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Research Article

KNOWLEDGE, ATTITUDE AND PRACTICE OF HEPATITIS-B INFECTION AMONG DENTAL INTERNS - A QUESTIONNAIRE BASED CROSS-SECTIONAL STUDY

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ABSTRACT

Introduction: Hepatitis B poses a major health concern and is the world's most common blood borne viral infection placing dental professionals at higher occupational risk. **Materials and Methods:** The present study was conducted to assess knowledge, attitude and practice among 97 dental interns of Sinhgad dental college, Pune. A cross sectional study was conducted. A pre-designed questionnaire was the tool of data collection. Data analysis was in the form of frequency and percentage and chi-square test were done. **Result:** The present study showed that, only 19.6% and 48.5% of them know the modes of transmission and diagnostic tests respectively. Majority of them had a positive attitude on HBV. 78.4% considered vaccination of HCW very important and 55.7% considered vaccination as precautionary method but only 76.3% of them are vaccinated as per the WHO regimen. **Conclusion:** Hence, there is an imperative need for health education to improve the knowledge & practice of interns towards HBV.

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INTRODUCTION

According to World Health Organization (WHO) hepatitis B infection is the world's most common liver infection which is caused by hepatitis B virus (HBV), double stranded DNA virus of the hepadnaviridae group. This virus can survive outside the body for at least 7 days and incubation period is of 21-135 days (Kasetty *et al.*, 2013). India is at intermediate endemic level of hepatitis B with more than 40 million HBsAg carriers accounting 9% of the total carriers worldwide (Rao M. B *et al.*, 2012). In India, prevalence of HBV among general population varies from 2 to 8%, and about three to four times greater in medical professionals, six times greater in non-immunized surgical specialties than general population (Singhal *et al.*, 2009).

Hepatitis B is an acute systemic type of infection with major pathology in liver. It also has the lifetime risk of complications such as chronic hepatitis, cirrhosis and hepatocellular carcinoma in subjects with chronic HBV infection (Bhambhani GD *et al.*, 2015). Symptoms in HBV infection appear only in 35% of those infected (Alavian *et al.*, 2007).

HBV is 50 to 100 times more infectious than HIV. The virus is found in high concentration in blood, serum, serous exudates, saliva, semen, vaginal fluid and most body fluids. Perinatal transmission is believed to be the most important mode of transmission in regions with intermediate and high HBV

prevalence rates. Humans are the usual hosts and the viral load in the blood is about 108virions/ml. The WHO estimates the global burden of disease from occupational exposure to be 40% of the HBs among HCW as attributable to exposure at work (Santosh MP *et al.*, 2016). Blood is frequently involved in dental treatment procedures, which increases the exposure of dentist. In the dental healthcare setting, there are certain special circumstances and opportunities that are more vulnerable to transmission of such microorganisms to professionals and dental clinical students (Bhambhani GD *et al.*, 2015).

Health-care professionals are the most negligent as far as their own health is concerned. They become victim of lifestyle diseases due to their stressful schedules and a high degree of professional responsibility. Dental interns are at a higher risk of HBV infection due to lack of clinical experience (Xinyi Li *et al.*, 2015). However, the incidence can be reduced by giving proper education regarding its transmission and immunization. Vaccines against HBV are available since 1982 and are shown to be 95% effective; still a dearth of adequate knowledge of HBV infection and vaccine exists in India (Misra B *et al.*, 2009). Thus an, emphatic awareness and immunization programme can be helpful to reduce the further progression of this disease.

WHO has declared 28th July as the World Hepatitis Day/ Eradication Day. A study conducted by Singh *et al.* (Singh *et al.*, 2011), concluded that there is a lack of awareness among

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the medical students entering into the profession about hepatitis B. Choudhury et al (Choudhury et al, 2015) found the knowledge and attitude level of MBBS students to be higher than that of BDS students; Whereas behavior was higher in BDS students. The purpose of this study is therefore to determine the knowledge of HBV infection and understanding the risk factors and prevention methods for HBV infections among dental interns. The objectives were to assess knowledge, attitude and practice regarding hepatitis-B infection among dental interns.

MATERIALS AND METHOD

This is a cross sectional study conducted amongst interns of Sinhgad Dental College, Pune. Interns who were present during the period of 1st Sept to 10th Sept 2016 and were willing to participate were included in the study and those who weren't were excluded. All 97 interns of regular and referred batch who were going to graduate in the year 2016 were enrolled and given a briefing about the design and objectives of the study. The informed consent was obtained from each participant.

