



Original Research Article

Knowledge and Awareness about Hepatitis B among Nursing Students of Dhanalakshmi Srinivasan Nursing College, Tamil Nadu

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ABSTRACT

Background: Hepatitis B is an inflammatory disease of the liver caused by Hepatitis B virus and is a major health problem worldwide. Number of infected people is liable to increase. The disease runs chronic course causing a financial drain of family sources. In India the carrier rate of Hepatitis B is high among health care personnel. Nurses are probably the most commonly exposed to this risk right from their student career.

Objective: To assess the knowledge and awareness of the infectious nature of the HBV, its mode of transmission and prevention among nursing students.

Setting and design: A descriptive cross sectional institutional based study.

Methods and Materials: 186 nursing students who joined in Dhanalakshmi Srinivasan Nursing College. The study was carried from 1st October to 31st October 2012 using a structured questionnaire proforma.

Statistical analysis applied: The data was analyzed using statistical software SPSS version 11, by proportions and chi-square test.

Results: On an average 53.2% were correct regarding knowledge on Hepatitis B infection. 62.3% were having correct knowledge about mode of transmission whereas 84.8% have correct knowledge that it is a vaccine preventable infection and dose.

Conclusion: Nursing students showed poor knowledge on causative agent, hazards of Hepatitis B infection. It was observed that unprotected sexual exposure, needle stick injury causes hepatitis B infection and it cannot be transmitted by handshaking were low among respondents. This highlights the importance of informed and evidence based education programmes among these healthcare profession.

Keywords: Hepatitis B, Knowledge, Awareness, Nursing students.

INTRODUCTION

Hepatitis B is a viral infection which is a serious global public health problem. Worldwide, two billion two billion people are infected with HBV, and an estimated of 370 million chronic infections, affecting 5 – 7% of the world's population. ^[1] 600,000 persons die each year due to acute or chronic

consequences of HBV. ^[2] The prevalence of HBV infection is 1% in North Europe and America, 5-10% in South East Asian and 3 – 4% India. HBV is 50 - 100 times more infectious than HIV. ^[3] Infection with Hepatitis B virus (HBV) is a major cause of morbidity and mortality in the South-East Asia regions (SEAR). India has the

intermediate endemicity of Hepatitis B. The number of carriers in India has been estimated to be over 40 millions. [4,5] In India the carrier rate of HBsAg in hospital staff has been found to be higher (10.87%) as compared to voluntary blood donors (6%) and general public (5%). [6]

Studies show that the highest number of sharps injuries was sustained by health care professionals while they were drawing blood, giving injections or suturing. In addition, those not wearing gloves while doing any of these procedures were at greater risk of contracting infection. [7] Among healthcare workers sero-prevalence is two or four times higher than that of general population. [8] Knowledge of the intricacies of viral infection and of the molecular biology of this fascinating virus has led to the successful development of a vaccine and to treatment, sometimes capable of eradicating chronic infection. [1]

The majority of the infections are subclinical, approximately 80% of all HBV infections are undiagnosed. [9] Among health care personnel, HBV is transmitted by skin prick with infected, contaminated needles and syringes or through accidental inoculation of minute quantities of blood during surgical, gynaecological and dental procedures. [5]

Health care workers (HCW) are at an increased risk of exposure to HBV infection. Nurses are probably the most common health care staff exposed to needle prick injuries and contact with infectious fluids.

Nursing students are an integral part of the healthcare provider team, responsible for implementation of many healthcare related practices. In their course of learning and training during the course of study, they are taught the theory and practice of delivering healthcare. They are exposed to this risk right from their student career. Serious and highly fatal blood borne infections HIV and Hepatitis B are the

frontrunners in their occupational diseases profile. Hepatitis B is a highly infectious disease but vaccine preventable disease. HBV is transmitted by percutaneous or mucosal exposure to infected blood or other body fluids through numerous routes: perinatal, mother to child, sexual, needle-sharing and occupational/health-care-related. [9,10] Risk of transmission of HBV, for which blood borne infection is a major route, is higher among HCWs. However, awareness regarding hepatitis B virus has been found to be poor among HCWs, both in developed and developing countries. [11]

