

Original Research Article

Hepatitis B awareness and vaccine status among allied health science students

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ABSTRACT

Background: Hepatitis B is endemic throughout the world and occupational exposure to HBV is very common among health care professionals. The main objective of the study was to assess the knowledge about HBV virus, modes of transmission and vaccination status.

Methods: This was a prospective cross-sectional study which was carried out among 60 Allied Health Students in a tertiary care teaching hospital. The validation of the questionnaire was done by a pilot study before starting the survey.

Results: The respond rate was 96% and knowledge on causative agent was 93%, the organ affected 81.7% and modes of transmission were 70%. Awareness about vaccination and its importance were also assessed. The participants completed their three doses of vaccination were 12%, two doses 70% and not yet started was 18%. Awareness about other health care related infections through needle stick injuries and the risk percentage of contracting infection in the order of HIV, HBV and HCV was answered correctly by 81% of the participants.

Conclusions: This study may help to impart the knowledge and awareness about HBV among the student population who lack knowledge regarding mode of transmission and fatal consequence. This study may further help the student population to inculcate health precautions during their clinical exposure in the near future.

Keywords: Awareness, Hepatitis B, Needle stick injury, Vaccination

INTRODUCTION

Hepatitis B viral infections are endemic worldwide with more than 350 million patients is chronic carriers; 600000 deaths resulting annually from cirrhosis and hepatocellular carcinoma.¹ Occupational exposure to HBV is very common among health care workers (HCWs) thereby approximately 35 million HCWs were infected. It has been estimated nearly 66,000 hepatitis B viral infections per year due to needle stick injuries.² Hepatic manifestations are very common and extra

hepatic complications are found very less in acute stage of infections.³ The high risk of people who are having the chance of getting HBV infections are medical, paramedical and allied health professionals. In this study we are concentrating mainly allied health students only.

The main modes of transmission are trans fusional risk, exposure to body fluids, vertical transmission, sexual contact and occupational exposures. It is a myth that only health care professionals in modern medicine may have high risk, but equally the other occupational groups

including acupuncture technicians, barbers, tattoo artist are transmitting the infection.⁴ HBV is 50 to 100 times more infectious than HIV because of the high volume of HBV in blood of infected people, compared to the lower viral load in people living with HIV.

Most of the acute cases signals as asymptomatic, but few clinical features may provide hints to suspect HBV infection like anorexia, nausea, vomiting, fulminant hepatitis etc.⁵ The HBV infections has very long latent period thus leading to chronic complexity like compensated liver disease, decompensation (Cirrhosis) leading to hepatocellular carcinoma. Among extrahepatic clinical features, polyarteritis nodosa and glomerulonephritis are observed.^{6,7}

Prevention is the only safe strategy against high prevalence of viral hepatitis. Having enough knowledge and proper attitudes toward this infection is cornerstones of preventing disease transmission. Medical professionals have a very important role in preventing the disease by improving the disease knowledge among themselves and the patients they treat. Safe and effective HBV vaccines have been available since 1982. It is one of the vaccine preventable cancers.

The vaccine should be administered as the part of routine immunization schedule to all infants, HCWs, high risk occupational etc.^{8,9} The importance of dosage, route of administration and individuals who are having chance of exposure to infectious moiety are eligible to receive the vaccines.¹⁰ Hence, the present study has the main objective to assess the knowledge about HBV virus, modes of transmission and vaccination status among allied health professional students.

METHODS

This was a prospective cross-sectional study which was approved by the Institutional ethic committee. A total study population of 60 Allied Health Students in a tertiary care teaching hospital was recruited.

Universal sampling method was followed. Informed written consent was obtained from the participants. The study was conducted for the period of 2 months (March to April 2019) and it was conducted at Trichy SRM Medical College Hospital and Research Centre, Tiruchirapalli, India.

Self-structured questionnaire was designed and validated by simple pilot study and then the study participants were interviewed. This study has three major phases to assess the knowledge about the infection and vaccination.

Phase 1: About HBV viral infection

Etiology, organ involved, mode of transmission, persons at risk and clinical complications

Phase 2: Importance of vaccination

Preventable phenomena, persons to be vaccinated, dosage, route of administration and individual’s vaccination status.

Phase 3: About occupational risk

Needle stick injury, personal protective equipments, discarding needle, sharp objects, blood soaked cotton and dressings, and person to be contacted for preventive and counseling aspects.

All the data collected from the subjects were entered in the Excel sheet and simple descriptive percentage was followed.

RESULTS

A total of 63 allied health professional students were recruited where respond rate was 95%. When questioned regarding the risk of contracting infection after a needle prick in the order of HBV, HCV and HIV were correctly responded by 81% of the participants. The figure 1 depicted the respond rate and risk of contracting infections.

