

Original Article

Prevention of Hepatitis B; knowledge and practices among Medical students

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Abstract

Background: Hepatitis B is the major infectious disease of mankind. It is the most common cause of chronic hepatitis, liver cirrhosis and hepato-cellular carcinoma World wide. The health professionals are at the maximum risk. Vaccination against Hepatitis B can prevent this deadly disease. This survey was conducted to assess the knowledge and status of Hepatitis B vaccination among the medical students of B.J. Medical College, Ahmedabad, Gujarat, India.

Methods: A cross-sectional study was conducted among 150 medical students of II, III/I and III/II year Professional course. Pretested questionnaire were administered to 50 students of each semester. Data was analyzed using SPSS version 16.0.

Results: 86.7 % of the medical students had correct knowledge about Hepatitis B virus, though only 66 % of II year students knew about the virus. Majority of the medical students had correct knowledge regarding mode of transmission. However, the knowledge was found to be less among II year students. Only 20% of the II year students had the correct knowledge regarding Post Exposure Prophylaxis for hepatitis B. 29.3% of the medical students were not vaccinated for Hepatitis B.

Conclusion: The present study indicates that there is lack of awareness about Hepatitis B, its route of transmission and modes of prevention among the medical students entering into the profession. Similarly, all the students were not vaccinated against Hepatitis B, which makes them vulnerable to the disease.

Key Words: Awareness, Hepatitis B, Prevention, Vaccination

Introduction

Hepatitis is an inflammatory disease of the liver which may be caused by the Hepatitis B virus (HBV). Hepatitis B is a global problem, with 66% of all the world population living in areas where there are high levels of infection¹. There are more than 2 billion people World-wide, having evidence of recent or past HBV infection and 350 million are chronic carriers.

In South East Asian Region, there are estimated 80 million HBV carriers (about 6% of the total population).² India has the intermediate endemicity of hepatitis B, with hepatitis B surface antigen prevalence between 2% and 10% among the population studied. The number of carriers in India has been estimated to be over 40 million.³

The practice of modern medicine has “contributed” a lot in the increase of the cases and spreading the disease in the society. Hepatitis B infections are common due to lapse in the sterilization technique of instruments or due to the improper hospital waste management as 10 to 20% health care waste is regarded hazardous and it may create variety of health risk.⁴ Among the health care personnels’, HBV is transmitted by skin prick with infected, contaminated needles and syringes or through accidental inoculation of minute quantities of blood during surgical and dental procedures. Knowledge regarding the Hepatitis B virus and safety precautions is needed to minimize the health care settings acquired infections among health personnel. They should have complete knowledge of Hepatitis B infections, importance of vaccinations and practice of simple hygienic measures apart from that of specific protective measures.

Medical students being part of the health care delivery system are exposed to the same, if not greater, magnitude of risk as other health care workers when they come in contact with patients and contaminated instruments. They are the first level of contact between patients and medical care. They are expected to undertake activities related to patient care with the beginning of their clinical years. After the epidemic outbreak of Hepatitis B in Modasa town of Sabarkantha District of Gujarat, it was decided to find out the level of awareness among medical students who are at the highest risk of developing hepatitis B during their clinical postings. As on date, very few studies have been conducted to find out the knowledge of medical students regarding Hepatitis B. Therefore this study was conducted to assess the

knowledge, attitude and practices regarding Hepatitis B, amongst medical students.

Methods and material :

The medical curriculum in universities across Gujarat spans over a period of 5½ years. From 2nd year onwards, students begin their clinical rotation at majority of the institutions. Therefore a cross-sectional study was conducted amongst the 2nd, 3rd part I and 3rd part II students of B.J.Medical College, Ahmedabad, Gujarat, India. Students of preclinical years (1st year) were excluded from the study. A total of 150 students were recruited using a non probability random sampling technique, through lottery method in which all the units of the population were numbered from 1 to N for all three batches (sampling frame). These numbers were written on small slips of paper, of the same size. The slips were thoroughly mixed and one slip was picked up to select one unit. Again the populations of slips were mixed and the next unit was selected. In this manner, the numbers of slips equal to the sample size 150 were selected. The units of the population which appeared on the selected slips made the simple random sample. This method of selection is commonly used when size of the population is small. A pretested structured questionnaire was administered during a two weeks period in February 2010, to collect information about the knowledge, attitude and practices of students regarding hepatitis B. Data was entered and analyzed in SPSS version -16 and was presented in form of simple tables and graphs.

