

Awareness and Attitude towards Hepatitis B Infection among Medical and Dental Students in Lucknow.

Gaurav Mishra¹, Vinay Kumar Gupta², Sumit Kumar¹

¹Assistant Professor, Department of Public Health Dentistry, King George's Medical University, Lucknow

²Associate Professor, Department of Public Health Dentistry, King George's Medical University, Lucknow.

Received: May 2019

Accepted: June 2019

Copyright: © the author(s), publisher. It is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Health professionals, especially physicians, medical and dental students are always in direct contact with patients and are vulnerable to the acquisition of infections like hepatitis B.⁴ Moreover, graduates in dentistry also require advanced health care training, clinical knowledge on infection control.⁵ Therefore, the current study was conducted to assess and compare the level of awareness and attitude towards hepatitis B infection among medical and dental students of Lucknow. **Methods:** The present cross-sectional study was conducted among 200 medical and dental students of King George Medical University, Lucknow using a self-structured questionnaire, over the time period of 3 months. This self-administered questionnaire comprised of 24 closed-ended questions to assess the awareness and attitude of students regarding HBV infection. 100 medical and 100 dental students were selected using simple random sampling method. **Results:** The study was conducted among 200 medical and dental students. Majority 99(99%) medical students and 98(98%) dental students had heard about hepatitis B infection. 97(97%) medical students thought it was blood borne infection and 93(93%) dental students thought it was a blood borne infection. 99 (99%) medical and 100(100%) dental students thought it was transmitted by all the given routes. It was noticed that only 5(5%) medical and only 4(4%) dental student checked their antibody status after vaccination. It was also noticed that 61(61%) medical and 47 (47%) dental students thought dentist or physician infected with HBV should avoid patient treatment especially surgery. 56(56%) medical and 61 (61%) dental students thought infection of Hep B can be prevented by Hep B Vaccine completely. **Conclusion:** Majority of medical and dental students have heard about HBV infection, they know about modes of transmission and vaccination schedule. It was noted that, majority of medical and dental students undergo vaccination for hepatitis B, but all of them have not completed all three doses of vaccination. The reason behind this attitude was lack of motivation or they never thought of it. Most of them acknowledged that dentists are at high risk of exposure and every patient undergoing surgical procedure should go for HBV investigation. A significant fraction of medical and dental students infected with HBV did not avoid working on the patients even during surgery. Hence, a regular awareness program for all the students would be very beneficial.

Keywords: hepatitis B virus, HBV infection.

1

INTRODUCTION

Hepatitis B is a major problem of public health concern which can cause fatal liver diseases, such as liver cirrhosis and cancers.^[1] Over 2 billion population has been infected with HBV worldwide, and there are more than 350 million carriers. Blood, semen, and vaginal secretions are the medium through which HBV usually spreads. Hence, sexual activity, needle-sharing or an inadvertent needle-prick, blood transfusions, and organ transplantation are the major causes for infection of HBV.^[2] The absence of an extensive and well-designed institutional attempt to teach how to control infection is extremely important factor as motivation start

from the institutes where the future professionals will get their training.^[3]

Health professionals, especially physicians, medical and dental students are always in direct contact with patients and are vulnerable to the acquisition of infections like hepatitis B.^[4] Moreover, graduates in dentistry also require advanced health care training, clinical knowledge on infection control.^[5] Hence, it is pivotal to acquire knowledge of infection control in their initial years in professional education and is imperative for dental students to acquire positive attitude and behavior towards infection control, when they start practicing as health professionals in future.^[6] They should be aware of the risk involved and should take appropriate precautions in dealing with patients of hepatitis B.^[4] Furthermore, strict educational methods are needed for creating required standards of infection control, augmenting conception on its principles, developing helpful attitudes for hepatitis B. infected individuals could be of great help.^[3] Therefore, the current study was

Name & Address of Corresponding Author

Dr. Vinay Kumar Gupta
Associate Professor,
Department of Public Health Dentistry,
King George's Medical University,
Lucknow.

conducted to assess and compare the level of awareness and attitude towards hepatitis B infection among medical and dental students of Lucknow.

MATERIALS & METHODS

The present cross-sectional study was conducted among 200 medical and dental undergraduate students of King George Medical University, Lucknow using a self-structured questionnaire, over the time period of 3 months. This self-administered questionnaire comprised of 24 closed-ended questions to assess the awareness and attitude of students regarding HBV infection. 100 medical and 100 dental students were selected using simple random sampling method. Students were asked to fill out the self-administered questionnaire. The medical and dental students not willing to participate and the medical and dental students of 1st professional year were excluded from the study. A pilot study was conducted before the initiation of the final study.

