ORIGINAL RESEARCH

Knowledge, Approach & Practice assessment of Primary Health Providers towards Hepatitis B virus infection in Medical college

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ABSTRACT

Background: According to the WHO reports, each year approximately three million of the overall 35 million Healthcare Workers worldwide experience percutaneous exposure to blood borne viruses resulting 66 000 Hepatitis B infections, mainly from low-income countries.[3] Healthcare workers/Providers(HCW/HCP) are known to have 2-4 fold risk of hepatitis infection compared to the general population.[4].An additional risk factor for the acquisition of HBV among HCWs is the underlying prevalence of HBV infection in the population. **Aims and objectives:** To study the Knowledge, Approach & Practice assessment of Primary Health Providers towards Hepatitis B virus infection in Medical college.**Material and methods:** A cross-sectional study was conducted which includes questionnaire survey administered to all Health care providers working in different departments of Pacific institute of Medical sciences, Udaipur, Rajasthan (2020) and United Institute of Medical Sciences, Prayagraj, U.P. (2022) who come in contact with patient /client s body fluid / organ etc and are at a greater risk of acquiring blood borne infections. The questions are obtained from a various studies performed and modified. A questionnaire will be self-administered consisting of 4 parts including demographic data of participants, knowledge, approach and practices (KAP) of primaryHCW regarding the various aspects of HBV. Data compilation and statistical analysis will be done.**Results:** 97% participants agree with that hepatitis B is transmitted by contaminated blood and body fluids, Hepatitis B virus is spread by casual contact such as hand shaking agree 94%, Hepatitis B virus can be transmitted by unsafe sex (95%), Hepatitis B virus can be transmitted by unsterilized syringes, needles or surgical instruments (95%), Semen,saliva & vaginal secretions are modes of HBV transmission (96%), 79% participants agree with that chronic infection with viral hepatitis B is shameful, 84% feel confident in dealing with a patient who is HBs Ag-positive, 81% recommend the mandatory HBV vaccination for all the health care Providers including both the Medical colleges, 80% accept a colleague with Hepatitis B virus in the same work place, 84% were agree with that training programs for Hepatitis B virus offered for all health care providers, Changing of gloves during blood collection and tests: Is It waste of time (86%), All patients should be tested for HBV before they receive health care (85%) participants agree with that. 91% participants screened for hepatitis B(91%), 89% got vaccinated against HBV(89%), 96% had a needle prick injury and 93% used Personal protective equipments during dealing with hepatitis B Positive patient or its sample.**Conclusion:** At the first medical examination, newly enrolled students and other people linked to a high-risk context such as a medical institution should be examined for immunization status. This is because the number of unimmunized persons is large, particularly against hepatitis B.

Keywords: Hepatitis B,Knowledge, Approach, Practice, Primary Health Providers

INTRODUCTION

Hepatitis B virus is worldwide in distribution. The infection is endemic in most regions of the globe especially in developing countries. An estimated third of the worldwide population has been affected by hepatitis B virus (HBV).[1] About 350-400 million patients have chronic infection for whole lifetime, and 0.5 % of those having the hepatitis B surface antigen (HBsAg) spontaneously seroconverted each year to having the hepatitis B surface antibody (anti-HBs).[2]

According to the WHO reports, each year approximately three million of the overall 35 million Healthcare Workers worldwide experience percutaneous exposure to blood borne viruses resulting 66 000 Hepatitis B infections, mainly from low-income countries.[3] Healthcare workers/Providers(HCW/HCP) are known to have 2-4 fold risk of hepatitis infection compared to the general population.[4].An additional risk factor for the acquisition of HBV among HCWs is the underlying prevalence of HBV infection in the population.[4,5] Poor compliance and adherence to universal precaution standards by hospital management and HCWs as well as the lack of advanced knowledge of HCWs as health providers are considered among the factors that may constitute a major obstacle barring the implementation of preventive programs .[5,6,7]

