

Preventive Practices on Hepatitis B among the Stuff of Dental Faculty of Bangabandhu Sheikh Mujib Medical University

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Abstract

Original Research Article

Background: The study was designed to explore the preventive practices of hepatitis B among the staff of Dental faculty of Bangabandhu Sheikh Mujib Medical University, (BSMMU) Dhaka. **Methods:** This cross-sectional observational type of study was conducted at Dental department of BSMMU, Dhaka from October 2008 to March 2009. All the staff of this Department was enrolled as study population. Total 150 staffs of the Dental faculty were selected purposively. The study was conducted through direct face to face interview using an interview schedule during the study period. **Results:** Out of all patients 28.3% were age group of <35 years, 30.0% were of 36 to 45 years, 30.0% of 46 to 55 years and 11.7% above 56 years age group. Male and female ratio was 3: 1. Out of all staffs 33.3% were dentists, 20.0% were dental assistants and 46.7% were nurses and others. All dentists were graduated above and all dental assistants were educated up to higher secondary level. Among all nurses 35.7% were educated up to secondary level, 46.42% higher secondary and 17.86% graduate or above level. Approximately half of the dentists were engaged in the profession not more than 5 years, 27.5% for 6 to 10 years, 17.5% 11 to 15 years and 10.0% >16 years. Among dental assistants 66.67% practiced for <5 years, 33.33% for 6 to 10 years and among nurses and others 64.28% practiced for <5 years, 35.71% for 6 to 10 years. 60.8% of all dental staffs were vaccinated for HBV, out of them 97.5% were dentists, 58.33% of dental assistants and 46.42% of nurses and other dental staffs. Level of vaccination of dental staffs was significantly higher among dentists than other dental staffs. **Conclusion:** About sixty one percent of dental health care workers did not receive the vaccine against HBV infection. Basic barrier techniques to prevent cross-contamination were not being used consistently. Nationwide guidelines for barrier techniques and hepatitis vaccinations should be developed and disseminated to dental personnel. It is felt that the findings of the study will not only act as a guideline for preventive programs but also serve as a useful basis for future research and planning.

Keywords: Hepatitis B, liver disease, hemodialysis.

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INTRODUCTION

Hepatitis B is a major public health problem worldwide. The hepatitis virus (HBV) causes up to a million deaths worldwide and 16 million health care related infections in the tropics each year and over 350 million become chronically infected carriers who have no significant liver disease; approximately three

quarters of them are in Asia and the western pacific region [1]. HBV infection is a potentially life-threatening condition as many of the affected individuals' progress to chronic hepatitis, cirrhosis and hepatocellular carcinoma [2].

The true prevalence of Hepatitis B in Bangladesh is yet to be ascertained by a reliable study.

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Data available from different studies show that it ranges between 0.8 and 5.4% depending on the study design, samples and laboratory methods used. Relying on these statistics Bangladesh can be categorized as an intermediate endemic zone for HBV (WHO) [3, 4].

Most HBV infections in developed countries result from sexual activity, injection-drug use, or occupational exposure. Other, less frequent causes of infection include household contact, hemodialysis, transmission from a surgeon, and receipt of organs or blood products. No clear risk factors are found in 20 to 30 percent of patients, perhaps because of a reluctance to report high-risk behavior or possibly mucosal or other unrecognized routes of infection. Because HBV is present in serum in large quantities (10^8 to 10^{10} virions per milliliter), it is not surprising that HBV can also be detected in semen, saliva, cervical secretions, and leukocytes. Respiratory, water-borne, or insect-related infections have not been documented [5].

Very recently, dramatic development has been made in different types of health services in Bangladesh. Several health care institutions for the management of dental diseases have already been established in Dhaka and other part of the country both in private and public sectors. Bangabandhu Sheikh Mujib Medical University is the lone? Medical university and super-specialized Hospital in Bangladesh. Sophisticated technology and multidimensional services have been added a new dimension in this hospital for health care services recently. Dental Faculty is one of the richest departments in this university, considering this the current study was conducted in Bangabandhu Sheikh Mujib Medical University.

OBJECTIVES

General objective

To explore the preventive practices of hepatitis B among the staff of Dental faculty of Bangabandhu Sheikh Mujib Medical University, (BSMMU) Dhaka.

