Original Article

Myths and Challenges in Hepatitis B Vaccination- Experience at Tertiary Care Centre of Northern India

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Abstract

Background: Globally, hepatitis B is a serious health concern. As a component of universal immunisation, the hepatitis B vaccine is both economical and effective, with few adverse effects. Hepatitis B vaccine side effects include headache, exhaustion, low-grade fever, and discomfort, redness, or swelling at the injection site. The aim is to identify misconceptions and difficulties related to the hepatitis B vaccination. **Material and Methods:** Over the course of five and a half years, from October 1, 2020, to April 30, 2026, the Department of Medical Gastroenterology at the Post Graduate Institute of Medical Sciences (PGIMS), Rohtak, undertook this prospective study. The study only included the 5,000 individuals who received three doses of 20 micrograms (1 millilitre) of hepatitis B at intervals of 0, 1, and 6 months. Among the 5,000 study participants that tested negative for hepatitis B, 1200 were medical professionals, 1000 were HCV patients, and 2800 were relatives of Hepatitis B patients. The challenges in getting them vaccinated with full three doses were registered. The reasons in those who were advised vaccination but refused for the same were also recorded. **Results:** 1200 healthcare professionals, 1000 HCV patients, and 2800 relatives of Hepatitis B patients made up the study group's total of 5,000 participants. Each received three dosages. In respect to health care workers because of belonging to same field there were no apprehensions regarding side effect of vaccination but there was laxity in some for getting vaccination. The most important challenge on family screening was in getting screened and vaccinated against HBV in married daughters of that family. It is common belief that females who got married are living at distance from parental family, hence, no chances of getting HBV infection. They do not appreciate, the importance of vertical transmission from the mothers to children in family. The other challenge faced was in certain husbands of HBV infected females, majority of these husbands were typical Indian males with strong ego and were alcoholic. They felt, that they do not need advice of their spouses, as they are main head of family. Many patients who were married and living in nuclear family have not shared with brother, sister or parents of having HBV infection, hence there was strong resistance in getting them screened and vaccinated against HBV. One more ethical issue and challenge noticed in young males and females who were going to get married, was hiding of their HBV infection from the person whom they were going to get married. In this whole family of HBV patient who was getting married was on same page of hiding this information to the counterpart. They had fear of break-up in the marriage. They agreed to getting screened and vaccinated their counterpart on pretext of health grounds. The other challenge associated with HBV vaccination was confusion with covid vaccine. On enquiring from the family members of HBV patient, that they have been vaccinated for HBV, they replied in affirmative but on deep probing, it was learnt that they were confusing it with covid-19 vaccine. We always advise, as per protocol to take vaccine in arm, patient again replied in affirmative, that they have already been vaccinated in childhood in arm but on detailed evaluation, it was found to be BCG vaccination against tuberculosis. Most of recipients will take first two dose but there are chances of missing the third dose because it has to be given after a gap of six months. **Conclusion:** India is having intermediate prevalence of HBV. Hepatitis B vaccination is strongly indicated in health care workers and high -risk groups. Hence, myths and challenges associated with it have to be appreciated and removed, so as to pass benefit of same to the needy population.

Keywords: Hepatitis B virus; Hepatitis B Vaccination, Challenges, Marriage, Family Screening.

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Introduction

Hepatitis B poses a significant health problem worldwide.[1] The majority of patients are from the eastern part of the world, including China, Taiwan, and Southeast Asian countries such as India.[1-3] There have been no large population-based studies from the Indian subcontinent since the publication of the first consensus statements in 2018.[4] Therefore, most of the available data is based on retrospective data analysis, blood bank donor data, and antenatal screening for viral hepatitis. HBsAg carrier rate in India to be around 4%, placing India in the intermediate range of Hepatitis B prevalence, resulting in a total of 36 million carriers.[2] It was estimated that India accounted for 9% of the global pool of hepatitis B carriers, out of an estimated 400 million.[1,3] It is advised that all newborns, infants, children, and teenagers up to the age of 19 are vaccinated against

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hepatitis B. Additionally, it is advised for individuals who may be more susceptible to contracting the hepatitis B virus or who reside in regions with a high prevalence of the illness. These adults consist of: Males who engage in sexual activity with other men, including those infected with HIV, sexually active individuals with multiple partners, healthcare professionals, employees in medical facilities, patients and staff of live-in facilities and developmentally disabled daycare programs, morticians and embalmers, police and fire department personnel, and members of the armed forces.[5] Patients with chronic kidney disease (including those receiving dialysis), chronic liver disease, chronic heart failure, patients with blood clotting disorders who receive clotting-factor concentrate transfusions, intravenous drug abusers, prisoners, and household and sexual contacts of HBV carriers are among the other high-risk groups. The challenges associated with the Hepatitis B (HBV) vaccine include the multi-dose regimen requiring completion, vaccine hesitancy due to unfounded safety fears, non-responsiveness in certain populations, waning immunity, and the emergence of vaccine-escape viral mutants. The goal of the current study was to identify the difficulties related to hepatitis B immunisation.

