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Knowledge, Attitudes and Practises regarding Hepatitis B Infection among Dental Interns in Mumbai, Maharashtra

Abstract

INTRODUCTION: This study was undertaken to determine the knowledge, attitudes and practises regarding hepatitis B virus among dental interns in Mumbai. **MATERIAL AND METHODS:** A cross sectional questionnaire based study was undertaken among the 225 dental interns from all the dental colleges in Mumbai. Questionnaire consisted of demographic information, questions related to knowledge, attitude and practices about hepatitis B infection. Data was analysed using spss software. **RESULTS:** The mean age of the respondents was 22.31+3.4 years with 38.28% males and 61.72 females. 79.6% of the interns were immunized against HBV. 71.6% of the interns knew about the transmission of HBV via parenteral, sexual and perinatal modes. Only half of the interns knew about the signs of hepatitis B and merely 32% knew about the post exposure prophylaxis. **CONCLUSION:** overall there is a need to provide formal and obligatory education about Hepatitis B infection, its transmission, prevention along with update on infection control practices for health care providers.

Key Words

Hepatitis B infection; survey; vaccination; post exposure prophylaxis

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INTRODUCTION

High morbidity and mortality due to hepatitis B virus (HBV) infection has been reported worldwide.[1-3] In India, HBV surface antigen prevalence among general population ranges from 2 to 8% which places India in an intermediate HBV endemicity zone and it has second largest global pool of chronic HBV infections. With the global rise in the number of people infected with hepatitis B virus, cross infection has become a paramount concern for the health care professionals and their patients.[1] Dentists are also at an increased risk of cross infection while treating patients.[2,3] Risk of cross infection increases more because many infected patients are unaware of their status or not willing to disclose their disease status.[2] Hepatitis B virus can be transmitted with the needle stick injuries and contact with body secretions. There have been several reports of HBV transmission to patients from surgeons despite the development of the universal precautions.[4,5] To minimize the risk of cross infection in the dental clinic, specific recommendations have been issued by professional health agencies. These recommendations include routine use of barrier techniques (gloves, masks), heat sterilization of dental instruments, vaccination and the universal precautions.[6] Dentist's compliance with these recommendations and infection control programs has been recently studied in different parts of the world.[5-8] These studies indicate that there are gaps in dentist's knowledge regarding modes of transmission, the risk of infection from needle stick injuries, and awareness about general measures which protect against HBV transmission. Similarly, the vaccination status of these professionals who are constantly at risk of getting this infection is reported to be low.[8] Hepatitis is a preventable disease and the health professionals have an effective role in its prevention. Hence this study was undertaken to

Table 1: General characteristics of study participants

S. No.	Variables	Mean	Standard deviation
1.	Mean age	22.31	3.45
2.	Gender	Number	Percentage
	Male	86	38.28
	Female	139	61.72
3.	CDE/ CME on Hepatitis B attended		
	Yes	98	43.55
	No	127	56.44
4.	Current immunization status		
	Immunized	179	79.6
	Non Immunized	46	20.4

Table 2: Distribution of respondent according to the Knowledge regarding Hepatitis B infection

S. No	Question	Number	Percentage
1	Incubation period of HBV		
	A) 1 – 6 days	15	6.7
	B) 1 – 6 weeks	117	52.0
	C) 1 – 6 months	47	20.9
	D) I don't know	46	20.4
2.	Prominent clinical feature/s of hepatitis B		
	A) Fever	10	4.4
	B) Jaundice	43	19.1
	C) Nausea and diarrhoea	12	5.3
	D)There are no prominent symptoms in 95% of cases	112	49.8
	E) I don't know	48	21.3
3.	HBV infection is transmitted by		
	A) Parenteral mode	38	16.9
	B) Sexual mode	10	4.4
	C) Perinatal mode	8	3.6
	D) All of the above	161	71.6
	E) don't know	8	3.6
4.	A vaccine is available to protect people from hepatitis B		
	A) True	208	92.4
	B) False	8	3.6
	C) I don't know	9	4.0
5.	The immunization doses are taken at intervals of?		
	A) 0, 1, 6 months	114	50.7
	B) 0, 1, 3, 6 months	51	22.7
	C) 0, 1, 3, 6, 12 months	39	17.3
	D) I Do Not Know	21	9.3
6.	India has a carrier rate of Hepatitis B:		
	A) 2 % (low endemicity)	8	3.6
	B) 2 – 7% (intermediate endemicity)	92	40.9
	C) More than 8% (high endemicity)	48	21.3
	D) I Do Not Know	77	34.2
7.	HBV is highly infectious and widely transmitted as HIV		
	A) True	173	76.9
	B) False	40	17.8
	C) I Do Not Know	12	5.3
8.	Post exposure prophylaxis for HBV		
	Correct	73	32.4
	Incorrect	152	67.6
9.	An infected mother may transmit hepatitis B to her newborn baby through breast milk?		
	A) True	151	67.1
	B) False	37	16.4
	C) I Do Not Know	37	16.4
10.	Hepatitis B virus may be transmitted by needles used for piercing ears?		
	A) True	185	82.2
	B) False	31	13.8
	C) I Do Not Know	9	4.0

