There's a vaccine for hepatitis B that all children should receive. Adults who are at high risk for

infection, such as those who use intravenous drugs, should also be vaccinated. The vaccination is usually given in a series of three injections over a period of six months.

- Use protection. Always practice safe sex by using a condom with all of your sexual partners. You should never engage in unprotected sex unless you're certain your partner isn't infected with hepatitis or any other sexually transmitted infection.
- Avoid or stop using recreational drugs that can be injected, such as heroin or cocaine. If you're unable to stop using drugs, make sure to use a sterile needle each time you inject them. Never share needles with other people.
- Be cautious about tattoos and piercings. Go to a trustworthy shop whenever you get a piercing or tattoo. Ask how the equipment is cleaned and make sure the employees use sterile needles<sup>[7]</sup>.

#### **Hepatitis E**

- Hepatitis E is a liver disease caused by infection with a virus known as hepatitis E virus (HEV).
- Every year, there are an estimated 20 million HEV infections worldwide, leading to an estimated 3.3 million symptomatic cases of hepatitis E.
- WHO estimates that hepatitis E caused approximately 44 000 deaths in 2015 (accounting for 3.3% of the mortality due to viral hepatitis).
- The virus is transmitted via the faecal-oral route, principally via contaminated water.
- Hepatitis E is found worldwide, but the prevalence is highest in East and South Asia.
- A vaccine to prevent hepatitis E virus infection has been developed and is licensed in China, but is not yet available elsewhere.

#### **Transmission**

- The hepatitis E virus is transmitted mainly through the faecal-oral route due to faecal contamination of drinking water
- The risk factors for hepatitis E are related to poor sanitation, allowing virus excreted in the faeces of infected people to reach drinking water supplies

#### **Other routes of transmission have been identified, but appear to account for a much smaller number of clinical cases. These routes of transmission include**

- ingestion of undercooked meat or meat products derived from infected animals
- transfusion of infected blood products
- vertical transmission from a pregnant woman to her fetus
- The ingestion of raw or uncooked shellfish may be the source of sporadic cases in endemic areas.

#### **Prevention**

At the population level, transmission of HEV and hepatitis E disease can be reduced by:

- Maintaining quality standards for public water supplies;
- Establishing proper disposal systems for human feces.

**On an individual level, infection risk can be reduced by**

- Maintaining hygienic practices such as hand-washing with safe water, particularly before handling food;
- Avoiding consumption of water and/or ice of unknown purity; and
- Adhering to WHO safe food practices <sup>[8]</sup>.

**Conclusion**

Viral hepatitis is a global public health problem affecting millions of people every year, causing disability and death. As advocacy and raising awareness of all types of viral hepatitis infection help reduce transmission in the community, nurses being patient's advocate as well as health educator may play pivotal role in prevention of this silent epidemic.

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