Transmission modes and response to infection vary depending on the age at the time of infection. Most indivisuals infected as infants develop chronic infections. As adults they are subjected to liver disease and are at high risk of developing hepatocellular carcinoma. There is no seasonal trend for HBV infection and no high predilection for any age group, although there are definite high risk groups such as parenteral drug abusers ,institutionalized persons, health care personnel, multiple transfused / organ transplant patients, haemodialized patients, highly promiscuous persons, newborn to mothers with hepatitis B.People have also been infected by improperly sterilized syringes,needles or scalpels and even tattooing or ear piercing.[8,9]

Other modes of transmission of hepatitis B also exists.HBsAg can be detected in saliva,nasopharyngeal washings, semen ,menstrual fluid , vaginal secretions as well as in blood. Transmission from carriers to close contacts by the oral route or by sexual or other intimate exposure to occur. Sub clinical infections are common and these unrecognized infections represents the principal hazard to hospital personnel.

HCP have higher incidence of hepatitis and prevalence of detectable HBsAg or anti-HBsAg than those who have no occupational exposure to patients or blood products.

The incubation period of hepatitis B is 50-180 days .It appears to vary with the dose of HBV administered and the route of administration. The incubation Period might be prolonged who receive a low dose of virus or who are infected by non percutaneous route.[3,5,10]

Hepatitis B virus is associated with acute and chronic hepatitis. Acute infection may cause a self-limited disease or fulminant hepatitis, which requires urgent liver transplantation .[3]chronic infection is a predisposing factor for hepatocellular carcinoma.[10,11]

AIMS AND OBJECTIVES

To study the Knowledge, Approach & Practice assessment of Primary Health Providers towards Hepatitis B virus infection in medical college.

METHODOLOGY

A cross-sectional study was conducted which includes questionnaire survey administered to all Health care providers working in different departments of Pacific institute of Medical sciences, Udaipur,Rajasthan (Jan 2020 to June 2020)and United Institute of Medical Sciences,Prayagraj,U.P. (July 2022 to December 2022) who come in contact with patient/client s body fluid / organ etc and are at a greater risk of acquiring blood borne infections.

INCLUSION CRITERIA

HCP who voluntarily wanted to participate were divided into groups asA)Doctors, B) Nursing staff, C) Attendant & Technicians, D) Medical Students

EXCLUSION CRITERIA

Workers who had a history of HBV infection, involuntary participants

The questions were obtained from a various studies performed, modified and validated.A questionnaire was self-administered consisting of 4 parts including demographic data of participants, knowledge, approach, and practices (KAP) of primaryHCW regarding the various aspects of HBV.Data compilation and statistical analysis wasdone.

There were 22-item questions related to Knowledge, Approach &Practice and response andrecorded as either yes or no. Each item with the correct answer was given 1 (one) with a maximum score of 22 and wrong answer 0 (zero) with a minimum of 0 (zero).

The participants was asked to complete the questionnaire without leaving any un-attempted or incomplete questions.

Verbal informed consent was obtained from the participants and strict confidentiality was maintained.

The scoring of different aspects was done in different categories which were as follows:

The knowledge part had been scored into 3 categories i.e. poor (0-7), average (8-14) and good (15-22). **Attitude** in 2 category:Positive attitude: if the participants were able to answer the correct items for 70 % or more (15 question or above) of attitude questions.Negative attitude: if answers of the participants were below than 70 % (below 15 question) of attitude questions**Practice**in 2 category:**Good practice**: if the survey participants were able to answer correctly at least 70 % or more (15 question or above) of practice questions. **Malpractice**: if the correct answers of the participants were less than 70 % of practice items.

Implications:Hepatitis B Virus is one of the blood borne pathogen known to be transmissible in health care settings owing to high rate of accidental blood/other products exposure .HCW are at high risk for exposure to HBV from infected patients and may potentially also transmit HBV to patients.Therefore the Primary HCW can augment their knowledge, getacquainted with the effect of HBV infection

&improve skillsto restrict their occupational exposure risk of HBV.

Ethical approval:Ethical approval for this study was obtained from the Institutional Review Board (IRB) at Pacific institute of Medical sciences, Udaipur, Rajasthan and United Institute of Medical Sciences, Prayagraj, U.P.The research protocol was reviewed and approved by the IRB in accordance with the ethical guidelines outlined in the Declaration of Helsinki and relevant institutional regulations.

