

Viral Hepatitis – Disease Burden, Challenges and Gap Analysis with Existing Response

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Introduction and background

Viral hepatitis is a global public health problem of epidemic proportions that caused 1.34 million deaths in 2015 a number comparable to deaths caused by tuberculosis and higher than those caused by HIV. Infection can be caused by the five known hepatitis viruses – A, B, C, D and E (HAV, HBV, HCV, HDV and HEV). Many of these infections are preventable. Hepatitis B and C are responsible for 96% of overall hepatitis mortality. In India, the estimated burden of hepatitis is very high, necessitating focus on prevention and control measures to mitigate morbidity and mortality arising out of hepatitis.

Common modes of transmission of infection include perinatal mother to child transmission, infected needles, transfusion of infected blood and blood products and sexual mode. Hepatitis B can be either acute or chronic and the associated illness ranges in severity from asymptomatic to symptomatic, progressive disease. The risk of complication correlates with the age of acquisition of infection i.e. neonate acquiring infection from mother has nearly 90% chance of developing chronicity. People with chronic hepatitis B are at increased risk of developing hepatic decompensation, cirrhosis, and hepatocellular carcinoma.

Since majority of infected people remain asymptomatic, and often present with advanced disease, early diagnosis is critical to timely initiation and scale up of treatment for viral hepatitis B. Inadequate public and health-care provider awareness; the asymptomatic nature of infection during the early stages, lifelong treatment and access to quality diagnostics are some of the challenges to scaling up management of viral hepatitis B.

I. Magnitude of the problem and high risk areas/groups

Global Scenario

Hepatitis A and E usually cause acute hepatitis. They are transmitted mostly through exposure to contaminated food or water or through personal contact with an infected person. WHO estimates that worldwide, hepatitis A caused approximately 11 000 deaths in 2015 (accounting for 0.8% of the mortality from viral hepatitis).

There are an estimated 20 million HEV infections worldwide, leading to an estimated 3.3 million symptomatic cases of acute hepatitis E. WHO estimates that hepatitis E caused approximately 44000 deaths in 2015 (accounting for 3.3% of the mortality due to viral hepatitis)

Hepatitis B and C are transmitted by unsafe injection practices & through contaminated syringes and needles, infected blood and blood products, sexual transmission, from infected mother to child. Globally, in 2015, an estimated 257 million people were living with chronic HBV infection, and 71 million people with chronic HCV infection.

Among the 36.7 million persons living with HIV in 2015, an estimated 2.7 million had chronic HBV infection and 2.3 million had been infected with HCV. Liver diseases are a

major cause of morbidity and mortality among those living with HIV and co-infected with viral hepatitis.

Indian Scenario

Viral hepatitis is increasingly being recognized as a public health problem in India.

HAV and HEV are important causes of acute viral hepatitis and acute liver failure (ALF). HAV is responsible for 10-30% of acute hepatitis and 5-15% of acute liver failure cases in India. It is further reported that HEV 10-40% of acute hepatitis and 15-45% of acute liver failure.

Since India has one-fifth of the world's population, it accounts for a large proportion of the worldwide HBV burden. India harbours 10-15% of the entire pool of HBV carriers of the world. It has been estimated that India has around 40 million HBV carriers. About 15-25% of HBsAg carriers is likely to suffer from cirrhosis and liver cancer and may die prematurely.

Chronic HBV infection accounts for 40-50% of hepatocellular carcinoma (HCC) and 20-30% cases of cirrhosis and chronic

HCV infection accounts for 12-32% of HCC and 12-20% of cirrhosis in the country.

Injection Safety and risk of Hepatitis B and C in India

According to a national level India study conducted by IPEN, approximately 3 billion injections are administered in India alone, out of which an estimated 1.89 billion (62.9%) are unsafe posing higher risk for transmission of blood-borne viral infections. The study found that frequency of injections in India is 2.9 per person per year.

In India, unsafe injections lead to very high incidence of infections in the magnitude of:

- 260,000 HIV infections (5% of global burden)
- 21 million HBV infections (32% of global burden)
- 2 million HCV infections (40% of global burden)

Supportive studies

- *There are experiences from India where unsafe injections have been known to cause outbreaks of blood-borne infections. In 2009, in Gujarat an outbreak of Hepatitis B was investigated and 40% of all positive cases (n=856) were found to have received therapeutic injections in the past 1.5 to 6 months. In another study conducted among primitive tribes of Andaman and Nicobar Islands found high prevalence (26.3%) of hepatitis B virus infection. Unsafe injections were found to be independent risk factor for acquiring HBV infection in the population.*
- *IPEN study (2003) showed that satisfactory terminal disposal of injection waste was practiced in less than half of the facilities visited (44.8%) in India.*

II. Review of the existing programs

- At present multiple activities are being carried out for prevention and control of viral hepatitis under various divisions in the Ministry of Health & Family Welfare (MoHFW), as follows:
 - Swachh Bharat Mission
 - Safe drinking water and sanitation Programme
 - Provision of sanitary toilet to every household
 - Smart city with good sewage system
 - River water pollution control
 - Hygiene and sanitation in the municipal areas
 - Biomedical waste management
 - Immunization
 - Injection Safety & infection control
 - Safety of Blood and blood products
 - Harm reduction in key populations (through NACP)
 - Surveillance of Viral Hepatitis

Hepatitis C Treatment program in Punjab and other states

- Punjab has started free treatment of HCV infected individuals through state government funds since July 2016. Sustained Virological Response (SVR) has been around 93% amongst the patients who underwent the HCV Viral load after 12 weeks of completing the treatment.
- There are a few states (Assam, Manipur, Tripura, Haryana) that have also started some subsidized treatment to HIV-HCV co-infected or to any HCV infected needing treatment. However, the coverage and expected number of beneficiaries is very limited with these schemes.

