International Journal of Research in Medical Sciences
Paul P et al. Int J Res Med Sci. 2015 Sep;3(9):2352-2356
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012
DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20150630

Research Article

Knowledge and awareness regarding hepatitis B infection among medical and dental students: a comparative cross sectional study

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Received: 22 July 2015
Revised: 24 July 2015
Accepted: 11 August 2015

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ABSTRACT

Background: Healthcare workers have a high risk of exposure to various infections like HIV, hepatitis B and C. Among these, the risk of exposure and infectivity is highest with hepatitis B. Sadly, among a majority of healthcare workers, awareness regarding this serious disease which is also preventable by vaccination, is lacking. This study was conducted with the objective of assessing the level of awareness and attitudes among medical and dental students regarding hepatitis B infection.
Methods: This was a self-reported questionnaire-based study conducted among randomly selected medical and dental college students. The questionnaire included questions regarding hepatitis B infection, modes of transmission, vaccination schedule and attitudes towards hepatitis B patients in clinical practice.
Results: A total of 246 students were interviewed of whom 144 (59%) and 102 (41%) were medical and dental students respectively. Overall, awareness levels were higher among medical students than dental students. We also found that female students were more knowledgeable than male students among both medical and dental student groups, with regard to awareness of hepatitis B infection as well as knowing the vaccination schedule, life-threatening complications and treatment and practice aspects. Approximately 60% of the dental students and less than 1% of the medical students were not vaccinated against hepatitis B.
Conclusions: This study showed that overall awareness regarding hepatitis B is at a very basic level among the health care providers of the future and measures need to be taken to create complete awareness.

Keywords: Hepatitis B awareness, Medical and dental students, Knowledge on hepatitis B, Health care workers, Hepatitis B vaccination

INTRODUCTION

Hepatitis B is an acute systemic infection which mainly affects the liver and is transmitted usually by the parenteral route. It begins as an acute self-limiting infection, which may be either subclinical or symptomatic. Persistent hepatitis B virus infection may cause progressive liver disease including chronic active hepatitis and hepatocellular carcinoma.[1] Hepatitis B is endemic throughout the world, especially in tropical and developing countries. More than 2 billion people have evidence of past or current hepatitis B virus infection; 350 million are chronic carriers; 600000 deaths result annually from cirrhosis and hepatocellular carcinoma.[2] In India the prevalence of HBsAg among the general population ranges from 2 to 8%, which puts India in intermediate position of endemic zone.[3,4] Occupational exposure to hepatitis B is a well-recognized risk of health care workers who report 800000 cut and puncture injuries

per year. Of the total proportion of health care workers exposed to blood borne pathogens annually, 5.9% have been exposed to hepatitis B virus infection. In developing regions almost 40 to 65% of hepatitis B virus infections are due to percutaneous occupational exposure while it is 10% in developed regions owing to usage of hepatitis B vaccination and post exposure prophylaxis.[5,6] The major route of hepatitis B transmission in occupational exposure is through cuts and needlestick injuries, and the most common mode of transmission is through blood. Contaminated needles and handling of infected blood during blood transfusions, dialysis, minor surgical procedures, traditional tattooing and body piercing, acupuncture etc. carry the risk of hepatitis B infection. Medical and dental students are involved in handling patients and clinical materials from the time they start their course. Therefore, an awareness of blood borne infections such as hepatitis B, their various routes of transmission, prevention by vaccination and knowledge of safe practices will go a long way towards safeguarding the wellbeing of these young people, who are the health care providers of the future.

Aims and objectives

1. To assess the degree of awareness regarding hepatitis B infection among medical and dental college students.

2. To compare gender differences on hepatitis B knowledge and attitudes.

3. To compare the difference in knowledge and attitudes among medical and dental students.

METHODS

Study design and population: This study was a cross sectional study among medical and dental students who joined our institute this academic year. Study period was 2014- 2015. *Study area:* The study was done in the premises of Tagore Medical and Dental College Hospital, Rathinamangalam, Chennai, Tamil Nadu. *Sampling method:* Stratified random sampling method was adopted for selection of students from two natural groups - medical and dental students. The students were grouped by course as MBBS and BDS and then selections were made from each group by simple random method. Finally 144 students out of 150 from MBBS course and 102 students out of 120 from BDS course consented to undergo this study with an overall response rate of 91%. Study tool: The study tool used was a pre-formed self-administered structured questionnaire. The questionnaire included questions on various aspects of hepatitis B infection such as causative organism, routes of transmission, at-risk groups, screening method, hepatitis B vaccine, study participants' vaccination status, other types of hepatitis infections and complications of hepatitis as well as questions on attitude towards hepatitis B infected patients. Data collection method: All the students who gave consent for the study were administered the preformed structured questionnaire. Students were asked to raise queries if they did not understand the questions in the questionnaire. Data entry and analysis: The collected data were entered in MS excel sheet and data analysis was done using SPSS - 20 software. Data were expressed in frequencies and percentages.