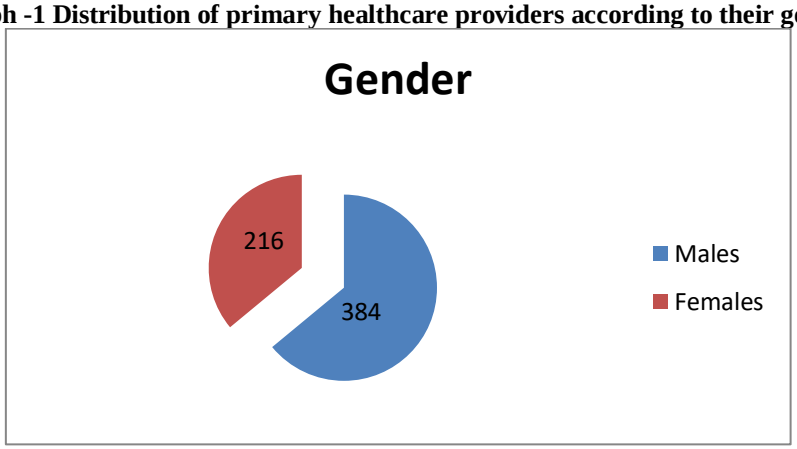
RESULTS

Out of 600 participant 64% male and 36% female and the mean age of the participants 30.25±4.58.

Table-1 Distribution of primary healthcare providers to their general characteristics

Gender	Number	%
Male	384	64
Female	216	36
Age	30.25±4.58	30.25±4.58
Job status		
Clinicians	170	28.3
Nurses	85	14.1
Technicians	95	15.9
Medical Students	250	41.7

Graph -1 Distribution of primary healthcare providers according to their gender



97% participants agree with that hepatitis B is transmitted by contaminated blood and body fluids, Hepatitis B virus is spread by casual contact such as hand shaking agree 94%, Hepatitis B virus can be transmitted by unsafe sex (95%), Hepatitis B virus can be transmitted by unsterilized syringes, needles or surgical instruments (95%), Semen ,saliva & vaginal secretions are modes of HBV transmission (96%), Do Hepatitis B virus has post exposure prophylaxis (89%), Can Vaccine prevent hepatitis B infection (93%), Hepatitis B virus may be transmitted from a pregnant woman to her unborn child (90%), Can an infected mother transmit Hepatitis B to her newborn baby through breast milk (89%), Can Hepatitis B can be cured or treated (97) and Hepatitis B virus causes liver cancer (87%) participants agree.

Graph-2 Distribution of primary healthcare providers according to their job status