The data was collected using a pre-designed, pre-validated questionnaire. Questionnaire was in English and consisted of 14 questions. It included 5 questions related to knowledge on HBV with four responses of which one response was correct. Practice was assessed by another 5 questions. The first question had a sub-question, which was open-ended wherein the participant had to mention precautionary measures undertaken, if any, followed on routine practice. Next 4 questions were used to assess the attitude of interns on HBV.

Data was entered in Microsoft Excel and analyzed using the SPSS version- 21.0. Statistical significance was set at $p < 0.05$.

RESULTS

The present study was conducted among 97 interns. Out of 97 interns, 69% (67) were female and remaining 31% (30) male who were present in the college during 1st to 10th September 2016.

95.9% (93) of the interns correctly answered that HBV is a viral disease but only 66% (64) of them could say that HBV virus is DNA virus. 34% (33) mistook it as a RNA virus. Knowledge regarding modes of transmission was found to be less; only 19.6% (19) mentioned all the modes while majority 80.4% (78) considered only blood and/or saliva as modes of transmission. Knowledge regarding diagnostic test was also found to be less with 51.5% (50) giving wrong answer while 48.5% (47) answering correctly. Although hepatitis B vaccination was included in national immunization program in India 71.1% (69) could rightly say the WHO schedule for hepatitis B immunization while the rest of 28.9% (28) failed.

A positive attitude was seen in dental interns with 58.8% (57) of interns being confident to treat patient with HBV. 59.8% (58) were ready to let dentist treating patient with HBV treat them while 3.1% (3) disagreed and rest 37.1% (36) were neutral. Majority of the dental interns 77.3% (75) were positive of having taken the profession in spite of the known risk to exposure and potential hazard in routine dental practice 5.2% (5) disagreed to it while 17.5% (17) were neutral. Lastly, 78.4% (76) considered vaccination of health care workers dealing with blood and body fluids to be very important while only 4.1% (4) considered it not so important.

On a daily basis 70.1% (68) mentioned to follow precautionary measures against HBV in routine practice, 16.5% (16) didn't and rest 13.4% (13) were not sure. Of the 70.1%, 3.1% (3) considered only sterilization and 11.3% (11) considered only universal safety precaution as precautionary measures while majority 55.7% (54) espoused both of the above and vaccination as the measures undertaken to curb spread of infection. Before performing extraction 59.8% (58) interns' advice blood investigation, 13.4% (13) always recommended investigation prior any procedure. 76.3% (74) of them are vaccinated as per the WHO regimen, 17.5% were not and 6.2% (6) were not sure of their vaccination status. 75.3% (73) of them also insisted their family members to get vaccinated.

Table 1 Frequency distribution of dental interns based on the response to questions on knowledge of HBV

Questions	Correct		Incorrect		p-value
	Frequency	Percentage	Frequency	Percentage	
1. Hepatitis B is (viral disease) [#]	93	95.9	4	4.1	$p < 0.05^*$
2. HBV is (DNA virus) [#]	64	66	33	34	$p = 0.002^*$
3. Routes of spread of HBV (Sexual & parental) [#]	19	19.6	78	80.4	$p < 0.05^*$
4. Which Tests are helpful in diagnosing HBV (LFT) [#]	47	48.5	50	51.5	$p = 0.761$
5. HBV Vaccine regimen (0, 1, 6 and booster after 5yrs) [#]	69	71.1	28	28.9	$p < 0.05^*$

[#] Correct answers: * - p-value significant.

Table 2 Frequency distribution of dental interns based on the response to questions on attitude of HBV

Questions	Agree n (%)	Disagree n (%)	Neutral n (%)	p-value
1. I can safely treat patients with HBV	57(58.8)	2(2.1)	38(39.2)	$p < 0.05^*$
2. I will let dentist treating patients with HBV treat my teeth	58(59.8)	3(3.1)	36(37.1)	$p < 0.05^*$
3. Would you joined the profession knowing the potential risk of exposure to HBV	75(77.3)	5(5.2)	17(17.5)	$p < 0.05^*$

Question	Very important n (%)	Important n (%)	Not important n (%)	p-value
4. Whole medical staff working with blood and body fluids must be vaccinated	76 (78.4)	17 (17.5)	4 (4.1)	$p < 0.05^*$

* - p-value significant.

