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Hepatitis and community: The current scenario and a roadmap for 2030

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Abstract

Background: Viral hepatitis is increasingly being recognized as a public health problem, requiring special attention. The World Health Organization (WHO) estimated that in 2019, 296 million people globally (3.8%) had chronic hepatitis B virus (HBV) infection, and 58 million people (0.8%) were living with hepatitis C virus (HCV). To add to this, every year, about 1.5 million people are newly infected with either hepatitis B or C viruses. The Global Health Sector Strategy (GHSS) has aimed to eliminate viral hepatitis as a major public health problem by 2030.

Methods: We conducted a desk review to identify strategies for preventing viral hepatitis and develop a roadmap to attain the sustainable development goals (SDG) target by 2030 (particularly in low- and middle-income countries). A search was done in PubMed via Medline on 1 December 2022.

Results: The focus has to be on key interventions, including hepatitis B vaccination (part of the routine child immunization along with rescheduling the birth dose to up to 7 days post-term, adult vaccination, for targeted groups like health care providers, rag pickers, waste handlers, and sanitation workers), ensuring safe injection practices and blood transfusion, harm reduction interventions for people who inject drugs (PWID), adequate testing for early diagnosis, and ensuring appropriate treatment.

Conclusion: It is the need of the hour to prioritize key interventions identified in the review for preventing viral hepatitis.

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Introduction

Viral hepatitis refers to a pathologic condition wherein an infection due to hepatitis viruses causes inflammation of the liver (WHO 2019). The World Health Organization (WHO) estimated that in 2019, 296 million people globally (3.8% of the population) had chronic hepatitis B virus (HBV) infection (1). The majority (67%) were from African and Western Pacific regions. Similarly, 58 million people globally (0.8% of the population) were living with hepatitis C virus (HCV) infection, with European and Eastern Mediterranean regions being the most affected (1). To add to this, every year, about 1.5 million people are newly infected with either hepatitis B or C viruses. The estimates also highlight that about 1.1 million people died in 2019 due to hepatitis infections, especially cirrhosis and hepatocellular carcinoma (HCC). In India, the exact burden of viral hepatitis is unknown owing to the paucity of data. The proportion of hepatitis B surface antigen (HBsAg)-positive individuals ranges from 2 to 8%. Literature evidence shows that 15-25% of HBsAg carriers may later develop cirrhosis and cancer, which results in premature death (2). It is the need of the hour to identify strategies that achieve a significant reduction in the infected population, morbidity, and mortality associated with hepatitis viruses, especially B and C, through cirrhosis and HCC.

Methods

We conducted a desk review to document the burden of hepatitis (particularly hepatitis B), identify strategies, and develop a roadmap to attain the sustainable development goals (SDG) target by 2030 (particularly in low- and middle-income countries). The review was not limited by the type of the study. A search was done in PubMed via Medline using the keywords that included but were not limited to 'hepatitis,' 'prevention,' 'strategy,' and 'LMICs' on 1 December 2022. There were no language restrictions. This resulted in 301 articles. After reviewing the titles and abstracts, 92 articles were identified. Finally, through full-text screening, 19 studies that were relevant to the objective of this study were identified. The search was not exhaustive, was limited to PubMed, and the results were narratively summarized. Two reviewers (MK and JS) independently screened the titles, abstracts, and full texts and extracted the data using standard methods. Any disagreements were resolved by discussion or referring to a third author (AM).

Results

The Global Health Sector Strategy (GHSS) on viral hepatitis has the vision of a world where transmission of viral hepatitis is halted, and everyone living with viral hepatitis has access to safe, affordable, and effective prevention, diagnosis, care, and treatment (3). The aim is to eliminate viral hepatitis as a major public health problem by 2030 (3).

The key interventions include (but are not limited to) immunization, safe injection and blood transfusion, harm reduction interventions, testing, early diagnosis, prompt treatment, and community participation (Figure 1).

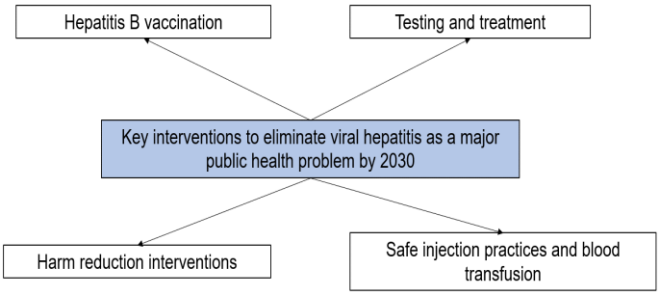

Figure 1. The way forward for interventions

Discussion

Hepatitis B vaccination:

Safe and effective vaccines for hepatitis B have been available since 1982. They have been shown to substantially reduce the incidence of acute and chronic hepatitis B infection (CHBs)/carriage, which will ultimately result in significant reductions in the incidence of cirrhosis and HCC. In 2019, the global coverage with the 3 doses of hepatitis B vaccine in infancy was 84.0%. In India, the coverage of the third dose of the hepatitis B vaccine has reached 86.0% (4). However, despite high rates of institutional deliveries (78.9%), the birth dose coverage was only 45.0% in 2019, with large variations across states (4). Mother-to-child transmission at the time of or shortly after birth and early childhood transmission account for most of the burden of CHB because the majority of perinatal infections lead to chronic infection.