III. Challenges and Gap Analysis in the existing Response

Immunization:

The Hepatitis -B birth dose coverage is sub optimal in India. Out of the total live births, the Hepatitis -B birth dose coverage was 45% in 2015 and 60% in 2016. Missed opportunity is about 40% which need to be addressed.

The Hepatitis -B birth dose coverage among institutional deliveries was 55% in 2015 and increased to 67% in 2016. The coverage amongst institutional deliveries for Hepatitis -B birth dose was reported to be 71% as of March 2017.

The Immunization for hepatitis B is not routinely available for health care workers. Wherever it is available, the data is not being captured.

Immunization of hepatitis B in key population is also not well implemented or documented. There are certain population groups like recipients of multiple blood / blood products transfusion, patients on hemodialysis, PWID, MSM, sex workers, sexual partners of infected people, etc which are at a higher vulnerability to get infection with hepatitis B. Linkages have to be established with universal immunization program and national AIDS Control program for vaccinating the healthcare workers and key populations respectively against hepatitis B, wherever possible.

About 70-90% newborns infected through perinatal transmission become chronic carriers of HBV. Screening of pregnant women and use of Hepatitis B immunoglobulin in infants born to mothers with active infection is one the vital measures to prevent mother to child transmission.

Currently there is no provision of passive immunity to the infant born to HBV positive mothers. It is proposed to provide Hepatitis B immunoglobulin (HBIG) to newborns of hepatitis B positive mothers to prevent the risk of acquiring the infection. HBIG prophylaxis, in conjunction with HBV vaccination is of additional benefit in preventing vertical transmission

Injection Safety and Prevention of Hepatitis B and C

Unsafe health care practices by health care providers / traditional healers / quacks pose a major challenge and risk for transmission of HBV and HCV.

There is need for developing training material and capacity building for effective roll-out of RUP syringes addressing prescriber practices and community preference for injections. At the same time, it is important to generate evidence / monitor the trends over time through baselines assessments and cost effectiveness studies.

Prevention of infection has to be addressed while respecting the socio-cultural practices like tattooing, religious ceremonies (eg. Mundans), ear/body piercing etc.

There are gaps in implementation of bio-medical waste management rules, leading to sharps injuries and increased risk of infections.

Safety of Blood and Blood Products

There is a lack of a mechanism for follow up of individuals detected positive on screening, their counseling, confirmatory testing and linkages to care and support

services. Lack of optimal quality control measures in TTI (Transfusion transmitted infections) testing and strengthening of monitoring small blood banks is required. Currently, there is less than 100% true voluntary blood donation.

Referral & follow up of HBsAg and anti HCV reactive blood component donors and those in blood transfusion and public health services for following reasons:

- To confirm the presence of infection by confirmatory tests & provide treatment & care to those confirmed infected.
- To prevent further spread of infections to close contacts
- To allow future donations by those found to be false positive by confirmatory tests.
- To counsel and defer confirmed positive donors from future donations & to decide whether and when they can donate again.

Surveillance of Viral hepatitis

There is lack of nationally representative population based study for assessing the prevalence of hepatitis B and C infection in general population.

The primary focus has been on outbreak surveillance which often not lab is confirmed due to lack of facilities at the peripheral level. There has been no structured surveillance of acute (case reporting), chronic hepatitis or sequel to chronic hepatitis.

Diagnosis and Treatment:

The treatment available fails to eradicate the virus in most of those treated, necessitating potentially lifelong treatment.

Early diagnosis is critical to timely initiation and scale up of treatment for viral hepatitis. However, there are inadequate services for diagnosis and treatment of hepatitis B and Hepatitis C and consequently, standardized diagnostic and treatment protocols for management of Hepatitis B & C in the country. In addition, there is lack of optimal facilities for screening, diagnosis and treatment of viral hepatitis. There is no standardized intervention for treatment of hepatitis including testing algorithms and treatment guidelines etc.

There is no reporting for the number of cases treated for hepatitis B and C in the country as there was no national program for the same till 2018. The majority of cases incur out of pocket expenditure for treatment of Hepatitis B and C. However, some states have taken an initiative to provide treatment for hepatitis C.

Awareness generation

Hepatitis A and E are preventable by use of safe drinking water and proper sanitation. There is a need to create

awareness among general population to achieve elimination of the same.

Education and awareness on safe injection practices, socio cultural practices and their risk in spread of infection of hepatitis B and C is the mainstay for the larger objective of elimination of hepatitis B and C.

There is a need to integrate campaigns on immunization of new born for hepatitis B which can prevent infection and also serve the long term objective of elimination

There is lack of awareness amongst general population and Health Care Workers about hepatitis and inadequate or lack of comprehensive focus on the entity of hepatitis in the awareness and communications campaigns to raise the awareness of hepatitis in the community.

It is important to create awareness amongst municipalities, district administration, Panchayati Raj Institutions (PRIs), sanitation workers and people at large to understand their role in these preventable infections specially hepatitis A and E. There is a need for integration with the Ministry of Urban Development and Ministry of Drinking Water and Sanitation, to eliminate these water borne infections.

Conclusion

In India, the estimated burden of hepatitis is very high, necessitating focus on prevention and control measures to mitigate morbidity and mortality arising out of hepatitis. Chronic hepatitis which includes cirrhosis and HCC poses long term burden on the health system. The existing gaps to be addressed and need to integrate existing programs towards awareness, prevention and treatment for all types' viral hepatitis.

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