Specific objectives

1. To assess the level of knowledge of preventive practices of hepatitis B among the staff of dental faculty of BSMMU.
2. To assess the attitude towards preventive practices.
3. To describe the socio-demographic factors of staff of dental faculty of BSMMU.

METHOD

Study design

It was a cross sectional observational study

Study population

All the staff of the Dental Department of Bangabandhu Sheikh Mujib Medical University, (BSMMU) Dhaka

Study Area

Dental department of Bangabandhu Sheikh Mujib Medical University, (BSMMU) Dhaka

Study period

This study was conducted from January 2009 to June 2009.

Sample size

150 staffs of the Dental faculty of Bangabandhu Sheikh Mujib Medical University, (BSMMU) Dhaka

Data processing and analysis

Statistical calculation such as mean, standard deviations and appropriate statistical test was performed by SPSS computer program. The descriptive and inferential statistics was used accordingly. Tabular and graphical presentation and chart was used.

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Ethical consideration

1. Following the WHO and Bangladesh medical research council BMRC guidelines of ethical consideration, the informed consent was taken before the interview.
2. Respondent's right to refuse and withdraw from the study any time was accepted.
3. Confidentiality of the respondents was maintained.

RESULTS

Table-1: Age distribution of the patients

Age	Frequency	Percent
<35	34	28.3
36-45	36	30.0
46-55	36	30.0
>56	14	11.7
Total	120	100.0

Age distribution of the patients shows 28.3% were age group of <35 years, 30.0% were of 36 to 45 years, 30.0% of 46 to 55 years and 11.7% above 56 years age group.

Table-2: Gender distribution of the patients

	Frequency	Percent
Male	90	75.0
Female	30	25.0
Total	120	100.0

Table shows the sex distribution of the patients. Out of all patients 75.0% were male and 25% were female. Male and female ratio was 3:1

Table-3: Status of Hepatitis B Vaccination among Dental Personnel

Occupation	Vaccination N (%)		
	Yes	No	Total
Dentist	39 (97.5)	1 (2.5)	40 (33.3)
Dental assistant	14 (58.33)	10 (41.67)	24 (20.0)
Nurse and others	26 (46.42)	30 (53.57)	56 (46.7)
Total	73 (60.8)	47 (39.2)	120 (100)

p <0.001,

X² test was done to measure the level of significance.

60.8% of all dental staffs were vaccinated for HBV, out of them 97.5% were dentists, 58.33% of dental assistants and 46.42% of nurses and other dental

staffs. Level of vaccination of dental staffs was significantly higher among dentists than other dental staffs.

Table-4: Status of Knowledge of Hepatitis B Surface Antibody State among Dentist

Occupation	HBs Ab positive, n(%)			
	Yes	No	Not known	Total
Dentist	35 (87.5%)	4 (10.0)	1 (2.5)	40 (33.3)
Dental assistant	10 (41.67)	4 (16.66)	10 (41.67)	24 (20.0)
Nurse and others	20 (35.7)	6 (10.7)	30 (53.6)	56 (46.7)
Total	65 (54.17)	14 (11.67)	41 (34.1)	120 (100)

p <0.001, X² test was done to measure the level of significance.

Among dentists 87.5% were HBs Ab positive, 10.0% negative and 2.5% were unknown about their Ab status. 41.7% of dental assistants were positive, 16.6% negative and 53.6% did not know their Ab status.

35.7% of nurses and others, 10.7% negative and 34.1% unknown about HbsAb status. Dentist were more likely to know their status than other dental personnel (P<001).

Table-5: Use of Basic Barrier Techniques for Infection Control

Occupation	Face mask n (%)	Gloves n (%)	Protective eye wear n (%)
Dentist (n=40)			
All patients	33 (82.5)	11 (27.5)	3 (7.5)
Some patients	5 (12.5)	23 (57.5)	7 (17.5)
Never	2 (5.0)	6 (15.0)	30 (75.0)
Dental assistant (n=24)			
All patients	4 (16.6)	2 (8.3)	1 (4.1)
Some patients	13 (54.2)	9 (37.5)	1 (4.1)
Never	7 (29.2)	13 (54.2)	22 (91.8)
Nurse and others (n=56)			
All patients	9 (16.1)	9 (16.1)	0
Some patients	11 (19.6)	11 (19.6)	0
Never	36 (64.3)	36 (64.3)	56 (100.0)
p	p<0.001	p<0.001	p<0.001

*X² test was done to measure the level of significance.