Table 3: Attitude of respondent towards Hepatitis B infection

S. No.	Questions	Number	Percentage
1.	Would you willingly work in the same environment as a person infected with hepatitis B?		
	A) Agree	127	56.4
	B) Disagree	20	8.9
	C) I Do Not Know	78	34.7
2.	People with hepatitis B should not be allowed to work in restaurants or cafeterias		
	A) Agree	125	55.6
	B) Disagree	18	8.0
	C) I Do Not Know	82	36.4
3.	Dentists have a professional and moral duty to treat hepatitis B infected patients		
	A) Agree	190	84.4
	B) Disagree	16	7.1
	C) I Do Not Know	19	8.4
4.	Hepatitis patients should be treated separately in clinics?		
	A) Agree	188	83.6
	B) Disagree	12	5.3
	C) I Do Not Know	25	11.1
5.	How strong is your personal worry about the risk of being infected by Hepatitis B?		
	A) Strong	176	78.2
	B) Moderate	14	6.2
	C) Low	35	15.6

Table 4: Behaviour of respondent towards Hepatitis B infection

S. No.	Questions	Number	Percentage
1.	In your daily clinical practice do you always use gloves?		
	A) Yes	208	92.4
	B) No	17	7.6
2.	Do you change gloves in between patients?		
	A) Yes	178	79.1
	B) No	11	4.9
	C) Not always	36	16.0
3.	In your daily clinical practice do you always use facemasks?		
	A) Yes	199	88.4
	B) No	26	11.6
4.	The mode of sterilization or disinfection used routinely in your practice is?		
	A) Dry heat sterilization	14	6.2
	B) Steam under pressure (autoclave)	196	87.1
	C) Quaternary ammonium compounds	2	.9
	D) Gluteraldehyde	13	5.8

determine the knowledge, attitudes and practises regarding hepatitis B virus among dental interns in Mumbai.

MATERIALS AND METHODS

A cross-sectional questionnaire study was conducted to determine the knowledge attitudes and practises regarding hepatitis B infection among dental interns in Mumbai. The study was conducted for the duration of 3 months, January to March 2013. The study was conducted among interns from all the 6 dental colleges in Mumbai. Ethical clearance was obtained from the ethical committee of the institution. The necessary permission to carry out the study was obtained from the respective authorities of the dental colleges. Informed consent was obtained from all the students. Prior to the commencement of the main study, a pilot study was conducted among 50 students to assess the feasibility and validity of the proforma. All the dental interns who were present on the day of study and willing to participate were included in the study. Thus total 225 interns participated in the study.

Data Collection

A standardized structured proforma was developed to collect the data, which consisted of two parts. The first part consisted of general information like the age, sex, CDE/CME attended, immunization status etc. The second part consisted of 30 questions related to knowledge, attitude and practices towards hepatitis B infection among the dental interns. Out of 30 questions, 18 questions were related to knowledge, 7 questions were related to attitude and 05 were related to practices regarding Hepatitis B infection. All the questions were closed ended. The questionnaire was constructed with reference to relevant literature. Content validity and face validity of questionnaire was ascertained with the help of

Table 5: mean knowledge score according to gender, CDE attended and Immunization status

	Variables	Knowledge scores (mean±sd)	*P* value
1.	Gender		
	Male	8.90±2.40	0.04
	Female	9.29±2.37	
2.	CDE/CME attended		
	Yes	9.80±1.23	0.002
	No	8.26±2.22	
3.	Immunization status		
	Yes	10.02±2.2	0.003
	No	8.19±1.4	

expert opinion. The questionnaire forms were distributed to the interns during their duty hours. The questionnaire generally took an average of fifteen minutes to complete and forms were collected immediately after the survey.

Scoring System

The responses for the attitude questions were rated on a 3-point Likert scale:Agree, Uncertain and disagree. To assess the knowledge of the interns, a scoring system was developed. Scores were based on the number of correct answers given by students for the knowledge questions: Poor: 1 – 6; Fair: 7 – 12 and Good: 13 - 18

STATISTICAL ANALYSIS

The data was analyzed using Statistical Package for Social Science (SPSS) version 14.0. The p-value was taken as significant when less than 0.05 (with confidence interval of 95%) and the student t test was used to obtain the results.