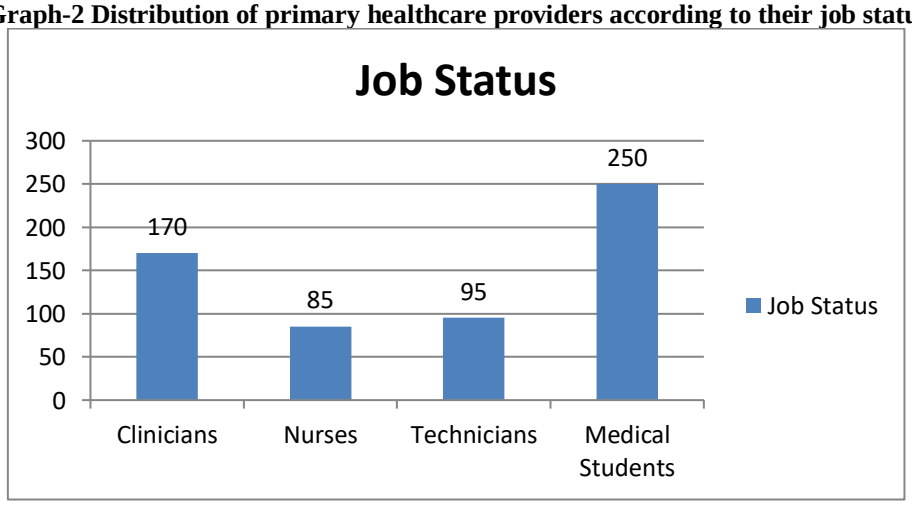


Table-2 Questionnaire: Knowledge level Assessment

S.No		Yes	No
1.	Hepatitis B is transmitted by contaminated blood and body fluids	97	3
2.	Hepatitis B virus is spread by casual contact such as hand shaking	94	6
3.	Hepatitis B virus can be transmitted by unsafe sex	95	5
4.	Hepatitis B virus can be transmitted by unsterilized syringes, needles or surgical instruments	95	5
5.	Semen ,saliva & vaginal secretions are modes of HBV transmission	96	4
6.	Do Hepatitis B virushas post exposure prophylaxis?	89	11
7.	Can Vaccine prevent hepatitis B infection	93	7
8.	Hepatitis B virus may be transmitted from a pregnant woman to her unborn child	90	10
9.	Can an infected mother transmit Hepatitis B to her newborn baby through breast milk	89	11
10.	Can Hepatitis B can be cured or treated	97	3
11.	Hepatitis B virus causes liver cancer	87	13

79% participants agree with that chronic infection with viral hepatitis B is shameful, 84% feel confident in dealing with a patient who is HBs Ag-positive, 81% recommend the mandatory HBV vaccination for all the health care Providers in PIMS, 80% accept a colleague with Hepatitis B virus in the same work place, 84% were agree with that training programs for Hepatitis B virus offered for all health care providers, Changing of gloves during blood collection and tests: Is It waste of time (86%), All patients should be tested for HBV before they receive health care (85%) participants agree with taht.

91% participants screened for hepatitis B(91%), 89% got vaccinated against HBV(89%), 96% had a needle prick injury and 93% used Personal protective equipments during dealing with hepatitis B Positive patient or its sample.

Table-3 Questionnaire: Approach Assessment

S. No.		Yes	No
12	Chronic infection with viral hepatitis B is shameful	79	21
13	Do you feel confident in dealing with a patient who is HBs Ag-positive?	84	16
14	Do you recommend the mandatory HBV vaccination for all the health care Providers in PIMS?	81	19
15	Do you accept a colleague with Hepatitis B virus in the same work place?	80	20
16	Should Training programs for Hepatitis B virus offered for all health care providers?	84	16
17	Changing of gloves during blood collection and tests: Is It waste of time	86	14
18	All patients should be tested for HBV before they receive health care	85	15

Table-4 Questionnaire: Practice Assessment

S.No.		Yes	No
19	Have you ever screened for hepatitis B?	91	9
20	Have you got vaccinated against HBV?	89	11
21	Have you ever had a needle prick injury?	96	4
22	Have you ever used Personal protective equipments during dealing with hepatitis B Positive patient or its sample?	93	7

DISCUSSION

A virus known as the hepatitis B virus is the causative agent of the infectious illness known as hepatitis B. (HBV). The key aims of this research were to evaluate the knowledge, attitudes, and behaviors (KAP) of HBV vaccination among healthcare workers in India, as well as to determine the prevalence of HBV infection. HCWs continue to face a substantial occupational danger in the form of exposure to blood-borne viruses such as the HBV infection. This is particularly true in nations where the infection has a high rate of prevalence. The KAP surveys come together to provide a helpful instrument that may be used to determine the issue, identify potential remedies, and formulate policy.[12] This research was carried out because there is a dearth of information on the KAP of medical students in the city, and it is hoped that it may shed some light on the subject. In light of these findings, it is imperative that medical schools organize campaigns to raise awareness about the importance of health and to vaccinate students against hepatitis B. As future medical professionals, students are a priceless resource, and it is imperative that they be equipped with protective measures against hepatitis B, which they are very likely to encounter in the course of their medical careers.