At present, in India, hepatitis B vaccination has been integrated into the existing expanded programme of immunization (EPI) schedule. Assessing the knowledge regarding hepatitis B among these nursing students gives the required information for planning and implementing educational programmes relating to universal precautions and biomedical waste management in their future curriculum. Hence it is important that nurses as well as nursing students should have a thorough knowledge regarding Hepatitis B to minimize the health care settings acquired infections among them and other health personnel

Very few literatures have been found regarding studies on knowledge, awareness and practices of vaccination against HBV, especially among HCW in the Indian subcontinent including Tamil Nadu. Henceforth, there is strong need of studies for determining the level of knowledge, awareness and areas of prevention in order to reduce the prevalence. The present study was designed to determine the knowledge and awareness of nursing students regarding Hepatitis B infection. With this background, the present study was designed to determine the knowledge and awareness of nursing students regarding Hepatitis B infection its transmission and prevention. Rural Medical

College, located in a rural area of Tamil Nadu.

Objective

To determine the current knowledge and awareness of nursing students of Dhanalakshmi Srinivasan Nursing College regarding Hepatitis B infection.

MATERIALS AND METHODS

Study design: A cross-sectional observational study was conducted among nursing students of Dhanalakshmi Srinivasan Nursing College, Perambalur.

Study participants: The institute has 50 seats per batch and there were 4 batches from 1st to 4th year, making a total study population of 186. All the nursing students who voluntarily participate in the study are included as study subjects.

Sampling technique: No sampling technique was employed as it was feasible to include the total study population.

Study Period: The study was carried for one month from 1st October to 31st October 2012. The study subjects are fully informed about the design and purpose of the study. A written informed consent was obtained from each participant, and anonymity of the participants was maintained throughout the study.

Study Tool: The data were collected on a pre-tested, pre-structured anonymous self-administered one-page questionnaire distributed among these students in the class room, and they are asked to fill the questionnaire. The questionnaire consisting of 3 parts with 20 different questions to assess the knowledge and awareness about Hepatitis B virus, mode of transmission, prevention and vaccination.

Statistical analysis: The data was analyzed using statistical software SPSS version 11, by proportions and chi-square test. Statistical significance was considered at p-values <0.05 in the study.

RESULTS

The study participants were grouped according to their study course and comparison between them on various parameters was made.

Table 1 shows the observations regarding the knowledge about Hepatitis B virus (HBV) among the study participants. The different aspects like HBV family, its size, structure, genotype was included in it. Significantly higher proportion of 1st year nursing students (83%) knew that Hepatitis B is a member of Hepadna virus family and it was significant ($\chi^2 = 10.1$; $p=0.01$). Overall 52.9% students had a correct knowledge about diameter of HBV, 34.9% students having correct knowledge about genotypes, 43.9% respondents could answer correctly that HBV is not a retrovirus, 36.3% had correct knowledge that HBV is one amongst smallest enveloped viruses and 72.8% respondents were having correct knowledge about HBV can be detected in clinical specimens by Polymerase chain reaction (PCR). These parameters were not statistically significant except HBV is one amongst smallest enveloped animal viruses ($\chi^2 = 11.1$; $p=0.01$). On an average, 53.2% of the students were had correct knowledge about HBV.

The awareness of respondents about Hepatitis B infections was shown in Table 2. 66.1% of the students were correctly know that Hepatitis B infection originally known as serum hepatitis and it was not statistically significant ($\chi^2 = 2.1$; $p=0.5$). Except for statements that acute illness due to HBV causes liver inflammation ($\chi^2 = 21.8$; $p=0.000$) and Chronic hepatitis results in cirrhosis of liver and hepatocellular carcinoma ($\chi^2 = 9.7$; $p=0.02$) other statements were not statistically significant. 62.2% of respondents aware that doctors and nurses are at an increased risk for Hepatitis B infection and it was not significant ($\chi^2 = 5.1$; $p=0.16$). Overall 68.5% nursing

students were aware about Hepatitis B infection and it was statistically significant ($\chi^2 = 12.08$; $p=0.007$).