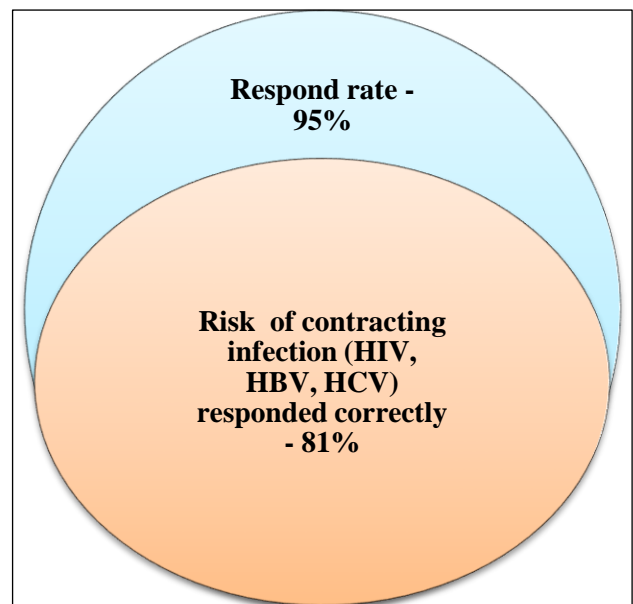


Figure 1: Study responds rate and risk of contracting infection.

Table 1 depicts the knowledge of the participants towards HBV infection thereby 93.3% have knowledge about the infection and etiology. Maximum of 90% students have responded that HBV is potentially life threatening. The target organ affected - Liver was answered by 81.7%.

The various modes of transmission like blood transfusion (5%), needle stick injury (13.3%), mother to child transmission (3.3%), sexual intercourse (5%), exposure to

various body fluids (3.3%) and all the above routes by 70% of participants. This information regarding the knowledge and awareness may provide the future clinical exposures to get rid the transmission and related health consequences.

Table 1: Knowledge regarding HBV infection (n=60).

Variable	No.	%
Causative agent of Hepatitis B		
Bacteria	3	5
Virus	56	93.3
Parasite	1	1.7
Is hepatitis B life threatening?		
Yes	54	90
No	6	10
Name the target organ affected-Liver		
	49	81.7
Modes of transmission of HBV		
Blood transfusion	3	5
Needle stick injury	8	13.3
Mother to child transmission	2	3.3
Sexual intercourse	3	5
Exposure to infected body fluids	2	3.3
All the above routes possibly	42	70
People at risk of contracting infection		
Infants	2	3.3
Family of HBV carrier	1	1.7
Health care professionals	54	90
Sexual workers	3	5
Organ transplants/ Dialysis patients	-	-
Complications of HBV infection		
Liver cirrhosis	10	16.6
Chronic liver disease	13	21.7
Carcinoma liver	37	61.7

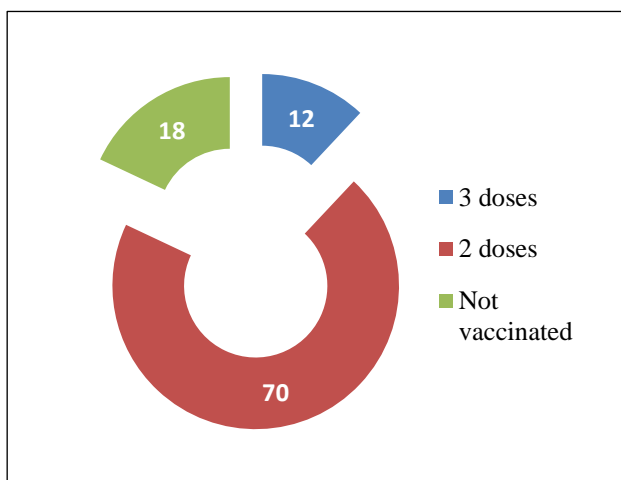


Figure 2: HBV vaccination status among study group (n=60).

Knowledge regarding the preventive aspects of HBV is represented in table 2 where 86.7% of the participants have answered HBV is preventable.

Regarding who all needs to be vaccinated, 83.4% of health care professionals needs to be vaccinated, followed by infants of HBV positive mother (10%), people at high risk occupations (3.3%) and part of routine immunization by (3.3%) respectively.

Figure 2 represented HBV vaccination status among the study population. Nearly 18% of the participants have not been vaccinated yet, 70% of them have received 2 doses but the third dosage has not been administered and 12% have completed the vaccination schedule.

The occupational risk hazards about the HBV infection were also analyzed thereby awareness regarding needle stick injury (NSI), personal protective equipments, discarding needle, sharp objects, blood soaked cotton and dressings, and person to be contacted for preventive and counseling aspects were included.

