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Assessment of Knowledge Attitude and Treatment towards Hepatitis B among Dental Students – A Cross-sectional Study

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Abstract

Introduction: Hepatitis B is a major cause of acute and chronic liver infection. It is caused by the Hepatitis B virus. The Hepatitis B virus is known as a blood borne virus because it is transmitted from one person to another via blood or fluids contaminated with blood. So Dentists and dental students are at a greater risk of exposure to HBV. **Aims:** The aim of this study was to assess the knowledge and attitude of the graduating dentist and interns from Bangalore, towards Hepatitis B infection. **Materials and Methods:** The study design was a cross-sectional survey using a self-administered, structured, closed-ended 15-item questionnaire. The study was conducted among 150 graduating dentists from Bangalore. The questionnaire was divided into 3 sections, knowledge, attitude and treatment and each contain 5 questions. **Result:** Out of the 150 graduating dentists who received the questionnaire, 75.3% consider having adequate knowledge about Hepatitis B infection. 75.30% were vaccinated for Hepatitis B and of that only 45.30% checked for antibodies after vaccination. The mean score of knowledge is 5.92, the mean score of attitude is 6.82 and for treatment is 7.28. **Conclusion:** The current group of graduating dentists are knowledgeable about Hepatitis B. However, in spite of having sufficient theoretical knowledge, attitude towards treating patients with Hepatitis B is not satisfactory which is reflecting in their practice methods.

Keywords: Attitude, Hepatitis B, Knowledge, Treatment

1. Introduction

Hepatitis B Virus (HBV) is a major worldwide cause of acute and chronic liver infection. Nearly, two billion people in the world are acutely infected by HBV and another 350 million people chronically infected[1]. Of these, at least one million people die annually from HBVrelated chronic liver disease, including cirrhosis, primary hepatocellular carcinoma, and liver cancer[2]. Worse, 75% of these cases hail from the Asian continent where an estimated 8% and 15% are suspected to be active carriers of this virulent virus. Nearly, 80% of the infections are subclinical which means that their disease remains undiagnosed and act as potent carriers. In this latent form, HBV is potentially 50-100 times more infectious than HIV[3].

HBV is a member of the Hepadnaviridae family and is a small DNA virus with unusual features similar to retroviruses. HBV replicates through an RNA intermediate and can integrate into the host genome[4]. Hepatitis B virus causes liver injury by an immune response against the virus-infected liver cells and is not directly cytopathic, although immunosuppression appears to enhance replication and lead to direct cytotoxicity[5].

Although potent antiviral agents have now emerged, the virus itself and the diseases it causes continue to evolve. The availability of new treatment is currently resulting in new interest in understanding of the importance of treatment. Coupled with effective vaccines and risk avoidance, these treatments should begin to diminish the burden of chronic hepatitis B in the near future. The HBV is easily available

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since 1982 and has been recommended for healthcare workers whose activities frequently expose them to contaminated blood products[6].

In India, Chronic Hepatitis B (CHB) is acquired predominantly by horizontal transmission in early childhood (mostly from family contacts) and to lesser extent by perinatal transmission. The exact mode of horizontal transmission remains undefined, but it may be due to contact of non-intact skin or mucous membranes with tears, saliva or blood containing HBV-infected secretions or through sharing of toothbrushes.

Prevalence of HBV is also higher than average in high-risk groups like patients with chronic kidney disease, on dialysis, with thalassemia, hemophilia or leukemia, or those receiving immunosuppressive or cancer chemotherapy[7].

Dentists, dental students, and their paramedical staff are at a heightened risk of exposure to HBV primarily because dentistry involves extensive and intensive use of small, sharp instruments that can easily get contaminated with infected blood, during an invasive procedure, which is the main mode of transmission of HBV. The past studies indicate that the risk of exposure for general dentists is about 3-4 times greater, and for non-immunized surgical specialists, about 6 times greater than that of the general population[8].

Since graduating dental students are going to be the future dental healthcare providers, there is an urgent need to make them aware of the risk of spreading and suffering from contagions such as the HBV, during the interaction with their patients. The aim of this study was to assess the knowledge and attitude of the graduating dentist toward hepatitis B infection.