Correct knowledge regarding transmission of Hepatitis B considering all the statements was observed in 62.3% students as shown in Table 3. Overall 83.4% of the respondents had correct knowledge about infectious blood transfusion causes Hepatitis B. 60.8% students were aware that it was not transmitted by hand shaking. Awareness was much low among 2nd year

students (50.0%) regarding this parameter. Over all 90.4% students were aware that hepatitis B infection is vaccine preventable. 79.1% aware correctly about dose schedule of the vaccine. Overall 69.7% of nursing students aware about mode of transmission and it is a vaccine preventable infection and correct schedule of the vaccine and it was not statistically significant ($\chi^2 = 6.53$; $p>0.09$).

Table 1: Knowledge about Hepatitis B virus (HBV).

Statements	1 st Year (n=47)	2 nd Year (n=48)	3 rd Year (n=43)	4 th Year (n=48)	Total (n=186)	p - value
	Correct Response No (%)	Correct Response No (%)	Correct Response No (%)	Correct Response No (%)	Correct Response No (%)	
Hepatitis B virus (HBV) is a member of Hepadnavirus family	39(83.0)	36(75.0)		27(56.3)	136(73.1)	0.02 *
HBV has a diameter of 42 mm	22(46.8)	32(66.7)	18(41.9)	27(56.3)	99 (53.2)	0.08
There are 4 genotypes of HBV	13(27.7)	21(43.7)	15(34.9)	16(33.3)	65 (34.9)	0.4
HBV is a non-retroviral virus	27(57.4)	18(37.5)	14(32.6)	23(47.9)	82 (44.1)	0.8
HBV is one amongst smallest enveloped animal viruses	24(51.1)	13(27.1)	19(44.2)	11(22.9)	67(36.0)	0.01*
HBV can be detected by Polymerase chain reaction (PCR) in clinical specimens	32(68.1)	34(70.8)	35(81.4)	34(70.8)	135 (72.6)	0.5
Among circulating morphological forms in infectious patient Dane particle is infectious	26(55.3)	27(56.3)	25(58.1)	30(62.5)	108 (58.1)	0.9
Total	183 (55.6)	181 (53.9)	160 (53.2)	168 (50.0)	692 (53.2)	0.5

* Indicates significant p-values

Table 2: Awareness about Hepatitis B infection.

Statements	1 st Year (n=47)	2 nd Year (n=48)	3 rd Year (n=43)	4 th Year (n=48)	Total (n=186)	p- value
	Correct ResponseNo (%)	Correct Response No (%)	Correct Response No (%)	Correct Response No (%)	Correct Response No (%)	
Hepatitis B infection was originally known as serum hepatitis.	33(70.2)	28(58.3)	28(65.1)	34(70.8.3)	123(66.1)	0.5
Acute illness due to HBV causes	29(61.7)	30(62.5)	39(90.7)	44(91.7)	142(76.3)	0.000*
Chronic hepatitis results in cirrhosis of liver and hepato-cellular	30(63.8)	41(85.4)	33(76.7)	42(87.5)	146(78.5)	0.02*
Hepatitis B surface antigen (HBs Ag) is most commonly used to screen against Hepatitis B infection.	31(66.0)	34(70.8)	33(76.7)	37(77.1)	135(72.6)	0.6
Patients undergoing surgery should be screened for HBs Ag.	22(46.8)	32(66.7)	17(39.5)	22(45.8)	93(49.7)	0.05*
Doctor and Nurse are high risk population for Hepatitis B infection.	25(53.2)	32(66.7)	24(55.8)	35(72.9)	116(62.4)	0.16
Individuals who remain HBs Ag positive for at least for 6 months are considered to be hepatitis carriers.	32(68.1)	39(81.3)	33(76.7)	33(68.8)	137 (73.7)	0.4
Total	202 (61.4)	236 (70.2)	207 (68.8)	247 (73.5)	892 (68.5)	0.000*

* Indicates significant p-values

Table 3: Awareness about mode of transmission and vaccine against Hepatitis B.