The National Immunization Schedule (NIS) and Indian Academy of Pediatrics (IAP) currently recommend the hepatitis B birth dose within 24 hours of birth. The Health Management Information System (HMIS) of the Government of India accepts the birth dose within 48 hours as qualified, and manufacturers recommend this dose 'within discharge' (5). However, as a result of adhering strictly to the NIS, in a few cases of unavoidable delay in India, birth doses are denied after 24 hours, which has led to poor coverage for the Hepatitis B birth dose. However, the literature evidence shows that the birth dose can still be effective in preventing perinatal transmission if given within 7 days, particularly within 3 days, although somewhat less than if given within 24 hours and with declining effectiveness with each passing day. The Strategic Advisory Group of Experts (SAGE) recommends that all infants receive the birth dose during their first contact with health facilities at any time up to the time of the first primary dose. These doses should be recorded as a "timely birth dose" of the hepatitis B vaccine to differentiate them from birth doses given later ("late birth

dose") to accurately monitor the delivery of doses given within 24 hours of birth (4). With the National Viral Hepatitis Control Program (NVHCP) being rolled out in India with a target to increase hepatitis B birth dose vaccination to more than 90.0%, it is of the utmost importance to incorporate SAGE recommendations for the hepatitis B birth dose into the National vaccination schedule (6). All health care workers should be informed and trained about the hepatitis B birth dose schedule for administration up to 7 days after birth.

It is the need of the hour to identify population subgroups that are at increased risk of hepatitis viral infections. In this regard, healthcare providers, rag pickers, waste handlers, and sanitation workers should be educated about the importance of hepatitis B vaccination. The relevance of these subgroups is similar to that of the high-risk groups and bridge population in human immunodeficiency virus (HIV)/AIDS (acquired immunodeficiency syndrome) control. This should be supported by health system interventions like making the vaccine accessible and affordable.

Safe injection practices and blood transfusion:

Though global and national level standard operating procedures for safe injection practices exist, adherence to them is certainly questionable, particularly in resource-poor, low-income settings. The introduction of auto-disable syringes, advice against recapping syringes, and the use of needle cutters are a few initiatives to ensure safe injection practices. It is now a mandate that 100% of donated blood be screened for bloodborne infections, including HBV, HCV, HIV, and syphilis, to avoid transfusion-related transmission (7).

Harm reduction interventions:

It has been estimated that there are more than 11 million people who inject drugs (PWID) globally, of whom 1.4 million are living with HIV, 5.5 million with hepatitis C, and 1.2 million with both hepatitis C and HIV (8). The data on incidence highlights that an estimated 23-39% of new HCV infections occur among people who currently inject drugs (8). Though certain country-level initiatives like needle syringe exchange programs for HIV transmission reduction have an impact on HCV disease burden and transmission, it is the need of the hour to strategize such initiatives in viral hepatitis prevention programs as well.

Testing and treatment:

Screening for HBsAg and HCV antibody (HCVAb) should be carried out with a serological assay (in either a rapid diagnostic test (RDT) or laboratory-based immunoassay format) that meets minimum quality, safety, and performance standards. However, prior to treatment, the preferred strategy for confirmation of HBV would be to evaluate HBV DNA viremia and, for chronic HCV infection, HCV RNA using a quantitative or qualitative nucleic acid test (NAT) (9).

For hepatitis B infections, antiviral treatment is often lifelong with an aim to reduce morbidity and mortality by reducing the risk of HBV-related complications such as cirrhosis, decompensated liver failure, and HCC, especially in those with advanced liver disease through long-term viral suppression. For hepatitis C infections, direct-acting antivirals (DAAs), the so-called "cure," is now available. Evidence shows that these drugs substantially (85.0%) reduce the incidence of HCC, liver-related mortality, and all-cause mortality by 75% in individuals with cirrhosis and close to 70% in those without cirrhosis (10). From a public health perspective, this requires health system changes to ensure the availability of appropriate tests and drugs at accessible locations at affordable prices to those vulnerable populations.

Conclusion

In conclusion, viral hepatitis is increasingly being recognized as a public health problem, requiring special attention. The WHO estimated that, in 2019, 1.1 million deaths were attributed to hepatitis B and C. It is the need of the hour to prevent, diagnose, and manage people with viral hepatitis, especially B and C. The GHSS aims to eliminate viral hepatitis as a major public health problem by 2030. In line with this, the focus has to be on key interventions, including hepatitis B vaccination (part of routine child immunization along with rescheduling the birth dose to up to 7 days post-term, adult vaccination, for targeted groups like health care providers, rag pickers, waste handlers, and sanitation workers), ensuring safe injection practices and blood transfusion, harm reduction interventions for PWID, adequate testing for early diagnosis, and ensuring appropriate treatment.

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Ethical statement

The present study did not require any form of clearance from the Ethics Committee as it was a review. However, the authors ensured that they followed the Declaration of Helsinki at all steps related to this research.

Conflicts of interest

None to disclose.

Author contributions

All authors (UK, AM, JS, MK) contributed equally to conceiving the research question, design, definition of intellectual content, literature search, data acquisition, data analysis and interpretation, and manuscript writing, editing, and review.

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