Table 3 Frequency distribution of dental interns based on the response to questions on practice of HBV

Questions		Frequency	Percentage	p-value
6. Do you practice precautionary measures	Yes	68	70.1	<i>p</i> <0.05*
	No	16	16.5	
	Can't say	13	13.4	
	Sterilization	3	3.1	
	Universal safety precautions	11	11.3	
6R. If yes,	Both + vaccination	54	55.7	<i>p</i> <0.05*
	Total	68	70.1	
7. Do you advice investigations for HBV before extraction	Yes	58	59.8	<i>p</i> <0.05*
	Always	13	13.4	
	No	14	14.4	
	Can't say	12	12.4	
8. Are you Vaccinated	Yes	74	76.3	<i>p</i> <0.05*
	No	17	17.5	
	Can't say	6	6.2	
9. If HBV patient comes to your clinic	Send patient to hospital	17	17.5	<i>p</i> <0.05*
	Refuse to treat	6	6.2	
	Treat with precautions	73	75.3	
	Can't say	1	1	
10. Do you insist you family members to get vaccinated	Yes	73	75.3	<i>p</i> <0.05*
	No	10	10.3	
	Not always	14	14.4	

* - *p*-value significant.

Majority of the interns 75.3% (73) were ready to treat HBV positive patients in their clinic following all precautionary method, 17.5% (17) wanted to send the patient to institution and dental hospitals and the rest were not sure.

DISCUSSION

The emergence of blood-borne pathogens along with increasing number of infected patients and increasing interest in dental health compel the dental professional to have a thorough knowledge about hepatitis B infection. In a dental clinic, infections can be transmitted through various routes, such as direct contact with blood, oral fluids or other secretions; indirect contact with contaminated instruments, operatory equipments or environmental surroundings; or contact with airborne contaminants present in droplet, splatter or aerosols of oral and respiratory fluids. Continual transmission of these diseases may be due to a number of reasons including lack of awareness about their prevalence and prevention (vaccination), missing of opportunities for prevention, misdiagnosis, absence of medical care and poor health outcomes in infected people (Khalid *et al*, 2013).

95.9% (93) of the interns correctly answered that HBV is a viral disease but only 66% (64) of them could say that HBV virus is DNA virus. Knowledge regarding modes of transmission was found to be less; only 19.6% (19) mentioned all the modes while majority 80.4% (78) considered only blood and/or saliva as modes of transmission. This is contradictory to the studies by Kasetty *et al* which revealed 82.1% dental professionals had correct knowledge regarding modes of transmission. Whereas a study done by Khan *et al* among medical students of Karachi found that only 57.1% had correct knowledge regarding the same. There is a need of lot of improvement in the knowledge levels of these students. This observation was also found in the study done by Akbulut N *et al*.

Prevention is ultimately the most efficient and humane means towards improved health. The most effective means to prevent HBV infection is through vaccination. In our study, 76.3% (74) of them are vaccinated as per the WHO regimen.

This is similar to the findings of Purushottam A *et al*, showing 72% interns to be vaccinated. However it is the 24% who are a matter of concern and this shows the knowledge application gap. 55.7% (54) espoused sterilization, universal safety precautions and vaccination as the measures undertaken to curb spread of infection. 75.3% (73) of them also insisted their family members to get vaccinated. Similarly a study by Bhuvan *et al* revealed that majority of dental students recommended vaccination among their family members.

Before performing extraction 59.8% (58) interns advice blood investigation, 13.4% (13) always recommended investigation prior any procedure which is similar to the study by Reddy RS *et al* 2011. Also studies by Kasetty *et al* reflects the need of advising screening and diagnostic tests for HBV in patients who are clinical suspects of the disease undergoing minor and major surgical procedures.

Majority of the interns showed a more positive attitude towards treating patient with HBV And also considered vaccination of health care workers dealing with blood and body fluids very important. However, this survey was limited to only dental interns of our college so the findings cannot be generalized. But the knowledge can be further enhanced by conducting continuing dental education (CDE) programme, seminars and workshops about hepatitis B infection at institutional level as "awareness is empowering". The limitations are limited number of study participants and response bias. This study opens a new vista for further study on a larger scale for better assessment of knowledge, attitude and practice among dental as well as medical professionals.

CONCLUSION

Scientific knowledge regarding HBV transmission is essential for any medical or dental professional students since they have to take the proper protection during their clinical postings as HBV is easier to transmit than HIV. Also as students act as a source of knowledge for their families and also for the patients, more efforts are needed for the development of the knowledge of these students. Dental interns had a positive attitude on treatment of infected and infection control. Emphasis on

mandatory vaccination policy, including the topic in internship orientation programme will help to reduce the transmission of hepatitis B in healthcare settings.

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