Most of the participants were aware that HBV could be infected by Hepatitis B is transmitted by contaminated blood and body fluids agree (97%) participants, Hepatitis B virus is spread by casual

contact such as hand shaking agree 94%, Hepatitis B virus can be transmitted by unsafe sex (95%), Hepatitis B virus can be transmitted by unsterilized syringes, needles or surgical instruments (95%), Semen ,saliva & vaginal secretions are modes of HBV transmission (96%), Do Hepatitis B virus has post exposure prophylaxis (89%), Can Vaccine prevent hepatitis B infection (93%), Hepatitis B virus may be transmitted from a pregnant woman to her unborn child (90%), Can an infected mother transmit Hepatitis B to her newborn baby through breast milk (89%), Can Hepatitis B can be cured or treated (97) and Hepatitis B virus causes liver cancer (87%) participants agree. This is virtually identical to a research that was conducted in Ethiopia. In that study, 92.9% of the participants identified contaminated blood as a source of infection, whereas roughly 88% of the individuals identified vaginal fluid or amniotic fluid as routes of infection. [13] Percutaneous injury, contact with mucosal membranes and blood, and contact with scraped skin and possibly infected tissue were cited as the three most common ways that individuals in the study were infected with HBV in Nigeria. This represents more than 80% of the participants. [14]

79% participants agree with that chronic infection with viral hepatitis B is shameful , 84% feel confident in dealing with a patient who is HBs Ag-positive, 81% recommend the mandatory HBV vaccination for all the health care Providers in both Medical colleges, 80% accept a colleague with Hepatitis B virus in the same work place, 84% were agree with that training programs for Hepatitis B virus offered for all health care providers, Changing of gloves during blood collection and tests: Is It waste of time (86%), All patients should be tested for HBV before they receive health care (85%) participants agree with that. 91% participants screened for hepatitis B(91%), 89% got vaccinated against HBV(89%), 96% had a needle prick injury and 93% used Personal protective equipments during dealing with hepatitis B Positive patient or its sample.

In addition, respondents in Kuwait (86.3%), Cameron (93%), Nigeria (94%), and Ethiopia (94%) said that vaccination was essential and ought to be required by law. [15,16]

Since the majority of HBV infections in healthcare workers are caused by unintentional percutaneous exposures that are considered too little to be remembered by HCWs in order to carry out preventative actions, vaccination of healthcare workers is becoming even more crucial.[17] The World Health Organization (WHO) has set the aim of eradicating viral hepatitis by the year 2030; nevertheless, it seems that a lack of public understanding regarding viral hepatitis is an obstacle to achieving this objective.[18,19]

According to the findings of this research, medical students have mediocre knowledge and a lack of awareness of hepatitis B, including its modes of transmission, risk factors, and methods of prevention; nonetheless, the attitude is generally favorable. The results are consistent with those discovered in prior research.[20] Anti-HBs levels were notably low in many students after they had had their initial vaccine, according to a research that was conducted by Al-Ghamdi on medical students. Due to the fact that medical students constitute a high-risk demographic, it is possible that testing medical students for anti-HBs levels is appropriate. [21]

CONCLUSION

At the first medical examination, newly enrolled students and other people linked to a high-risk context such as a medical institution should be examined for immunization status. This is because the number of unimmunized persons is large, particularly against hepatitis B. The purpose of the research was to identify people who had either not been fully immunized against hepatitis B or had only had partial immunization and then enroll those people in a catch-up vaccination program. It is possible for policymakers to attain hepatitis B eradication levels by implementing a screening and catch-up vaccination campaign of this kind.