Among Dentists, 82.5% of wear face mask in all patients, 12.5% in some cases and 5.0% never use face mask. 27.5% wear gloves in all cases, 57.5% some times and 15% never. 7.5% use eye wear in all patients, 17.5% some patients and 75.0% never use eye wear.

Among Dental assistants 16.6% wear face mask in all patients, 54.2% in some. Cases and 29.2% never use face mask. 8.3% of wear gloves in all cases, 37.5% some times and 54.2% never use gloves. 4.1% dental assistants use eye wear in all patients, 4.1% some patients and 91.8% never use eye wear.

Among Nurses and other staffs 16.1% wear face mask in all patients, 19.6% in some cases and 64.3% never use face mask. 16.1% wear gloves in all cases, 19.6% some times and 64.3% never and none of them use eye wear. Significantly higher-level perfection is taken by Dentists than other dental professionals ($p < 0.001$).

DISCUSSION

Several studies have attempted to define the risk of infection for dental personnel [6, 7]. It has been suggested that members of the dental team have a higher risk than the general population of contracting infections and sustaining physical or chemical damages.

Previous evidences support the transmission of hepatitis B from patient to dental staff and, less commonly, from dental staff to patients [8, 9]. The department of Health, UK now recommends all healthcare workers in general practice, including dental practice staff, to be immunized against hepatitis B [10]. Applications for registration of general dental council (GDC) for all dental care professionals should compulsorily provide a healthcare certificate confirming immunization since 31 July 2008 [[11].

Hepatitis B immunization among dentists ranges from 6% to 95% but it has increased during the past few years [12, 13]. In present study 60.8% of all dental staffs were vaccinated and level of vaccination was significantly higher among dentists than other dental staffs.

The CDC now recommends post vaccination testing of antibody titers. In current study among dentists 87.5% were HBs Ab positive, 10.0% negative and 2.5% were unknown about their Ab status. 41.7% of dental assistants were positive, 16.6% negative and 53.6% did not know their Ab status. 35.7% of nurses and others, 10.7% negative and 34.1% unknown about HbsAb status. Awareness of antibody status was high in dentists (72%), but low in hygienists (36%) and assistants (44%). Dentists were more likely to know their status than other dental personnel ($P < .001$).

Dentists, hygienists, and dental assistants are advised to wear an operating mask, gloves, and protective eyewear when providing dental treatment. Of the universal infection control precautions, gloving arguably contributes the most to overall patient, practitioner, and staff protection. A study found that only 24 percent of the 431 oral surgeons surveyed used gloves with all patients [13]. In de Souza *et al.*, series 99.5% dental students always use gloves for all procedures. Eye protection was always used by 84.2% of students, and all the students used face masks for all procedures [14].

Bokhari *et al.*, found that 94.35% qualified practitioners used gloves as compared to only 28.2% of

the un-qualified practitioners and a high percentage of qualified practitioners used gloves for every patients compared to their un-qualified counter parts (85.48% and 14.35%) respectively. 97.5% qualified practitioners and 80.3% of the un-qualified dentists used face masks. 85.10/c, of un-qualified and 98.3% of the qualified dental practitioners used fresh set of instruments for each patient. In a study by Song *et al*, about eighty nine percent dentists reported that they wore a mask with all patients, while hygienists (13.6%) and assistants (13.0%) were less likely to do so. Reported use of gloves (4.5%) and protective eyewear (14%) with all patients was extremely low in every group, which is consistent with our study [15]. In our study 82.5% of dentists wear face mask, 27.5% wear gloves and only 7.5% use eye wear in all patients. Among Dental assistants 16.6% wear face mask, 8.3% of wear gloves and 4.1% wear eye wear in all patients. Among Nurses and other staffs 16.1% wear face mask in all patients, 16.1% wear gloves in all cases and none of them use eye wear. Significantly higher level barrier precaution is taken by Dentists than other dental professionals ($p < 0.001$).

CONCLUSION

The current study was carried out to evaluate the level of preventive practices on hepatitis B among the staff of dental faculty of Bangabandhu Sheikh Mujib Medical University (BSMMU). About (61%) of dental health care workers did not receive the vaccine against HBV infection. Basic barrier techniques to prevent cross-contamination were not being used consistently. Nationwide guidelines for barrier techniques and hepatitis vaccinations should be developed and disseminated to the dental personnel.

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