RESULTS

The study finally included 246 participants with 59% from medical and the remaining 41% from dental course. Mean age of the study population was 18.1 years and the mean income was INR 55000 per month. 56% (136) of the study population were females and 44% (110) were males. Majority of the students were of higher socioeconomic status except a few (3%) who were from poor background. Fourteen percent of the students belonged to families having medical or paramedical professionals.

Knowledge on hepatitis B

Among the study subjects, 96.3% reported having heard of hepatitis B and 90% said it is a viral infection, but, surprisingly, 7.6% said that hepatitis B is spread by coughing. 52.4% said they had not heard of other types of hepatitis and 66% did not know that hepatitis B infection could lead to other types of hepatitis infection. Approximately 74% of the students responded that hepatitis B infection is life threatening and chronic hepatitis B infection could lead to cirrhosis and liver carcinoma but only 3% of them also said that it could lead to kidney disease (Table 1).

Knowledge on prevention of hepatitis B

Around 93.5% of the students believed that hepatitis B is preventable but only 86% of them were aware of a vaccine for hepatitis B prevention. 81% said that both adults and children should be vaccinated against hepatitis B infection. However, only 73.6% of the respondents were completely vaccinated against hepatitis B infection (Table 2).

Attitude towards hepatitis B infected patients

Around 38.6% of the study participants responded that medical personnel should refrain from treating patients infected with hepatitis B. When the students were queried about hepatitis B infected patients being allowed to work routinely or do strenuous exercise, 74% said that the patients should be allowed to work routinely and do strenuous exercise. Fifty percent of the students said that hepatitis B infected patients should abandon sexual contact to avoid transmitting it to the sexual partners (Table 3).

Gender and course differences in knowledge on hepatitis B infection

On knowledge-based questions such as routes of transmission, complications, other types of hepatitis, diagnosis of hepatitis B and vaccination schedule, female students were found to be more knowledgeable than male students. We also found that medical students had better knowledge of hepatitis B infection and its prevention aspects than dental students. Among medical students only one student was not vaccinated against hepatitis B whereas among dental students 64 (62%) had not had the vaccine (Table 4).

Table 1: Knowledge of hepatitis B among the study population.

Variable	Number (246)	%
Have you heard of hepatitis B?		
Yes	237	96.3
No	09	3.7
Hepatitis B is spread by		
Blood transfusion	57	23.2
Contaminated needles	35	14.2
Exposure to infected body fluids	59	24.0
Food prepared by infected persons	17	7.0
Shaking hands with infected persons	11	4.5
Use of infected razors	09	3.7
Vertical transmission from mother to child	21	8.5
Sexual intercourse	18	7.3
Coughing	19	7.6
Hepatitis B is a ____infection		
Viral	222	90.3
Bacterial	21	8.5
Parasitic	03	1.2
Hepatitis B is life threatening?		
Yes	182	74
No	64	26
Have you heard of other types of hepatitis infections?		
Yes	117	47.6
No	129	52.4
Does hepatitis B infection lead to other types of hepatitis infections?		
Yes	84	34
No	162	66
How do you screen for hepatitis B infection?		
HBsAg	125	50.8
Anti- HBC	89	36.2
Anti-HBE	32	13
Chronic hepatitis B infection can lead to		
Cirrhosis	110	44.7
Carcinoma Liver	31	12.6
Kidney disease	07	2.8
Other Liver diseases	97	39.5
Death	01	0.4

Table 2: Knowledge on prevention of hepatitis B among study population.

Variable	Frequency	Percentage
Is hepatitis B preventable?		
Yes	230	93.5
No	16	6.5
Are you aware of hepatitis B vaccine?		
Yes	212	86.2
No	34	13.8
Whether adults need to be vaccinated for hepatitis B?		
Yes	201	81.7
No	45	18.3
Whether children need to be vaccinated for hepatitis B?		
Yes	201	81.7
No	45	18.3
Have you been immunized with hepatitis B vaccine?		
Yes	181	73.6
No	64	24.8
Unsure	04	1.6

Table 3: Attitudes to hepatitis B infected patients among the study population.

Variable	Frequency	Percentage
Whether hepatitis B patients can be allowed to work routinely?		
Yes	126	51.2
No	120	48.8
Whether hepatitis B patients can be allowed to do strenuous exercise?		
Yes	56	22.8
No	190	77.2
Whether hepatitis B patients should abandon sexual contact?		
Yes	125	50.8
No	121	49.2
Whether medical personnel should refrain from treating patients infected with hepatitis B?		
Yes	95	38.6
No	151	61.4
How can medical students be encouraged to take the vaccine?		
Media awareness programs	06	2.4
Others	240	97.6

Table 4: Cross tabulation of variables between gender and the course of study.

