Short Communication

Perceptions, beliefs, and awareness of Dental College Students of western India regarding Hepatitis B Vaccination

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Abstract

Background: The threat posed by the global HBV epidemic continues to assume alarming proportions in areas of public health and national development. Globally, 2 billion people have been infected with HBV at some point in time in their life time and 360–400 million people,representing more than 5% of the world's population are chronic carriers with anestimated 600,000 deaths each year due to consequences of HBV.

Objective: The objectives of this study were to assess the hepatitis B vaccination awareness, status, reasons for non-compliance, and the risk of exposure to dental students at dental college and hospital.

Material and Methods: A total of 250 dental college students in Jodhpur region of Rajasthan were included in the survey. The tool of study was a structured questionnaire specially designed for this study.

Result: The study showed that on average, sampled students had a fair idea about hepatitis B even though there were significant differences between rural and urban adolescents. The study also discovered a significant difference between female and male students regarding their knowledge about types of HBV and different modes of transmission especially the horizontal one.

Conclusion: This study was able to highlight 3 thematic areas and the need for prompt action to be taken. Firstly, the study deduced that majority of dental students of this region were not knowledgeable about the modes of transmission and effects of HBV. Secondly, the issue of stigmatization against already infected persons was very strong among students. Thirdly, vaccination was very low among dental students.

KEY WORDS: Hepatitis B, Dental students, Vaccine

Introduction

Viral hepatitis is one of the most common diseases worldwide. Hepatitis B, also called inflammation of the liver, which was the first to be discovered, is one of the 5 types of hepatitis and can cause both acute and chronic diseases. The global burden of hepatitis B is severe with an estimated 360 million people or more being chronic carriers. The major routes of hepatitis B transmission include blood transfusion, from mother to infant during child birth, and sexual contact. In most countries where HBV prevalence is low, transmission usually occurs during adolescence or young adulthood as a result of the unsafe injections and unprotected sexual activities. Research has revealed that, an estimated 21 million new HBV infections occur each year due to unsafe injections in health care settings.[1] In less developed countries, the use of crude methods during injections such as reused

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unsterilized or improperly sterilized needles and syringes are estimated to cause millions of cases of hepatitis B and C as well as HIV and other blood borne diseases globally.[2] The carrier rate of HBV infection in Rajasthan is between 3 and 5% and is responsible for 20–25% of liver cirrhotic patients. Approximately, one third of infections among adults go unnoticed due to the asymptomatic nature of hepatitis B infections.[3] It is also important to state that even though India forms part of the 134 developing countries and economies in transition that have successfully introduced hepatitis B vaccine into their National Immunization Schedules by 2003, particularly for newly born infants (aged 6–14 weeks), there is no program for mass screening and vaccination of children born before vaccine introduction, no screening for mothers, adolescents, and the general public.[4] Like other health care workers, dentists are at an increased risk of exposure to HBV infection. Studies have shown that risk of exposure for general dentists is about 3 to 4 times greater, and for non-immunized surgical specialists about 6 times greater than that of general population.[5,6,7]

Taking these facts into consideration, the present study was designed with an aim to determine the perceptions, beliefs, and awareness of dental college students regarding the hepatitis B vaccine.

Materials and methods

Study design

It was a descriptive cross-sectional survey. This type of study design was chosen because, considering the purpose of this study, the research questions and the target population, it is the most appropriate design that will help the researcher design and collect data from respondents. This type of study design determines and report the way things are. The design has the advantage of eliciting responses from a wide range of people. It involves asking the same set of questions to large number of individuals through mails, telephone, and by hand on the basis of data gathered at a point in time. It is also appropriate when the researcher attempts to describe some aspects of a population by selecting unbiased samples of individuals who are asked to complete questionnaire, interview, and test.

Study participants

The target population of the study was dental college students who are all adults in Jodhpur region of Rajasthan. A simple random sample of 250 respondents were included in the study taking into cognizance the total population of the dental students in the study area in order to facilitate generalizability.

Sampling procedure and sample size

Cluster sampling technique was used in the study. In the first stage, both the dental colleges of the district were selected. In second stage, students who were posted in the clinical departments of each college. Those studying in the 3rd and 4th year of their course were selected to respond to the questionnaire.

Data collection tool

The main instrument used for the data collection was a standardized close-ended questionnaire which was anonymous and did not require any identity and all data were kept confidential. The questionnaire was divided into 4 major sections including knowledge, awareness, and beliefs about the disease and its vaccination. It total 24 items were covered across 4 sections of The questionnaire. Section A sought to know the respondents background information such as age, sex, educational level, and area of residence. Section B basically talks about dental student's knowledge about hepatitis B. Section C talks about the attitude of students towards the spread of the hepatitis B disease as well as their attitude towards carriers of the disease. Section D was to enquire from dental students what they are doing in their own capacity to prevent themselves from contracting the disease by means of the practices they engage in.

Data collection

A suitable time for the research was agreed upon by deans of the colleges and the researcher for the administration of the questionnaire. After the selection process, a vivid explanation was made to the students sampled for the study, the purpose of the research as well as their right to opt out of the study if they so wish and the need for them to answer the questions individually. The researcher also assured them of confidentiality and promised not to release the data for any other purpose apart from the purpose it was meant for. After the explanation, the questionnaires were personally administered to the dental students with the help of class representatives of the various batches that were posted and showed a lot of interest in the research. They were given 15 minutes to respond to the questions, after which the questionnaires were collected back from them.