2. Materials and Methods

The study involved 150 graduating dentists from Bangalore. The survey tool employed was a self-administered questionnaire comprising of 15 multiple choice questions (Q1-Q15).

The questionnaire was designed based on worldwide reports about Hepatitis B including its prevalence, clinical features, treatment, patient management, dentist management and continuing education about Hepatitis B.

Questionnaire copies were distributed to the graduating dentists and filled copies of the same were collected. Ethical clearance was obtained from institutional review board and participation was voluntary. The questionnaire is sectioned into 3 groups - knowledge - 5, attitude - 5, treatment- 5.

3. Statistical Analysis

The survey was conducted and the data was interpreted in the form of a table. Statistical data was then analyzed using the Pearson's correlation method. P value of <0.001 concludes that the study is highly accurate.

4. Results

Out of the 150 graduating dentists who received the questionnaire everyone returned properly filled forms, 75.3% of the participants consider themselves having adequate knowledge about Hepatitis B. A majority of students (80.7%) believed that a dentist can transmit Hepatitis B to their patient if he/she does not use proper barrier technique. 82% reported that the aerosols produced by the hand piece can transmit Hepatitis B and 80.7 % reported that a blood soaked gauze can transmit Hepatitis infection. 89.3% knew that there is a vaccination available for Hepatitis B. (Table 1) (Figure1).

Regarding the attitude, 56.70% of students responded that they would carry out ultrasonic procedures on Hepatitis B patients and 72% thought they are ethically/morally responsible to treat a Hepatitis B patient. 75.3% of students reported that they are vaccinated for Hepatitis B but out of that only 45.3% checked for their antibody titres after vaccination. 68% of total students thought that they have to uphold the confidentiality of Hepatitis B patient. (Table 2) (Figure 2).

In terms of treatment, 32.7% of the students have treated Hepatitis B patients knowingly. 80% graduating dentists responded that special precautions are required to treat a Hepatitis B patient. A majority of students (73.3%) believed that all patients should be tested for Hepatitis B status. It appears that only 46% students thought, all patients who attended the clinic are true in disclosing their Hepatitis B status. 39.3% students thought that, dentist/health care provider has the right to reject treating a Hepatitis B patient (Table 3) (Figure 3).

The mean score of knowledge is 5.92, the mean score of attitude is 6.82 and for treatment is 7.28 (Figure 4). There is a negative correlation coefficient of -0.127 between knowledge and attitude, it is understood that

there is negligible relationship between the knowledge that the dentists possess and their attitude towards Hepatitis B infection. A strong, negative relationship has been identified between knowledge and treatment carried by the sample in practicing the methods in treating Hepatitis B. The correlation is -0.172 and is found to be statistically significant with a p value of 0.035 (<0.05). Similar to the correlation between knowledge and attitude, the correlation between attitude and practice is also on negative side. (Table 4).

Table 1. Statistical data response to knowledge-based questions

Questions	Yes	No
Q1. Do you consider yourself having adequate knowledge about Hepatitis B infection	75.30%	24.70%
Q2. Can a dentist transmit Hepatitis to their patient if he/she does not use proper barrier technique	80.70%	19.30%
Q3 Can aerosols produced by hand piece transmit Hepatitis B infection	82.00%	18.00%
Q4 Can a blood socked gauze transmit Hepatitis B infection?	80.70%	19.30%
Q5 Is there a vaccination available for hepatitis B?	89.30%	10.70%

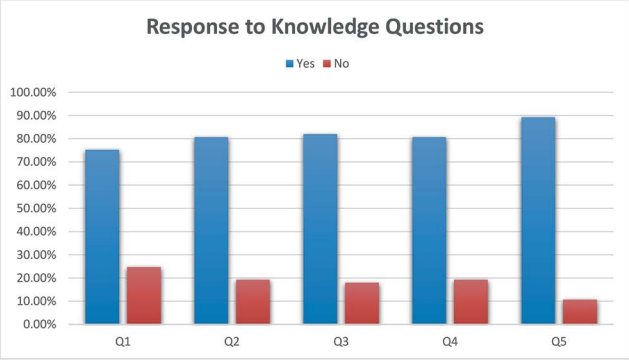


Figure 1. Response to knowledge questions.