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Nil

CONFLICTS OF INTEREST

There are no conflicts of interest

REFERENCES

1. Kane M. Global strategies for the control of hepatitis B. In: Zuckerman AJ, editor. Prevention of hepatitis B. London: Royal College of Physicians; 1996. pp. 87–96.
2. McMahon BJ, Holck P, Bulkow L, Snowball M. Serologic and clinical outcomes of 1536 Alaska Natives chronically infected with hepatitis B virus. Ann Intern Med. 2001 Nov 6. 135(9):759-68. .
3. Hepatitis B [Internet]. World Health Organization. 2017 [Cited April 2017]. http://www.who.int/mediacentre/factsheets/fs204/en/
4. Alhazmi AH. Knowledge, attitudes and practice of primary healthcare physicians concerning the occupational risks of hepatitis B virus in Al Jouf Province, Saudi Arabia. Journal of Infection and Public Health 2014; (7): 257-270.
5. Singhal V, Bora D and Singh S. Hepatitis B in health care workers: Indian scenario. J Lab Physicians 2009; 1:41-8.
6. Sukriti, Pati NT, Sethi A, Agrawal K, Agrawal K, Kumar GT et al. Low levels of awareness, vaccine coverage, and the need for boosters among health care workers intertiary care hospitals in India. J GastroenterolHepatol 2008; 23: 1710-5.
7. Hosoglu S, Akalin S, Sunbul M, Otkun M and Ozturk R. Occupational Infections Study Group. Healthcare workers' compliance with universal precautions in Turkey. Med Hypotheses 2011; 77:(6):1079-82.
8. Te HS, Jensen DM. Epidemiology of hepatitis B and C viruses: a global overview. Clin Liver Dis. 2010 Feb. 14(1):1-21, vii.

9. Jawetz,Melnick&Adelberg's.Medicalmicrobiology.International edition:2010(25):484-485
10. Wilkins T, Zimmerman D and Schade RR. Hepatitis B: diagnosis and treatment. Am Fam Physician 2010; 81:965-72Chronic hepatitis B (CHB) causes death associated with cirrhosis, liver failure, and hepatocellular carcinoma.
11. Cekin AH, Cekin Y and Ozdemir A. The level of knowledge, altitude toward and emphasis given to HBV and HCV infections among healthcare professionals. International Journal of Occupational Medicine and Environmental Health 2013; 26(1): 122-131.
12. Abdela A, Woldu B, Haile K, Mathewos B, Deressa T. Assessment of knowledge, attitudes and practices toward prevention of hepatitis B virus infection among students of medicine and health sciences in Northwest Ethiopia. *BMC Res Notes.* 2016;9:410.
13. Ayalew MB, Horssa BA, Getachew N, Amare S, Getnet A. Knowledge and attitude of health care professionals regarding hepatitis B virus infection and its vaccination, University of Gondar Hospital, Ethiopia. *Hepat Med*. 2016;**8**:135. doi: 10.2147/HMER.S120477
14. Kesieme EB, Uwakwe K, Irekpita E, Dongo A, Bwala KJ, Alegbeleye BJ. Knowledge of Hepatitis B vaccine among operating room personnel in Nigeria and their vaccination status. Hepat Res Treat. 2011;**2011**:157089.
15. Tatsilong HOP, Noubiap JJN, Nansseu JRN, et al. Hepatitis B infection awareness, vaccine perceptions and uptake, and serological profile of a group of health care workers in Yaoundé, Cameroon. *BMC Public Health.* 2016;**16**(1):1–7.
16. Habiba SA, Alrashidi GA, Al-otaibi AEM, Almutairi GR, Makboul G, El-Shazly MK. Knowledge, attitude and behavior of health care workers regarding hepatitis B infection in primary health care, Kuwait. *Greener J Med Sci*. 2012;**2**(4):077–083
17. U.S. Public Health Service. Updated U.S. Public Health Service guidelines for the management of occupational exposures to HBV, HCV, and HIV and recommendations for postexposure prophylaxis. MMWR Recomm *Rep.* 2001;50:1–52.
18. Karimi-Sari H, Bayatpoor ME, AftabiKhotbesara M, Ebrahimi MS, Sattari Z, Sattari P, et al. Knowledge, attitude, and practice of Iranian health sciences students regarding hepatitis B and C virus infections: A national survey. *Am J Infect Control*. 2017;45:e135–41.
19. Mesfin YM, Kibret KT. Assessment of knowledge and practice towards hepatitis B among medical and health science students in Haramaya University, Ethiopia. PLoS One. 2013;8:e79642.
20. Othman SM, SalehAM, Shabila NP. Knowledge about hepatitis B infection among medical students in Erbil city, Iraq. *EurSci J*. 2013;3:1857–7881.
21. Al Ghamdi SS, Fallatah HI, Fetyani DM, Al-Mughales JA, Gelaidan AT. Long-term efficacy of the hepatitis B vaccine in a high-risk group. *J Med Virol.* 2013;85:1518–22.