Sample size for primary outcomes:

Sample size formula was $n = \frac{Z^2 \alpha / 2 p(1-p)}{e^2}$

Where n is the estimated minimum sample size, α is the type I error, $Z_{\alpha/2} = 1.96$, p is the proportion of awareness regarding Hepatitis B, 1-p is the proportion of subjects, e is the relative precision. It has been assumed that around 30% of students have awareness about hepatitis B virus infection. Accepting type I error equal to 0.5 and precision equal to 3%, a sample size of 200 was calculated.

Statistical analysis:

Data was analysed using the statistical package for the social sciences (SPSS for window version 11.5) and number and percentage distributions were used to express the data.

Ethical Approval:

The Ethics Committee of King George's Medical University approved the study and gave the requisite permission for this research. Participants also gave verbal and written consent.

RESULTS

The study was conducted among 200 medical and dental students in which 100 were medical students and 100 were dental students. According to the responses regarding awareness and attitude in [Table 1 & 2], Majority 99(99%) medical students and 98(98%) dental students had heard about hepatitis B infection. 97(97%) medical and 93(93%) dental students thought it was blood borne infection. 99(99%) medical and 100(100%) dental students thought it was transmitted by all the given routes. Only 7(7%) medical and only 16(16%) dental

student ever had undergone a blood transfusion. 95(95%) medical and 99(99%) dental students thought HBsAg was most frequently used for screening of HBV infection.

When they were asked about, whether they have completed all 3 doses of vaccination schedule, 81(81%) medical and 74(74%) dental students had completed all 3 doses of vaccination schedule. Most common reason for not taking vaccine of hepatitis B was lack of motivation 61(61%) for medical students and for dental students 41(41%) they never thought of vaccination. 91(91%) medical and 77(77%) dental students thought vaccination schedule for hepatitis B was 0, 1, 6 month.

When they were inquired about, when did they vaccinated, about half 50(50%) medical and only 38(38%) dental students got vaccinated with HBV vaccination and these vaccinations occurred during their 1st and 2nd year tenure. More number of medical 56(56%) and 47(47%) dental students got the inspiration for HBV Vaccination by self-realization.

Majority of 90(90%) medical and 85(85%) dental students thought it was administrated through intramuscular route. One 1(1%) medical student was HBV positive and 0(0%) dental student was HBV positive. It was noticed that only 5(5%) medical and only 4(4%) dental student checked their antibody status after vaccination. About 50(50%) medical and 70(70%) dentist thought risk of exposure in dentist was more than general population. Majority of 97(97%) medical and 97(97%) dentist thought every patient undergoing surgical procedure should go for investigation of HBV. 30(30%) medical and 43(43%) dentist have been exposed to injury before or during surgical procedure. 100 (100%) medical and 99(99%) dental students thought post exposure prophylaxis was wound cleaning, using antiseptic and check antibody status.

It was also noticed that 61(61%) medical and 47(47%) dental students thought dentist or physician infected with HBV should avoid patient treatment especially surgery. Still a significant fraction of medical and dental students infected with HBV did not avoid working on the patients even during surgery. 75(75%) medical and 72(72%) dental students accepts working with HBV carrier in hospital. 77(77%) medical and 80(80%) dental students accepted a HBV infected student/colleagues in the same classroom or working place. 82(82%) medical and 70(70%) dental students did not hesitate to take care of a HBV infected patient. 86(86%) medical and 82(82%) dental students knew that occupation health care setting HBV has been more infectious than HIV. 86(86%) medical and 72(72%) dental students recap the needle single handed during extraction. 56(56%) medical and 61(61%) dental students thought infection of Hep B can be prevented by Hep B Vaccine completely. [Table 1 & 2

Table 1: The level of Awareness and attitude towards hepatitis B infection among medical students.