Table 2. Statistical data response to Attitude-based questions

Questions	Yes	No
Q1 Would you carry out a sonic/ ultrasonic scaling procedure in Hepatitis B patients?	56.70%	43.30%
Q2 Are you ethically/morally responsible to treat a Hepatitis B patient?	72.00%	28.00%
Q3 Where you vaccined for Hepatitis B?	75.30%	24.70%
Q4 Did you check for antibodies after vaccination?	45.30%	54.70%
Q5 Do you think that you have to uphold the confidentiality of Hepatitis B patient?	68.00%	32.00%

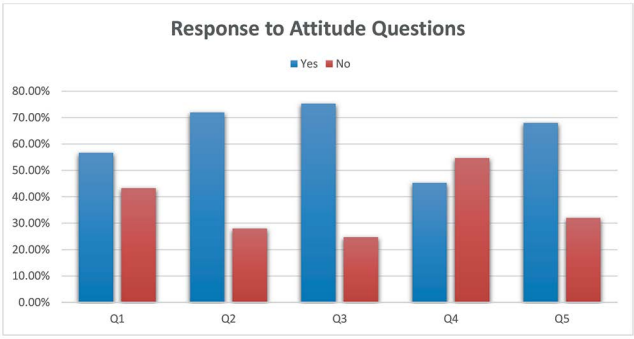


Figure 2. Response to attitude questions.

Table 3. Statistical data response to treatment-based questions

Questions	Yes	No
Q1 Have you ever treated a Hepatitis B patient knowingly?	32.70%	67.30%
Q2 Do you think special precautions are required to treat a Hepatitis B patient?	80.00%	20.00%
Q3 Should all patients be tested for their Hepatitis B status?	73.30%	26.70%
Q4 Do you think all patients who attended the clinic are true in disclosing their Hepatitis B status?	46.00%	54.00%
Q5 Do you think that dentist/health care provider has the right to reject treating a Hepatitis B patient?	39.30%	60.70%

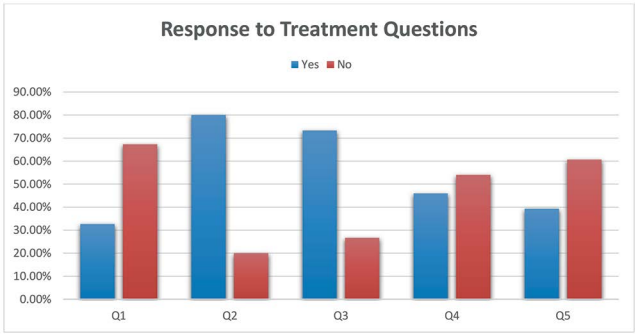


Figure 3. Response to treatment questions.

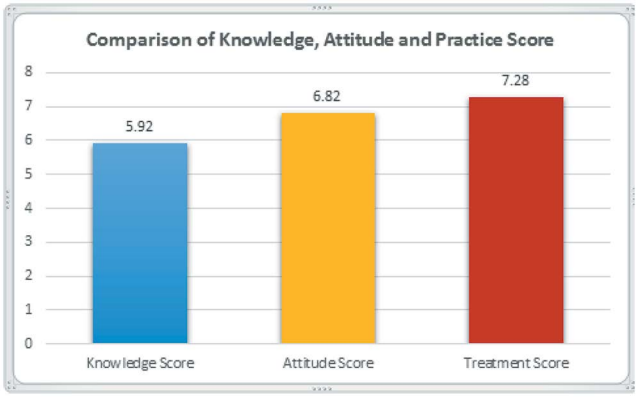


Figure 4. Comparison chart representing mean scores for knowledge, attitude and practice of hepatitis B among dental students.

Table 4. Correlation among knowledge, attitude and practice to Hepatitis B dental students

Correlations			
		Attitude Score	Practice Score
Knowledge Score	Pearson Correlation	-0.127	-0.172
	P value	0.120	0.035*
Attitude Score	Pearson Correlation		-0.062
	P value		0.451

5. Discussion

This questionnaire survey assessed the knowledge (which included general information, transmission, vaccination, and symptoms) and attitude (which included perception toward hepatitis B patients) and treatment modality amongst the graduating dentist and interns from Bangalore.