Variable	Gender		Course	
	Male	Female	MBBS	BDS
Heard of hepatitis B				
Yes	106	131	144	93
No	04	05	0	09
Type of infection				
Viral	96	126	133	89
Bacterial	13	08	09	12
Parasitic	01	02	02	01
Hepatitis B is preventable				
Yes	102	128	139	91
No	08	08	05	11
Hepatitis B is life threatening				
Yes	75	107	117	65
No	35	29	27	37
Heard of other types of hepatitis				
Yes	47	70	72	45
No	63	66	72	75
Hepatitis B infection leads to other types of hepatitis infection				
Yes	39	40	43	41
No	71	91	101	61
Screening for hepatitis B infection				
HBsAg	55	70	77	48
Anti-HBC	40	49	51	38
Anti-HBE	15	17	16	16
Hepatitis B patients can work routinely				
Yes	54	72	83	43
No	56	64	61	59
Hepatitis B patients can do strenuous exercise				
Yes	28	28	25	31
No	82	108	119	71
Hepatitis B patients should abandon sexual contact				
Yes	59	66	81	44
No	51	70	63	58
Doctors should refrain from treating patients with hepatitis B				
Yes	49	46	54	41
No	61	90	90	61
Awareness regarding hepatitis B vaccine				
Yes	91	121	142	70
No	19	15	02	32
I have had three doses of the hepatitis B vaccine				
Yes	73	108	143	38
No	36	25	01	60
Unsure	01	03	00	04

DISCUSSION

Our study sought to evaluate the knowledge and attitudes towards hepatitis B infection among medical and dental students who had joined the course recently. Overall results of the study showed that basic knowledge on hepatitis B infection like causative organism, modes of transmission, at-risk groups and vaccine availability were acceptable for the beginner level, but not sufficient for a medical or health care provider who will provide medical care to the community at large. A basic knowledge is mandatory even for the common man to prevent the spread the hepatitis B infection. Scientific and working knowledge on hepatitis B is essential for medical and dental students. Knowledge about transmission of hepatitis B through blood transfusion (23.2%), exposure to infected body fluids (24%), contaminated needles (14.2%), infected razors and blades (3.7%) and vertical transmission from mother to child (8.5%) were well below expected levels. Surprisingly some of the students exposed their lack of knowledge by mentioning coughing, shaking hands with infected persons and eating food prepared by infected persons also as the routes of transmission.

A study done in Ethiopia[7] among medical and health science students reported knowledge on transmission of hepatitis B through sexual route at 65.5%, by contaminated needles and syringes at 71.7%, by blood transfusions at 81.8% and vertical transmission at 55.9%. Their subjects' level of awareness was quite high compared to our study. However, the Ethiopian study was conducted among students in clinical year whereas our study has included only fresh medical and dental students in the first year.

A study conducted among medical students in BJ Medical College, Gujarat[8] showed a high level of knowledge (86.7%) regarding modes of transmission. In the Ethiopian study, 62.4% of medical students knew that hepatitis B infection could lead to liver cancer but only 18.5% of them had received the hepatitis B vaccine. In our study only 12% of the students were aware that hepatitis B infection could lead to liver cancer. However, with regard to the vaccination status, 72% of the students had received one or more doses of hepatitis B vaccine. Other studies have revealed that vaccination coverage was 87.8% in Muhammad Medical College, Mirpurkhas,[9] 29.3% among BJ medical college medical students[8], 88% in two university hospitals in Iran[10] and 42% among medical students in Lahore.[11] Regarding knowledge and attitudes, in our study we found that female students fared better than male students, and medical students were more knowledgeable than dental students.

A study conducted in a Tikrit University[12] among medical and paramedical staff also showed that medical staff members had better knowledge on hepatitis B than the paramedical staff. A positive attitude towards vaccination was also found to be higher among the medical staff (36) than the paramedical staff (28) and 27 of the medical staff had been completely vaccinated as opposed to only 13 of the paramedical staff. The others either did not receive the vaccine at all or they had not completed the schedule.

A survey of students' knowledge about hepatitis in Shiraz University of Medical Sciences[13] revealed that their students had more knowledge on prevention than other aspects of hepatitis such as modes of transmission, symptoms and complications. Statistically significant association was found between level of knowledge and age, semester and educational degree in that study. However, they observed no association with gender whereas our study showed that female students were more knowledgeable than male students. A study conducted at a tertiary care hospital among health care workers (nurses and lab technicians) showed that awareness and attitude problems were major factors associated with not getting the vaccinated against hepatitis B.[14] This study has revealed that the level of knowledge is very basic in this study population and therefore, it should be our first priority to create more awareness on various aspects of hepatitis B infection and its outcomes among medical and paramedical students, who are going to be the future of health care delivery.

CONCLUSION

The present study concludes that the medical and dental students have poor knowledge regarding hepatitis B infection, modes of transmission and prevention which suggests that the students are to be motivated and given the opportunity to learn more about hepatitis B infection and its health effects as these are the people who will be vulnerable to infection from patients. They should have first-hand knowledge of all aspects of hepatitis B virus infection and its prevention, so that they can not only protect themselves but also play a vital role in creating awareness among other health care workers and the general population as well.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Paul P, Arumugam B. Knowledge and awareness regarding hepatitis B infection among medical and dental students: a comparative cross sectional study. Int J Res Med Sci 2015;3:2352-6.