



ASSESSMENT OF KNOWLEDGE, ATTITUDES, AND PRACTICES OF INTERNS IN A DENTAL AND MEDICAL COLLEGE REGARDING HEPATITIS-B VIRUS -A CROSS SECTIONAL SURVEY

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ABSTRACT

Introduction: Dental health workers are always at a risk of communicable diseases. With the increasing number of infected patients and blood borne pathogens, it becomes very important to have proper knowledge and attitude towards communicable diseases. As hepatitis B infection is a major health hazard throughout the world, healthcare students should have through knowledge about this disease. The present study was conducted to assess the level of knowledge, attitude, and behavior about hepatitis B infection among healthcare interns as they indulge in more clinical work.

Materials and Methods: A cross-sectional survey was conducted of the interns of MBBS, BDS, and nursing at Rohilkhand Medical College, Institute of Dental Sciences and Rohilkhand college of nursing. The questions were obtained from a study performed in Turkey in 2010 and were modified by an infection control expert. Ethical clearance for the study was obtained from the institutional ethical committee, Institute Of Dental Sciences. Students who voluntarily wanted to participate were included in the study. Questionnaire containing 20 questions to assess the level of knowledge, attitude, and behavior about hepatitis B was distributed among the students. Data were compiled and statistical analysis was done.

Results: The response rate was 90% (N = 360). In our study, majority of interns had knowledge of HBV transmission. The level of knowledge was more in MBBS interns. Similarly attitude was also higher in MBBS interns but behavior was higher in dental graduates as compared to MBBS and nursing.

Conclusion: With the measure of knowledge, attitude and behaviour the students should be encourage more to acquire knowledge, practice proper infection control and use of protective measures to control the spread of infection.

KEYWORDS : Hepatitis B infection, MBBS, BDS, nursing, awareness

INTRODUCTION

Hepatitis B infection is a major health hazard throughout the world and the 10th leading cause of death. Three hundred and fifty million chronic carriers of hepatitis B virus (HBV) are present throughout the world.[1] In India, HBSAg carriers are about 40 million, i.e. about 4–5% of the entire population, and the transience rate is approximately 1%.[1]

HBV is a DNA virus belonging to hepadnaviridae family. HBV is relatively stable in the environment and remains viable for at least seven days at room temperature [4]. Hepatitis B is transmitted through blood and infected bodily fluids, transmission occurs through direct blood-to-blood contact; unsterile needles and through sharing of sharp instruments [3]. The risk for acquiring HBV infection from occupational exposures is dependent on the frequency of percutaneous and permucosal exposures to blood or body fluids containing blood. Humans are the usual hosts and the viral load in the blood is about 108 virions/ml.

Medical, dental, and nursing students are more vulnerable to infectious diseases because they directly come in contact with patients and deal with blood transfusion, surgical instrument, and injections. [5, 6] In all countries, vaccination programs should be made mandatory and training in universal precautions should be given to all medical and paramedical students.

Most injuries in dentistry are caused by small-gauge needles or compact instruments, dental professionals are exposed to a smaller volume of blood and, therefore, a lower risk [4]. Exposure to infected blood can result in transmission from patient to dentist, from dentist to patient, and from one patient to another. The opportunity for transmission is greatest from patient to dentist, who frequently encounters patient blood and blood-contaminated saliva during dental procedures. [7-9]

The current study was conducted to assess the level of knowledge, attitude, and behavior about hepatitis B infection among healthcare students in a private medical college in Bareilly.

MATERIALS AND METHODS

A questionnaire study was conducted among MBBS, BDS, and

nursing intern students of Rohilkhand Medical College, Institute Of Dental Sciences, and Rohilkhand College of nursing, Bareilly. A cross-sectional survey was conducted of interns of MBBS, BDS, and nursing at MJP Rohilkhand University. The students participating in the study was selected through simple random technique. The sample was compromised of four hundred questionnaires, distributed among MBBS, BDS, and nursing students who voluntarily participated in the study. The percentage of MBBS, BDS, nursing interns were 35.85 percent, 40.73 percent and 23.42 percent respectively. Of all the interns 15 percent were males and 85 percent were females.

The questionnaire comprised of multiple choice format in English comprising of 20 questions based on the most reliable books on infectious diseases. Te questionnaire comprised of four parts starting with person's name, gender, and educational course; the second part comprised of knowledge regarding the hepatitis B transmission, contamination and vaccination. In third part the attitude of interns were assessed towards the infection and finally in fourth part the behaviour of individuals were assessed. The statistical analysis was performed by using SPSS software version 20.