Findings from this study shows that, larger percentage of students have adequate knowledge about HBV infection. With regard to the transmission of HBV, greater percentage (80.7%) of students feel that the dentist can transmit Hepatitis to their patient if he/she does not use proper barrier techniques.

However, till date, vaccination remains as the major mode for preventing the spread of HBV. A big majority of students (89.30%) are aware about the existence of vaccination against Hepatitis. A survey done by Scully C and Bakaeen G among Jordanian Dental College students showed that about 90% of them were aware of the existence of the vaccination against hepatitis B and nearly 50% of the respondents had already inoculated themselves[9].

About 56.7% of students replied that they would carry out a sonic/ultrasonic scaling procedure in Hepatitis B patients. Dahiya P suggested that blood is very often found in the aerosols produced by the dental equipments such as an ultrasonic scaler or other high-speed equipments. Ultrasonic scaling is obviously associated with increased air contamination levels, confirming the results reported by several other studies showing that this procedure is the main executor of airborne contaminants in dentistry[10]. In the present study it was observed that, majority (72%) of students believed that they are ethically/morally responsible to treat a Hepatitis B patient.

It was noticed that 89.30% of students knew about the existence of the vaccination against Hepatitis B, but still only 75.30% of students were vaccinated against Hepatitis B.

A similar study by Yaacob HB, Samaranayake LP was done as a postal survey among 730 Malaysian dental practitioners among which 325 dentists responded, indicated that only 32% of the 325 respondents had been vaccinated, 41% wanted to be vaccinated, and 15% categorically refused vaccination out of unfounded fears of side effects including the threat of developing AIDS, cost of the vaccine, and such[11].

Similarly, a report from a recent Indian study done by Holenarasipur VA et al in 2013 among 1st- and 2nd-year dental students at a private dental institution found that bulk of the student respondents had sought immunization against HBV, and only 59.7% were actually aware of the root cause and effect of HBV[12]. Although general awareness about hepatitisB vaccination has increased significantly over the years, the dental students need to be made more aware about the necessity to be vaccinated and the vaccine schedule. In this present study, only 45.30% of students checked for antibiotics after vaccination which shows the importance of necessity of awareness among students about the vaccine schedule.

In the present study, 68% of total students think that they have to uphold the confidentiality of a Hepatitis B patient. This is in accordance to a similar survey done in Sebha University, Libya, where 67.7% of total graduating dentists believed that they have to uphold the confidentiality of a Hepatitis B patient[(1)].

In the treatment part, a greater percentage of students (67.3%) responded that they haven't treated a hepatitis patient knowingly. In the present study 80% of graduating dentists think special precautions are required to treat a hepatitis B patient. According to **Gautam R (2017)**

stated that there is a lower prevalence on Hepatitis B infection (0.4- 1.4%) possibly due to better preventive measures and awareness[13]. 73.3% of students think all the patients have to be tested for their Hepatitis B status. Many a times, the patients are unaware of exposure to HBV. Regardless of the medical history, all patients should therefore be regarded as potential HBV carriers[14] and hence, proper infection control protocol should be followed for every patient. Moreover patients may also show hesitation in disclosing their hepatitis status to their doctor. In the present study 46% of the students believe that patients who attended the clinic are true in disclosing their hepatitis B status. Majority of students (54%) believe that patients do not disclose their hepatitis status. This is similar to the result obtained from survey done in Sebha University, Libya[1] where in 74.7% of students believe that patients do not disclose their hepatitis status. Only 25.3% of students thought patients are truthful in disclosing the hepatitis status to the dentist.

In the present study only 39.3% of students thought, dentist/health care provider has the right to reject treating a Hepatitis B patient. Remaining 60.7% consider that they do not have right to reject treating a Hepatitis B patient.

6. Conclusion

The results indicate that there is need to spread greater awareness about risk and seriousness of the HBV infection among the graduating dentists. The current group of graduating dentists are knowledgeable about Hepatitis B. However, in spite of having sufficient theoretical knowledge, attitude towards treating patients with Hepatitis B is not satisfactory which is reflecting in their practice methods. Measures must be taken to improve the attitude of dentists towards treatment of Hepatitis B and the same to be reflected in their practice methods.

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