Statements	1 st Year (n=47)	2 nd Year (n=48)	3 rd Year (n=43)	4 th Year (n=48)	Total (n=186)	p - value
	Correct Response No (%)	Correct Response No (%)	Correct Response No (%)	Correct Response No (%)	Correct Response No (%)	
Mode of transmission of Hepatitis B virus is exposure to infectious blood or body fluids	34(72.3)	41(85.4)	38(88.4)	42(87.5)	155 (83.3)	0.1
Needle stick injury causes Hepatitis B	26(55.3)	30(62.5)	27(62.8)	30(62.5)	113 (60.8)	0.9
Unprotected sexual exposure causes Hepatitis B virus infection	20(42.5)	20(41.7)	23(53.5)	19(39.6)	82 (44.1)	0.6
Hepatitis B infection cannot be transmitted by hand shaking	30(63.8)	24(50.0)	25(58.1)	34(70.8)	113 (60.8)	0.2
Hepatitis B infection is preventable by vaccination	43(91.5)	39(81.3)	40(93.0)	46(95.8)	168 (90.3)	0.09
Vaccine is administered in 2 or 3 doses schedule for protection against Hepatitis B	32(68.1)	39(81.3)	35(81.4)	41(85.4)	147 (79.0)	0.2
Total	185(65.6)	193(67.0)	188(72.9)	212(73.6)	778 (69.7)	0.09

DISCUSSION

In the present study considering all the statements about HBV, correct knowledge about HBV was observed in 53.2% of respondents. Half of the students being unaware about the details of HBV structure and character which may be due to its theoretical importance only and less practical application. This observation is in coherence with study among the dental students which revealed that on an average, 59.23% of the students were having correct knowledge about HBV. [9] This knowledge is less in comparison with another study among the medical students in which 86.7% of them had correct knowledge about HBV. [5]

About two-thirds of the study participants were aware that HBV infection results in Hepatitis B. North India study among the first year nursing students revealed that only 42% of the students had correct knowledge regarding aetiology of hepatitis B. [12] Requirement of screening test for detection of Hepatitis B surface Antigen (HBsAg) among patients undergoing surgery was known to 49.7% of the nursing students. Higher knowledge in 2nd year nursing students (66.7%) with this parameter in the present study could be due

to the reason that Hepatitis B is covered in classes extensively as a part of study curriculum.

Transmission of Hepatitis B on exposure to blood or other body fluids, needle prick injuries and unprotected sexual exposure was correctly known to 83.4%, 60.8%, and 44.3% participants respectively. These findings are coherent with another study among the dental students wherein majority of them knew about transmission of Hepatitis B by blood borne, needle injuries or sexual exposure. [9] Another study conducted among first year nursing students revealed that 35.96% of study subjects were aware that unsafe blood transfusion could lead to Hepatitis B. Same study also revealed lower awareness regarding unprotected sex and reusing of needle syringes as a potential risk factor for Hepatitis B compare to present study. [12] Correctness of the statement that Hepatitis B is not transmitted by handshaking was observed among 60.8% of the respondents which is in contrast to the study [4] conducted by other investigator who obtained 95% correct answers among the respondents. 90.4% of the participants were aware regarding prevention of Hepatitis B by vaccine. Other study reported that 56% of

the respondents knew about it. [12] Whether nurses are at risk of contracting Hepatitis B or not was also not known to 38% of the students which was similar to another study. [13] This lack of awareness about the above two aspects may increase the risk of Hepatitis B transmission.

Studies conducted in the general public in India [14] and abroad [15,15] have revealed that the awareness about HBV and Hepatitis B is less. In the present study awareness among the nursing students was observed to be better than that among the general public. This could be easily explained that the nursing students were a part of health team and Hepatitis B was covered in the study curriculum for them. However the importance of the subject is to be emphasized, so that transmission of Hepatitis B can be decreased among the patients as well as among the health personnel including nurses.

As we have seen varying results in different studies reported globally on this topic, it is recommended that these types of studies have to be conducted in different areas and bigger samples to assess the actual knowledge on this disease so that relevant tailor made strategies can be made.

Hepatitis B is a highly infectious disease, and it shares many of its routes of transmission akin to those of HIV/AIDS. Making the healthcare team aware of its correct knowledge will go a long way in prevention of both these infections.

CONCLUSION AND RECOMMENDATIONS

Nursing students showed poor knowledge on causative agent and on hazards of Hepatitis B infection. It was observed that mode of transmission of hepatitis B infection was also low among respondents. This highlights the importance of informed and evidence based education programmes and updates their knowledge of

Hepatitis B, by conducting well-designed seminars, programs and workshops among this healthcare profession.

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