RESULTS

The response rate was 90% (N = 360), out of which 54 were male and 306 were female. No significant differences were noted between males and females.

Regarding Hepatitis B knowledge regarding the means of contamination was highest in MBBS students (98.30%), 96.03 % in nursing and the lowest in BDS students (95.11%). Knowledge about infection control methods was good in nursing students (75.07%), when compared to relatively poor knowledge in MBBS students (55.11%). The knowledge regarding the role of dentist in Spread of HBV was highest in BDS students (75.30%) [Table 1].

On comparison of the attitudes of students, good attitude of MBBS students were observed towards the training regarding hepatitis infection ($P = 0.00001$), medical waste management ($P = 0.00001$), vaccination of medical staff who are working with blood and body fluids ($P = 0.000001$), and recording the systemic conditions like hepatitis in patients' files ($P = 0.000001$) as compared to BDS students

and was least in the nursing students. Attitude towards Post exposure prophylaxis and sterilization of instruments showed no significant difference between MBBS and BDS students however it was relatively low in nursing instruments. The attitude of BDS students toward immediate immunoglobulin installation and vaccination after instrument injury to non-vaccinated health workers and autoclaving of instruments was higher than MBBS and it was least in nursing students [Table 2].

Comparison of the behaviour items of students regarding the Hep B infection showed most positive response regarding the practice of

wearing gloves for patients having non-intact mucosa or skin, washing hands before and after treatment procedure, wearing protecting gowns, wearing mouth mask ($P = 0.740$), bending needle after procedure ($P = 0.00001$), checking blood for contagious diseases ($P = 0.0100$), informing about hepatitis B and offering vaccination ($P = 0.9278$) was highest in BDS students (Table 3).

So the study revealed the knowledge and attitude of infection being highest in MBBS students and least in nursing students, whereas behavior was higher in BDS than MBBS students and was least in nursing students [Table 4].

Table 1: Comparison of profiles of students with each item of knowledge by Kruskal Wallis ANOVA (Numbers are only correct answers)

Profile	MBBS	%	BDS	%	Nursing	%	Total	H value	P value
Q1. Means of contamination	109	98.30	139	95.11	74	96.03	322	4.4170	0.1100
Q2. Infection control methods for HBV& HIV are same	63	55.11	105	71.92	55	75.07	223	5.9820	0.0500*
Q3. Dentists role in spread of HBV	83	75.45	110	75.30	45	59.21	238	7.5360	0.0230*
Q4. Contamination by saliva	53	48.18	54	36.99	43	56.58	150	8.3200	0.0160*
Q5. Knowledge about HBV vaccination programs	98	89.09	104	71.23	42	55.26	244	27.0050	0.00001*

* $P < 0.05$

Table 2: Comparison of profiles of students in each item of attitude (Numbers are mean)

Questions	MBBS	BDS	Nursing	Total	Value	p Value
Q6. Training on Hip & infectious disease	3.92	3.81	3.66	3.81	23.5300	0.00001*
Q7. Post exposure prophylaxis	3.12	3.40	2.97	3.37	12.4230	0.0030*
Q8. Medical Waste management	3.57	3.88	3.43	3.65	22.6990	0.00001*
Q9. Sterilization & disinfection of instruments.	3.76	3.72	3.51	3.69	10.9690	0.0040*
Q10. Washing of instruments after treatment & before autoclaving	3.65	3.76	3.59	3.70	7.5940	0.0240
Q11. Medical staff vaccination	3.76	3.55	3.19	3.49	17.1240	0.00001*
Q12. Recording HBV patients information regarding systemic condition	3.84	3.45	3.39	3.62	25.1150	0.00001*

* $P < 0.05$

Table 3: Comparison of profiles of students in each item of behaviour (Numbers are mean)

Questions	MBBS	BDS	Nursing	Total	H value	P value
Q13. Wearing gloves	4.55	4.66	4.60	4.88	2.041	0.3600
Q14. Using handwash before & after procedure	4.7	4.86	4.64	4.76	9.5960	0.0080*
Q15. Wearing Goggles during treatment	3.10	3.56	3.36	3.36	8.6730	0.0130*
Q16. Wearing Gown/lab coat during treatment	4.34	4.46	4.12	4.87	6.5190	0.0380*
Q17. Wearing Mask during treatment	4.39	4.49	4.45	4.49	5.2160	0.0740
Q18. Disposal of the Needles	4.68	4.78	4.09	4.55	19.1240	0.00001*
Q19. Blood tests for contagious diseases before treatment	4.34	4.56	4.16	4.33	9.2270	0.0100*
Q20. Informing patient about HBV & offer vaccination	4.65	4.38	4.39	4.36	0.1510	0.9270