Table 2: Knowledge regarding HBV prevention.

Variable	No.	%
Is hepatitis B preventable?		
Yes	52	86.7
No	8	13.3
Who all needs to be vaccinated?		
Part of routine immunization schedule	2	3.3
Infants of mother who is HBV positive	6	10
Health care professionals	50	83.4
People who are at high risk occupations	2	3.3
What is the dose of the vaccine?		
0.5ml	35	58.3
1ml	25	41.7
Schedule of vaccine		
3 doses (0, 1 st month and 6 th months)	4	6.7
2 doses (0, 1 st month)	13	21.7
Single dosage	43	71.7
What is the route of administration?		
Intra-muscular	37	61.7
Sub cutaneous	14	23.3
Intra-dermal	9	15
Site of injection		
Deltoid region	46	76.7
Gluteal region	14	23.3
Have you been vaccinated for HBV?		
Yes	49	81.7
No	11	18.3

Table 3 highlighted the occupational risk and awareness about HBV. After the lecture classes about the preventive aspects of HBV and related blood borne infections, the participants acquired better awareness to all the below aspects.

Table 3: Occupational risk about HBV.

Variable	Number	%
Do needle stick injury spreads HBV?		
Yes	36	60
No	24	40
Have you got needle/ sharp prick while managing the patients?		
Yes	05	8.3
No	55	91.7
Are you aware of PPEs?		
Yes	60	100
No	00	00
Do you think PPEs offer protection to this infection?		
Yes	51	85
No	09	15
Are you aware about Biomedical waste management (BMWM)		
Yes	26	43.3
No	34	56.7
Do you know whom you contact immediately after needle/ sharp prick?		
Yes	02	3.3
No	58	96.7
If yes, whom		
Medical Superintendent	02	3.3
Infection control officer	12	20
Ward nurse	54	90
PEP officer	00	00

DISCUSSION

The current study was undertaken to find out the knowledge and awareness of HBV among allied health students. The respond rate of the study is 96% which itself depicts the basic knowledge of students regarding health care associated infections. The basic knowledge regarding the causative agent, modes of transmission, target organ affected, potential clinical complications, people who are at risk of contracting infection were responded fairly by the participants. But this basic knowledge alone is not sufficient in preventing hepatitis B. This is in concordance with the previous studies done in Cuttack, Gujarat and Chennai.¹¹⁻¹³

Knowledge regarding prevention of hepatitis is acceptable for a beginner. But repeated teaching and reinforcement on prevention of all health care related infections has to be specially addressed to this set of students. Since there is no cure for these types of infections and their related outcome and complications, prevention is the only easy strategy which could curtail these infections. In the present study, knowledge regarding vaccination is low. Nearly half of the participants were unaware who all to be vaccinated, age

of vaccination, dosage, site and route of immunization. Their knowledge with this regard has to be strengthened, where the need for vaccination and their benefits needs to be emphasized. Apart from teaching theory, the allied health students have to be posted in injection/immunization section to get practical exposure.^{8,9} Comparatively, the overall knowledge regarding HBV vaccine among AHS is low than medical students.^{14,15}

Almost all students are having atleast got a single shot of HBV vaccine without knowing for what they are vaccinated. Only 12% students have completed all the three doses. The same was already highlighted in some studies (4,5,7). A study showed positive attitudes towards vaccination among paramedical staff but very few studies included allied health students and professionals.¹⁶

In the current study, the participants were less aware of NSI. Risk of contracting infection with a single needle prick in the order of HBV, HCV and HIV was responded nearly 80% of students. This is in concordance with the previous studies in India and neighbouring countries.¹⁷⁻¹⁹ Students knowledge regarding NSI and the protocol to be followed subsequent to the events are at an optimal level.

Student's attitude regarding HBV vaccination needs to be taken into account whereby the faculty/ trainers need to take an action regarding this aspect and organize special lecturing sessions. The policy makers of the institution have to come forward to mandate HBV vaccination for all students of their health care institutions.^{8,9}

Further, awareness regarding occupational risks also to be addressed thereby the students in future in clinical practice have to manage the risk groups. In this study, the awareness about the NSI, BMWM, PPEs and reporting persons were analyzed. This study has its own limitations of single centres and limited number of participants. Measuring Hepatitis B antibody titres and motivate those students whose titre is below the recommended level for a booster dose.

CONCLUSION

There is need to educate AHS students through a well-organized infection control programme regarding standard precautions, risk management and post exposure prophylaxis. An initiative could be taken by the administrators by providing free HBV vaccines for all students upon their entry.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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