Aim of Study: To identify misconceptions and difficulties related to the hepatitis B vaccination.

Materials and Methods

Over the course of five and a half years, from October 1, 2020, to April 30, 2026, the Department of Medical Gastroenterology at the Post Graduate Institute of Medical Sciences (PGIMS), Rohtak, undertook this prospective study. Only 5,000 individuals who received three doses of 20 micrograms (1 millilitre) of hepatitis B at intervals of 0, 1, and 6 months were included in the study. Among these 5,000-hepatitis B-negative study groups, 1200 were healthcare professionals, 1000 were HCV patients, and 2800 were relatives of hepatitis B patients. The challenges in getting them vaccinated with full three doses were registered. The reasons in those who were advised vaccination but refused for the same were also recorded.

Statistical Analysis: Microsoft Excel was used to enter all of the data, and SPSS 15.0 was used for analysis.

Results

1200 healthcare professionals, 1000 HCV patients, and 2800 relatives of Hepatitis B patients made up the study group's total of 5,000 participants. Each received three dosages. In respect to health care workers because of belonging to same field there were no apprehensions regarding side effect of vaccination but there was laxity in some for getting vaccination. The most important challenge on family screening was in getting screened and vaccinated against HBV in married daughters of that family. It is common belief that females who got married are living at distance from parental family, hence, no chances of getting HBV infection. They do not appreciate, the importance of vertical transmission from the mothers to children in family. The other challenge faced was in certain husbands of HBV infected females, majority of these husbands were typical Indian males with strong ego and were alcoholic. They felt, that they do not need advice of their spouses, as they are main head of family. Many patients who were married and living in nuclear family have not shared with brother, sister or parents of having HBV infection, hence there was strong resistance in getting them screened and vaccinated against HBV. One more ethical issue and challenge noticed in young males and females who were going to get married, was hiding of their HBV infection from the person whom they were going to get married. In this whole family of HBV patient who was getting married was on same page of hiding this information to the counterpart. They had fear of break-up in the marriage. They agreed to getting screened and vaccinated their counterpart on pretext of health grounds. The other challenge associated with HBV vaccination was confusion with covid vaccine. On enquiring from the family members of HBV patient, that they have been vaccinated for HBV, they replied in affirmative but on deep probing, it was learnt that they were confusing it with covid-19 vaccine. We always advise, as per protocol to take vaccine in arm, patient again replied in affirmative, that they have already been vaccinated in childhood in arm but on detailed evaluation, it was found to be BCG vaccination against tuberculosis. Most of recipients will take first two doses but there are chances of missing the third dose because it has to be given after a gap of six months. Five thousand individuals who received three doses of 20 micrograms (1 ml) of the hepatitis B vaccine at intervals of 0, 1, and 6 months over the course of five and a half years were included in the study. Of these five thousand, 2800 (56%) were relatives of Hepatitis B patients, 1200 (24%) were healthcare professionals, and 1000 (20%) were HCV patients. There were more men (3620, or 72.40%) than women (1380, or 27.60%) in the study group of five thousand. Out of five thousand participants, the most common challenge was not getting screened and vaccinated for HBV in married daughters of HBV patient (390, 55.71%), followed by hiding HBV infection from would be spouses (150, 21.42% %), non- consent of husbands of HBV patients (50,7.14%), confusion with covid and BCG vaccine (42, 6%), laxity in health care workers in getting HBV vaccination (35, 5%), missing of third dose of vaccine (33, 4.71%) and in limited cases, even HBV vaccine was given in hip instead of arm.

Table 1: Displaying the Distribution of HBV-Vaccinated Study Group Participants.