Q20. Informing patient about HBV & offer vaccination

Table 4: Comparison of profiles of students with respect to their knowledge, attitude and behaviors scores by one way ANOVA

Profile	Knowledge		Attitude		Behaviour	
	Mean	SD	Mean	SD	Mean	SD
MBBS	3.69	1.06	26.15	1.92	34.88	4.89
BDS	3.49	1.10	25.67	2.49	36.63	3.20
Nursing	3.41	1.06	23.88	2.70	34.79	4.27
Total	3.55	1.10	25.49	2.65	35.62	4.16
F Value	2.2438		22.0989		7.7343	
P Value	0.1067		0.00001*		0.0005*	
MBBS vs. BDS	P=0.1895		P=0.2321		P=0.0033*	
MBBS vs. Nursing	P=0.1298		P=0.00001*		P=0.9537	
BDS vs. Nursing	P=0.8867		P=0.00001*		P=0.0029*	

* $P < 0.05$

DISCUSSION

Dental health workers are always at a risk of communicable diseases. With the increasing number of infected patients and blood borne pathogens, it becomes very important to have proper knowledge and attitude towards communicable diseases.

The study sought to determine the level of knowledge, attitude and behaviour among MBBS, BDS, and nursing interns. Interns were selected for the study as they have freshly graduated and are more involved in patient care and also are the future of the dental health care.

It is also important to encourage the students to increase knowledge for both patient care as well as self care.

In our study, majority of students were aware of transmissions of infection through blood and body secretions. However MBBS (99.89%) interns had better knowledge as compared to BDS (96.2%) and nursing interns (97.4%). But according to Tirounilacandin *et al.*, dental interns (34.7%) had marginally better knowledge than medical interns (32.8%). Also, 64% of the students had good knowledge about the mode of transmission of HBV. [3] Studies by Askarian and

Assadian[10] Henrique et al.,[11] Taiwo and Aderinokun,[12] and Ogden et al.[13] regarding dental students in Iran, Brazil, Nigeria, and UK found that The level of knowledge about and compliance with infection control measures was poor among the students. In another study, Hu et al. evaluated Taiwanese dental students' knowledge regarding three bloodborne pathogens including HBV and found that dentists have good knowledge regarding HBV infection. Similarly, Di Giuseppe et al. in Italy concluded good knowledge among 369 general dentists but only few participants knew that dentists should be vaccinated against HBV or influenza.17

The BDS interns were found to be more conscious regarding universal precaution with all patients being treated should be identified and manages with appropriate infection control measures. The BDS and nursing students believed infection control methods for HBV and Human Immunodeficiency Virus are same. However, McCarthy and Britton found higher proportion of medical and nursing students using infection control measures as compared to dental graduates. [4] Knowledge regarding hepatitis B vaccination program was about 72% and was highest among the BBS interns as compared to the other two. Role of dentist in spread of HBV was appreciated by MBBS and dental interns however nursing students had less awareness. In a study by Mahesh et al it was found that knowledge of the spread of HBV from dentist to patient was low. [5] The spread of HBV through contamination of saliva is believed by 47.28% MBBS, 34.98% BDS, and 54.78% nursing students. Similar findings were noted by Ramakrishna *et al.*, were 72.2% dental students believed that HBV spreads through saliva,[5] which shows the lack of awareness of dental, medical, and nursing students regarding contamination of HBV through saliva.

In our study, majority (85.1%) of students acknowledged the importance of disinfection and sterilization of instruments used for the patients. This was believed more by BDS than MBBS and nursing students in contrast to previous study by priyadarshani et al who observed more in MBBS than other students. Ankara University by Akbulut *et al.* showed most of the dental students believed that sterilization of instrument is very much important. [7] Henrique et al.[15] conducted a ten-year study to assess attitudes and behavior of dental students concerning infection control rules and found In 1995, most students used an autoclave to sterilize instruments (83.8 percent), and this percentage increased in 2005 (95.9 percent). Ramesh and Anuradha[15] in a study done with Bangalore and Chennai dentists found that although attitudes towards treating patients with infectious disease were positive, more knowledge about infection control was needed.

CONCLUSION

In our study, overall knowledge and attitude toward HBV infection were higher among MBBS students than dental and nursing students, whereas behavior of dental students toward the disease was quite satisfactory than MBBS and nursing students. So, as the dental and nursing students are more prone for the spread of infection, awareness should be created among them as well in the city of Bareilly to reduce the spread of hepatitis B infection.

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