Questions							
1. Have they heard about hepatitis B infection?	Yes				No		
	99(99%)				1(1%)		
2.Hepatitis B infection is	Blood borne	Feco-anal borne		Dirty water borne	Inhalation borne		
	97(97%)	3(3%)		0(0%)	0(0%)		
3.Mode of hepatitis B transmission	Sexual route	Used needles and syringes		By blood transfusion	Pregnant mother to child transfusion	All	
	0(0%)	0(0%)		1(1%)	0(0%)	99(99%)	
4.Have they ever undergone blood transfusion?	Yes				No		
	7(7%)				93(93%)		
5.Most frequently used for screening of HBV infection is	HBsAg		HBcAg		HBeAg		
	95(%)		2(%)		3(%)		
6.Have they completed all 3 doses of vaccination schedule?	Yes				No		
	81(81%)				19(19%)		
7.If not, reasons for not taking vaccine of hepatitis B	Vaccination is not necessary	Lack of information	Afraid of needles	No need was felt by	Lack of motivation	Never thought of vaccination	Had no belief on vaccination Vaccination is not necessary
	0(0%)	1(1%)	8(8%)	1(1%)	61(61%)	29(29%)	0(0%)
8.Vaccination schedule?	0, 1, 6 month		0,2,7month		0,6,12 month		0,6,24 month
	91(91%)		1(1%)		2(2%)		1(1%)
9.When did they vaccinated with HBV vaccination	before medical		1st year or 2nd year		3rd or 4th year		Internship
	28(28%)		50(50%)		12(12%)		0(0%)
10.From where they got the inspiration for HBV Vaccination	Doctor		media		self-realization		
	29(20%)		7(7%)		56(56%)		
11.From which route of administration	Intramuscular		Intravenous		Intradermal		Do not know
	90(90%)		0(0%)		0(0%)		3(3%)
12. Are they anytime Hep B Positive?	YES				No		
	1(1%)				99(99%)		
13.Have You Ever Checked their Antibody Status after Vaccination	YES				No		
	5(5%)				95(95%)		
13.Risk of exposure in dentist is more than general population	Yes		No		Do not know		
	50(50%)		32(32%)		18(18%)		
14.Every pt. undergoing surgical procedure should go investigation of HBV	Yes				No		
	97(97%)				3(3%)		
15.Have their ever been exposed to injury before or during surgical procedure (needle, instrument, etc.?)	Yes				No		
	30(30%)				70(70%)		
16.Post exposure prophylaxis is	Wound cleaning, using antiseptic and check Ab status		Put Pricked Finger In To mouth and check Ab status		Leave as such nothing will happen		
	100(100%)		0(0%)		0(0%)		
17.Dentist or physician infected with HBV should avoid Patient treatment especially	YES				NO		

Surgery				
	61(61%)		39(39%)	
18.Opinion about working with HBV carrier in hospital	Accept	Reject	Do not know	
	75(75%)	10(10%)	15(15%)	
19.Accepted a HBV infected student /colleagues in the same classroom or working place	Yes		No	
	77(77%)		23(23%)	
21.Hesitated to take care of a HBV infected patient	Yes		No	
	18(18%)		82(82%)	
22.Do they know that occupation health care setting HBV has been more infectious than HIV?	Yes	No	Do not know	
	86(86%)	9(9%)	5(5%)	
23.How do you recap the needle during extraction?	Single handed	Double handed	avoid recapping	
	86(86%)	12(12%)	2(2%)	
24.Infection of Hep B can be prevented BY Hep B Vaccine	completely	some extent	No	do not know
	56(56%)	39(39%)	5(5%)	0(0%)

Table 2: The level of Awareness and attitude towards hepatitis B infection among dental students.

Questions							
1. Have they heard about hepatitis B infection?	Yes				No		
	98(98%)				2(2%)		
2.Hepatitis B infection is	Blood borne	Feco-anal borne		Dirty water borne	Inhalation borne		
	93(93%)	4(4%)		3(3%)	0(0%)		
3.Mode of hepatitis B transmissio	Sexual route	Used needles and syringes		By blood transfusion	Pregnant mother to child transfusion	All	
	0(0%)	0(0%)		0(0%)	0(0%)	100(100%)	
4. Have they ever undergone blood transfusion?	Yes				No		
	16(16%)				84(84%)		
5.Most frequently used for screening of HBV infection is	HBsAg		HBcAg		HBeAg		
	99(99%)		1(1%)		0(0%)		
6. Have they completed all 3 doses of vaccination schedule?	Yes				No		
	74(74%)				26(26%)		
7.If not, reasons for not taking vaccine of hepatitis B	Vaccination is not necessary	Lack of information	Afraid of needles	No need was felt by	Lack of motivation	Never thought of vaccination	Had no belief on vaccination Vaccination is not necessary
	0(0%)	5(5%)	11(11%)	13(13%)	30(30%)	41(41%)	0(0%)
8. Vaccination schedule?	0, 1, 6 month		0,2,7month		0,6,12 month		0,6,24 month
	77(77%)		0(0%)		6(6%)		3(3%)
9.When did they vaccinated with HBV vaccination	Before medical		1st year or 2nd year		3rd or 4th year		Internship
	27(27%)		38(38%)		13(13%)		7(7%)
10.From where they got the inspiration for HBV Vaccination	Doctor		media		self-realization		
	32(32%)		10(10%)		47(47%)		