Total Vaccinated against HBV	Family Members of HBV Patient	Health Care Workers	Hepatitis C Patients
5000	2800 (56%)	1200 (24%)	1000 (20%)

Table 2: Showing Sex Distribution of Participants Vaccinated for HBV in Study Group

Total Vaccinated against HBV	Males	Females
5000	3620 (72.40%)	1380 (27.60%)

Table 3: Showing Participants having Challenges and Myths for HBV Vaccination

Total Vaccinated against HBV	Myths and Challenges Seen	No Myths and Challenges seen
5000	700 (14%)	4300 (86%)

Table 4: Displaying the Participants' Adverse Effect Distribution HBV vaccination

Participants with Myths and Challenges for HBV Vaccination	Not Getting tested Married Daughters	Hiding from would be Spouse	Husbands of HBV wives not giving consent	Confusing with Covid and BCG Vaccine	Laxity in Health Care workers	Missing of third dose of HBV vaccine
700	390 (55.71%)	150 (21.42%)	50 (7.14%)	42 (6%)	35 (5%)	33 (4.71%)

Discussion

The first dose of the hepatitis B vaccine should be administered as soon as feasible after birth, according to WHO recommendations.[6] One of the most effective viral vaccinations in the world is the hepatitis B vaccine.[7] In 2011, the hepatitis B vaccine was made available to all Indians. According to the UIP schedule, all infants should receive a hepatitis B birth dose within 24 hours. This should be followed by three doses at 6, 10, and 14 weeks. Health care personnel and high-risk populations should be vaccinated, according to the National Viral Hepatitis Control Program (NVHCP). Due to the Jeevan Rekha Project and NVHCP's implementation, free HBV vaccinations are now available in our department. There is a lot of emphasis on counselling, which includes HBV vaccine and testing, particularly for spouses and relatives of HBV and HCV patients. As a result of this joint effort, the patients have built strong social bonds and complete trust in the medical staff. For the majority of patients receiving treatment for HBV and HCV, this familial bonding helped them overcome the obstacles of illiteracy and rural origin. As a result, we were successful in persuading the majority of patients and those close to them to get vaccinated against HBV. Additionally, because our facility is a tertiary care facility with a large staff of 8,000 medical professionals, we had the chance to receive a free HBV vaccination under the NVHCP, which allowed us to identify the difficulties related to it. Furthermore, a survey of medical professionals shows that although the majority of them are aware of and follow national vaccination guidelines, many do not actively suggest hepatitis B vaccination for high-risk groups because they believe their risk is minimal. The survey also highlights out-of-pocket costs as a significant barrier preventing high-risk individuals from accessing hepatitis B vaccination.[8]

Conclusion

India is having intermediate prevalence of HBV. Hepatitis B vaccination is strongly indicated in health care workers and high -risk groups. Hence, myths and challenges associated with it have to be appreciated and removed, so as to pass benefit of same to the needy population.

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Conflicts of interest

There are no conflicts of interest.

References

1. Polaris Observatory Collaborators. Global prevalence, cascade of care, and prophylaxis coverage of hepatitis B in 2022: a modelling study. Lancet Gastroenterol Hepatol. 2023 Oct;8(10):879-907
2. Tandon BN, Acharya SK, Tandon A. Epidemiology of hepatitis B virus infection in India. Gut. 1996;38 Suppl 2(Suppl 2): S56-9
3. Batham A, Narula D, Toteja T, Sreenivas V, Puliyel JM. Systematic review and meta-analysis of prevalence of hepatitis B in India. Indian Pediatr. 2007;44(9):663–674.)
4. Arora A, Singh SP, Kumar A, et al. INASL Hepatitis B Taskforce. INASL Position Statements on Prevention, Diagnosis and Management of Hepatitis B Virus Infection in India: The Andaman Statements. J Clin Exp Hepatol. 2018 Mar;8(1):58-80.
5. Mohamed R, Desmond P, Suh DJ, et al. Practical difficulties in the management of hepatitis B in the Asia-Pacific region. J Gastroenterol Hepatol. 2004 Sep;19(9):958-69.
6. Guidelines for the Prevention, Care and Treatment of Persons with Chronic Hepatitis B Infection. Geneva: World Health Organization; 2015
7. Lu M, Liu Y, Li L, Liu X, Wu B, Wu Y. Hepatitis Vaccines: Recent Advances and Challenges. Vaccines (Basel). 2025 Nov 20;13(11):1174. doi: 10.3390/vaccines13111174.
8. Bakker M., Bunge E.M., Marano C., de Ridder M., De Moerlooze L. Immunogenicity, effectiveness and safety of combined hepatitis A and B vaccine: A systematic literature review. Expert Rev. Vaccines. 2016; 15:829–851. doi: 10.1586/14760584.2016.1150182.