RESULTS

A total of 225 students completed the questionnaire with the response rate of 86.7%; of these, 61.72% were females and 38.28 % were males. Mean age of total respondents was 22.31 years (22.31±3.45) In the present study more than half of the interns (56.44.4%) had not attended any cde/cme program on hepatitis B. Regarding vaccination status, 79.6% respondents reported to be immunized against HBV as shown in Table 1.

Knowledge

Although around 76% interns knew correctly that HBV is widespread and more infectious virus than HIV, merely 20% interns knew correctly about incubation period (1-6months) and only half of the interns knew that there are no prominent symptoms in most of the HBV infection cases. In the present study, interns showed significant lack of knowledge regarding transmission of HBV. One third (30%) of the interns did not know about the transmission of HBV via parenteral, sexual and perinatal modes and merely 32% of the interns knew about the post exposure prophylaxis as Hepatitis B immunoglobulin or HBV vaccine series. One third of the interns (about 33%) didn't know about the transmission of virus via breast milk and around 17% were unaware about transmission of HBV through sharing needles like during ear piercing. Although more than 90% interns knew that there is a vaccine available to protect people from hepatitis B but less than half of the interns knew about the immunization schedule. Around 40% interns knew that India has HBV carrier rate of 2-7% and it is classified as intermediate endemicity zone and around 44% knew correctly that India is second largest carrier pool of HBV in the world (Table 2).

Attitude and Behaviour towards HBV Infection

Overall participants showed positive attitude and agreed that they have a professional as well as moral duty to treat hepatitis B infected patients (84.4%) and will work willingly in the same environment as a person infected with hepatitis B (56.4%). Although misconception noted like hepatitis infected patients should be treated separately in clinics (83.6%) and they should not be allowed to work in restaurants or cafeterias (55.6%). Majority of the interns showed strong personal worry about the risk of being infected by Hepatitis B (78.2%) (Table 3). In the present study majority of the interns were following good infection control practices as about 90% of the interns reported the use of gloves and facemask during working on patients and 87% were reported to use autoclave (steam under pressure) for sterilization or disinfection routinely in their clinical practice (Table 4).

Factors affecting Knowledge about Hepatitis B Infection

Present study revealed that mean knowledge score was higher in females (9.29±2.37) compared to males (8.90±2.40). Also score was higher among

the responded who had attended CDE/CME program on Hepatitis B (9.80±1.23) as well as the responded that were immunized against HBV (10.02±2.2). All these differences were found to be statistically significant ($p<0.05$) (Table 5).