11.From which route of administration	Intramuscular	Intravenous	Intradermal	do not know
	85(85%)	2(2%)	1(1%)	1(1%)
12. Are they anytime Hep B Positive?	YES		No	
	0(0%)		100(100%)	
13.Have You Ever Checked their Antibody Status after Vaccination	YES		No	
	4(4%)		96(96%)	
14.Risk of exposure in dentist is more than general population	Yes	No	Do not know	
	70(70%)	8(8%)	22(22%)	
15.Every pt. undergoing surgical procedure should go investigation of HBV	Yes		No	
	97(97%)		3(3%)	
16. Have their ever been exposed to injury before or during surgical procedure (needle, instrument, etc.?)	Yes		No	
	43(43%)		57(57%)	
17.Post exposure prophylaxis is	Wound cleaning, using antiseptic and check Ab status	Put Pricked Finger In To mouth and check Ab status	Leave as such nothing will happen	
	99(99%)	1(%)	0(0%)	
18.Dentist or physician infected with HBV should avoid Patient treatment especially Surgery	YES		NO	
	47(47%)		53(53%)	
19.Opinion about working with HBV carrier in hospital	Accept	Reject	Do not know	
	72(72%)	11(11%)	17(17%)	
20.Accepted a HBV infected student /colleagues in the same classroom or working place	Yes		No	
	80(80%)		20(20%)	
21.Hesitated to take care of a HBV infected patient	Yes		No	
	30(30%)		70(70%)	
22. Do they know that occupation health care setting HBV has been more infectious than HIV?	Yes	No	Do not know	
	82(82%)	12(12%)	6(6%)	
23. How do you recap the needle during extraction?	Single handed	Double handed	Avoid recapping	
	72(72%)	23(23%)	5(5%)	
24.Infection of Hep B can be prevented BY Hep B Vaccine	completely	some extent	No	do not know
	61(61%)	36(36%)	1(1%)	2(2%)

DISCUSSION

Health professionals, especially physicians, medical and dental students are always in direct contact with patients and are vulnerable to the acquisition of

infections like hepatitis B.4. Dental students or practicing dentists are three times more likely to contract hepatitis B than the general population. The Dental Council in India has made hepatitis B vaccination compulsory for dental students prior to admission in Dental colleges.

The study was conducted among 200 medical and dental students in which, 100 medical and 100 dental students participated. In our study, majority 99(99%) medical and 98(98%) dental students had heard about hepatitis B infection. 97(97%) medical and 93(93%) dental students thought it was blood borne infection. 99 (99%) medical and 100(100%) dental students thought it was transmitted by all the given routes. These findings were similar to the studies conducted by Alhwaish MA et al,^[2] Jayakiruthiga S. et al,^[4] Saleem T et al and Al-Shamiri HM et al,^[7,8] in which knowledge and attitude were good among medical and dental students regarding Hepatitis B. They were aware about mode of transmission and risks of Hepatitis B, except one study by Kabir et al,^[9] in which knowledge about disease transmission was found to be unsatisfactory among study subjects.

In our study participants, there was better awareness regarding HBV, 90% medical and 85% dental students have vaccinated for HBV and out of them 81% medical and 74% dental students have completed all three doses of vaccination and it was attributed to lack of motivation or they never thought of vaccination. Whereas, in a study conducted by Alhwaish MA et al, 2 it was concluded that, despite good knowledge among study subjects only 69.5% have received HBV vaccination and only 38% of them had received all three doses of vaccination. In another study by Kabir et al,^[9] similar results were obtained in which Complete vaccination against hepatitis B was done on 88.1% of the participant and 8.1% had insufficient vaccination less than 3 times. Similar results were also obtained in study done by Jayakiruthiga S. et al,^[4] in which 32% study participants were fully vaccinated and 30% are partially vaccinated and 38% are unvaccinated. Al-Shamiri HM,^[8] study also in accordance to our study as in their study majority of participants 91.4% had been vaccinated against HBV. However, only 41% completed the recommended 3 doses of the vaccine. So, regular motivational programmes are necessary to overcome this attitude among study population.