Statistical analysis

Data were compiled using Microsoft Excel software and analyzed using EpiInfo version 7. Descriptive statistics in the form of cross tabulation and Pearson chi-square tests were used to test the statistical significance with a significant level of 0.05. Frequencies and percentages were generated. There were no missing values in the data analysis.

Ethics consideration

A written informed consent was obtained from the deans of the dental colleges involved in the study. An oral informed consent was also obtained from adolescents who were willing to participate in the study. Institutional consent and ethical approval was sought from the Department of Public Health, JN University, and the State Health Service Directorate of Research and Ethics Committee.

Results

The overall response rate was 250. In the study, 66.97% were females and 33.03% were males. On an average, 86.85% of the students were correct and 13.75% of the students were incorrect regarding their knowledge about transmission of HBV, as shown in Table 1; their knowledge was not affected by the years of study in dentistry. Regarding vaccination, 36.05% (n=77) of the students had not received the required course of hepatitis B vaccine. Out of them 11.6% (n=24) had not received even a single dose. Most common reason stated by the students for not receiving the vaccine or not completing the required course was that they had not thought about it (51.4%). Other common reasons included difficulty in obtaining the vaccine (18.5%) and fear of vaccine (17.1%) (Table 2).

Booster dose was taken up by only 37.7% of the dental students who had completed vaccination course, and 44.2% of the final year students had received booster dose compared to 34.6% of 3rd years (Table 3). One-hundred forty-five students in the study admitted at having received at least one needle or sharp injury and no action was taken after the injury (Table 4).

Table 1: Results regarding the respondent's awareness for transmission of HBV infection

Statement regarding awareness	Correct (%)	Incorrect (%)
Transmission of hepatitis B virus results from exposure to infectious blood or body fluids	88	12
Transmission of hepatitis B virus results from needle stick injuries	95	5
Transmission of hepatitis B virus results from unprotected sexual contact	92	8
Hepatitis B infection is preventable by vaccination	94	6
Chronic hepatitis infection results in liver cirrhosis and hepatocellular carcinoma	68	32
Patients undergoing surgical dental procedures to be investigated for HBV	95	5
Dental personnel infected with hepatitis B should avoid patients' treatment, especially surgeries	76	24
Average	**86.85**	**13.15**

Table 2: Reasons for not taking vaccine

Traits	No.	Percentage
Ignorance	40	51.4
Did not know	0	0
Expensive	4	5.5
Lack of easy access	14	18.5
Fear of Adverse effects	13	17.1
Others	6	7.5

Table 3: Vaccination status of dental students with receiving booster dose

Studying year	Action Taken (Viral Screening)			
	Yes		No	
	No.	%	No.	%
Final year	33	44.2	44	55.8
Third year	47	34.6	89	65.4
Total	80	37.7	133	62.3
p-value	0.041			

Table 4: Vaccination status of dental students with action taken (viral screening) after injury (n=145)

Studying year	Action Taken (Viral Screening)			
	Yes		No	
	No.	%	No.	%
Completed	22	20.2	87	79.8
Not Completed	2	5.6	34	94.4
Total	24	16.6	121	83.4
p-value	0.041			

Discussion

In health care delivery, HBV transmission poses a major challenge to both patients and health workers especially those who frequently come into contact with blood. These groups of people stand a higher chance of contracting the disease if care is not taken. Even though HBV has become a major source of health concern worldwide, we should also be reminded by the good news that it is the only STD that can be prevented by vaccination. The disease is prevented by the use of safe and effective vaccine which became available in 1982 through funding and implementation of hepatitis B immunization programs.

A great majority of students in our study responded that the most common reason for them not being vaccinated or not completing the required course is that they have not thought about it. It seems that while the dental students are careless on their part on acquiring the vaccine, a health policy is lacking which would have ensured that the doctors get complete vaccination before they enter into professional training.

An important finding of this study was that the final year students were more likely than their juniors to have completed the required course of hepatitis B vaccine. This suggests that the awareness among junior students is less as compared to their seniors. Or it may simply be the negligence on part of junior students, which accounts for this behaviour. It has been estimated that the risk of acquiring HBV infection following puncture with a needle contaminated by an HBV carrier ranges from 6% to 30%. Dental students who had received

injury and were incompletely vaccinated against hepatitis B were 24.8% in our study. This again highlights the negligence and lack of awareness amongst dental students. An alarming (94.4%) proportion of the students in our study who had received injury and were incompletely vaccinated admitted that, no action was taken after injury. This again highlights the need for the streamlining of the safety measures dental students observe and to educate them about the risks posed by such injuries.

Conclusion

Conclusively, this study was able to highlight 3 thematic areas and the need for prompt action to be taken. First and foremost, even though most dental students have a fair idea about the disease HBV, the study deduced that majority of them were not knowledgeable about the causes, modes of transmission, and effects of HBV. Secondly, vaccination which is paramount for HBV prevention was very low among them. This was either due to lack of well-equipped health facilities or lack of perceived risk among them. We also conclude that it is the lack of awareness and carelessness on the part of dental students coupled with the negligence of the risk that has led them being incompletely vaccinated. While as dental students continue to be exposed to needle prick and sharp injuries, they do little afterwards to minimize the risk of spread of infection from the patients. This again can be attributed to the lack of awareness and to students' underestimating the severity of the consequences.

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