DISCUSSION

Hepatitis B infection is a serious blood-borne disease, caused by the hepatitis B virus (HBV) which attacks the liver and although in acute cases rarely results in liver failure and death, the main public health problem is that this can lead to lifelong chronic HBV infection, which may be followed by cirrhosis and/or liver cancer. Chronically infected HBV carriers are able to transmit HBV through contact with their body fluids, which includes occupational exposure to their blood and secretions, sexual intercourse. People at risk include health care workers (HCWs) in contact with blood and human secretions, haemodialysis staff, oncology and chemotherapy nurses, all personnel at risk of needle stick/sharps injuries, which includes those working in operating rooms and clinical laboratories, respiratory therapists, surgeons, doctors, dentists, as well as medical, dental and nursing students.[9] In India, approximately 3 to 4% of the population is infected with HBV virus and more than 50% cases are of chronic hepatitis. HBV epidemiology in India becomes relevant nationally and internationally, possibly because India may become the largest pool in world.[10] In the study present study, there was significantly higher number of female participants compared to males. This could be attributed to the fact that in India, there is an expansion of the number of women in dentistry during the last quarter of the past century. Since 1999 there has been an increase in the female students, more so in 2000, and this trend is continuing today.[11] This was in line with the other studies.[12,13] The risk of transmission of hepatitis B virus infection in health care worker is 6% to 30% 21. WHO guidelines state that all high risk groups should be vaccinated against hepatitis B. Being in a high risk dentists need to vaccinate themselves against HBV.[14] In the present study there was deficiency that about 20% of the interns were not vaccinated (Lahor). The proportion of immunized dental participants in the present study (79.6%) was lower as compared to study by T Paul *et al.*, (1999)[15] among dental staff of Riyadh Military Hospital in whom it was 85.7%, dental students in Karachi private medical college in study by Qudsia Anjum *et al*., (2005)[12] where it was 81% and also lower than dental interns in Pondicherry (93.9%) in a study done by P. Tirounilacandin *et al*., (2009)[16] and by Ali Kabir *et al*., (2010)[17] wherein all the dentists were immunized for HBV (100%). Only half of the interns found to be aware that there are no prominent clinical features of HBV in most of the cases. This was in line with the study done by Ganesh R *et al*., (2011).[18] In the present study 8% dentists were unaware of HBV vaccine which is of concern because all health care providers especially the doctors should be aware of the HBV vaccine. Although awareness was higher in present study (92.6%) as compared to Taiwanese dental interns (87.3%) in a study conducted by Mohamed Abdullah Jaber (2011)[19] and in a study by Harish Tibdewal *et al*., (2009)[13] where it was 83.7%. It was comparable with the studies done by P. Tirounilacandin *et al*., (2009)[16] wherein it was 96% , a study by Rajiv Saini *et al*., (2010)[21] where it was 94%. In this study merely 50% of the interns were aware of the schedule of immunization (0, 1, 6 months) which was very low as compared to dental students (94%) in a study by Rajiv Saini *et al*., (2010).[21] Timely and suitable prophylaxis following the exposure to HBV can prevent the infection and subsequent development of the chronic infection or the liver disease. The professionals should be aware of post exposure prophylaxis regimen in case of any accidental exposure to HBV. Immediate treatment following the percutaneous injury includes washing the exposure site with soap and water; mucous membrane and eyes should to be flushed with water only.[21] Present study revealed a significant lack of knowledge among dental interns about post exposure prophylaxis as merely 32% knew the correct answer. As recommended by centres for disease control and prevention (CDC), post exposure prophylaxis includes hepatitis B immunoglobulin (HBIG) and/or hepatitis B vaccine series which should be initiated within 24hrs to latest 1 week from the time of exposure after evaluation of the hepatitis B surface antigen status of the source and the vaccination and vaccine-response status of the exposed person (Centres for Disease Control and Prevention, 2001).[22] The international guidelines on infection control state that standardize your disinfection and sterilization practices and treat each case as if infected. Few studies reported discriminatory practices by general practitioners, nurses, dentists and other health care

workers while treating HBV positive patients[22] and similar was noted in the present study where majority (83.6%) agreed that infected patients should be treated separately in a clinical practice. In the present study 56.4% of interns agreed to work in the same environment as a person infected with HBV which was in line with the study of Omani medical interns (58%) in a study by Ali A Al-Jabri *et al* (2004).[23] A majority of the interns (78.2%) had a strong personal worry about the risk of being infected by Hepatitis B. It was comparable with a study conducted by S Naidoo (1997)[24] amongst dental practitioners (85%) in South Africa and among in dental interns (81.4%) as assessed by Mohamed Abdullah Jaber (2011).[19] Dental interns showed positive attitude as 84% of the interns think that it is their professional as well as moral duty to treat a HBV infected patient. This was comparable with the study done by Harish Tibdewal *et al*., (2009).[13] It is alarming that about 15-20% of the respondents were not in practice of using gloves and face mask routinely or they do not change them after every patient. Similar results were reported by Porter *et al*.[25] But in another study conducted among general dental practitioners revealed that 38% of the respondents were not using gloves during surgery[26] which is higher than that reported in the present study. Sterilization by autoclaving is considered as best method of sterilization. In the present study 10-12% of the dentists were not using autoclave for sterilization, and similar results were reported by Morris *et al*.[7] Present study showed that mean knowledge score was significantly higher among females compared to males. These finding may indicates differences in the views towards the risk of HBV between the 2 sexes. Mean knowledge score was significantly higher among the respondents who had attended CDE/CME program on HBV. This indicates the effectiveness of CDE/CME program on the knowledge level. This suggests the need to organize more number of CDE/CME programmes for the health care professionals as it has a significant impact in improving their knowledge regarding HBV and its prevention. Also the mean knowledge score was higher among all those who were immunized against HBV compared to the unimmunized counterparts. This could be due to the fact that all those who had knowledge regarding HBV got themselves immunized against the same. Scientific knowledge regarding HBV transmission is essential for any medical professional students since they have to take the proper protection during their clinical posting as HBV is easier to transmit than HIV. The study reveals that more efforts and preventive measures to be taken by these students to prevent acquiring this deadly infection by getting themselves vaccinated as they get admission into such courses as well as by taking booster doses at proper intervals, without which they become more vulnerable for infection.

CONCLUSION

In conclusion, the results of this study shows that there is a need to provide formal and obligatory education about Hepatitis B infection, its transmission, prevention along with update on infection control practices for health care providers. The Dental Association should also be made partner in the infection control campaign and once guidelines are formulated, compliance must be assured through the empowerment of infection control authorities.

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