In a study conducted by Kabir et al,^[9] Merely 60% of the participants had checked their hepatitis B surface antibody (anti-HBs) level, whereas in our study only 5% medical and 4% dental students have ever checked their antibody status after vaccination. We may attribute this lack of concern to their curricular workload in student life, yet this attitude needs to be modified by regular awareness programs for all professional students.

Singh A et al,^[6] reported that in their study 61.2 percent of the undergraduate dental students had not been vaccinated with hepatitis B vaccine. Whereas, our study reported about 85% dental students have vaccinated for HBV. This finding was in contrast to our study.

CONCLUSION

This study concludes that majority of medical and dental students have heard about HBV infection, they know about modes of transmission and vaccination schedule. It was noted that, majority of medical and dental students undergo vaccination for hepatitis B, but all of them have not completed all three doses of vaccination. The reason behind this attitude was lack of motivation or they never thought of it. Majority of the medical and dental students vaccinated for HBV during their 1st year and 2nd year curriculum. Most of them acknowledged that dentists are at high risk of exposure and every patient undergoing surgical procedure should go for HBV investigation. Majority were aware about post exposure prophylaxis. Majority of them accepted to work with HBV carriers. They all were aware that HBV is more infectious than HIV. Majority of the medical and dental students have never checked their antibody status after vaccination. A significant fraction of medical and dental students infected with HBV did not avoid working on the patients even during surgery. Hence, a regular awareness program for all the students would be very beneficial.

REFERENCES

1. Afihene MY, Duduyemi BM, Hannah-Lisa A, Khatib M. Knowledge, attitude and practices concerning Hepatitis B infection, among healthcare workers in Bantama, Ghana: a cross sectional study. *International Journal of Community Medicine and Public Health*. 2017; 2(3):244-53.
2. Alhwaish MA, Alhwaish JA, Alanazi YH, et al. Knowledge, attitudes and practices toward prevention of hepatitis B virus infection among medical students at Northern Border University, Arar, Kingdom of Saudi Arabia. *Electronic Physician*. 2017; 9(9):5388-5394.
3. Alshiddi IF. Attitude and awareness of dental students and interns toward infection control measures in prosthodontic clinics. *Journal of International Oral Health*. 2015; 7(12):10.
4. Jayakiruthiga S, Rajkamal R, Gopalakrishnan S, Umadevi R. Knowledge, attitude and practices concerning hepatitis B infection, among medical students in urban area of Chennai, Tamil Nadu. *International Journal of Community Medicine and Public Health*. 2018 Jul 23; 5(8):3635-8.
5. Milward MR, Cooper PR. Competency assessment for infection control in the undergraduate dental curriculum. *European Journal of Dental Education*. 2007 Aug; 11(3):148-54.
6. Singh A, Purohit BM, Bhambal A, Saxena S, Singh A, Gupta A. Knowledge, attitudes, and practice regarding infection control measures among dental students in Central India. *Journal of dental education*. 2011 Mar 1; 75(3):421-7.
7. Saleem T, Khalid U, Ishaque S, Zafar A. Knowledge, attitudes and practices of medical students regarding needle stick injuries. *J Pak Med Assoc* 2010; 60:151-6. 41.
8. Al-Shamiri HM, AlShalawi FE, AlJumah TM, AlHarthi MM, AlAli EM, AlHarthi HM. Knowledge, Attitude and Practice of Hepatitis B Virus Infection among Dental Students and Interns in Saudi Arabia. *J Clin Exp Dent*. 2018; 10(1):e54-60.
9. Kabir A, Tabatabaei S V, Khaleghi S, et al. Knowledge, attitudes and practice of Iranian medical specialists regarding hepatitis B and C. *Hepat Month* 2010;10:176-82

How to cite this article: Mishra G, Gupta VK, Kumar S. Awareness and Attitude towards Hepatitis B Infection among Medical and Dental Students in Lucknow. Ann. Int. Med. Den. Res. 2019; 5(4):DE75-DE81.

Source of Support: Nil, **Conflict of Interest:** None declared