Results :

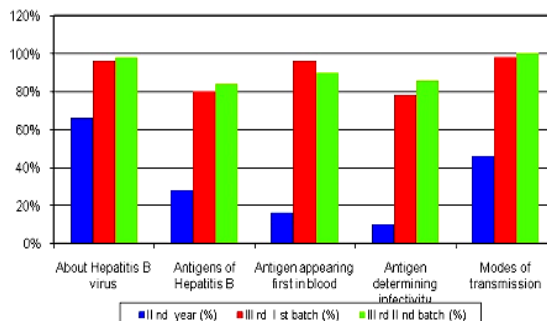
A total of 150 students belonging to II year, III/I and III/II were approached for the study. 50 students each were taken from each semester. The mean age of respondents was 21.02 ±1.59 years.

Knowledge regarding Epidemiology of Hepatitis B Virus

86.7 % of the medical students had correct knowledge about Hepatitis B virus though only 66 % of II year students knew about the virus as compared to III year (96%) students. The difference between the knowledge of II and III year medical students was found to be statistically significant at 95% confidence interval (Z=4.28). 64 % of medical students had the knowledge regarding antigens of hepatitis B virus however very few students of II year had the knowledge as compared to III year students. Regarding Antigens appearing first in blood and antigens determining infectivity, the overall

knowledge was fair but it was very low among II year students. The knowledge about mode of transmission was less in II year students as compared to III year students.(Figure 1)

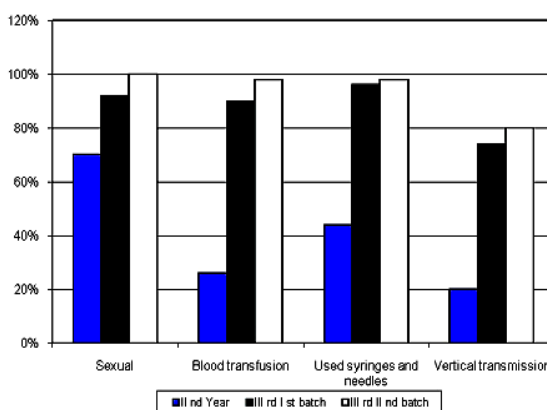
Figure 1: Knowledge regarding Epidemiology of Hepatitis B Virus:



Knowledge regarding transmission of Hepatitis B

Majority of the medical students had correct knowledge regarding mode of transmission however the knowledge was found to be less among II year students as compared to III years students .The knowledge about transmission of Hepatitis B through sexual route (74%) by used needles and syringes (83%) by blood transfusion (87%)and through vertical transmission (78%) was fairly high among overall medical students however only (20-40%) of the II year medical students had correct knowledge regarding the same.(Figure 2)

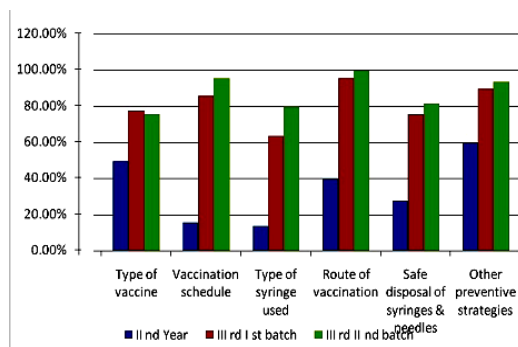
Figure 2: Knowledge regarding transmission of Hepatitis B



Knowledge regarding prevention of Hepatitis B

The study reveals that majority of the III year students knew about the vaccine type , vaccination schedule ,type of syringes ,route of administration ,safe disposal of syringe and needles and other preventive strategies .Very few second year students had correct knowledge regarding the same.(Figure 3)

Figure 3: Knowledge regarding prevention of Hepatitis B



Knowledge regarding Post Exposure Prophylaxis for Hepatitis B

The students were asked about risk and post exposure prophylaxis of Hepatitis B. Majority of the students of III year gave correct answers of the questions while only 20% of the II year students had the correct knowledge regarding PEP for hepatitis B.

Vaccination Status among medical students

84 % of the II year medical students were completely vaccinated for hepatitis B as compared to final year students where complete vaccination was observed among only 50-60 % of the students. The vaccination was found to be less among girls as compared to boys. Though it was statistically insignificant among III year students but significant difference was observed among II year students at 95% confidence interval. ($X^2=4.50, p<0.05$)(Table 1)

Reasons for not taking vaccine of Hepatitis B

29.3% of the medical students were not vaccinated for Hepatitis B. Reasons were, “vaccination is not necessary” (36%), lack of information (28.50%) and “afraid of needles” (14.3%).

Table 1: Vaccination Status among medical students

| Vaccination status | II year | | | III / I batch | | | III / II batch | | |
|-----------------------------------|--------------------|----------|------------|--------------------|----------|------------|--------------------|----------|------------|
| | B (N=25) | G (N=25) | Tot (N=50) | B (N=25) | G (N=25) | Tot (N=50) | B (N=25) | G (N=25) | Tot (N=50) |
| Hepatitis B vaccine taken | 21 | 13 | 34 | 16 | 15 | 31 | 16 | 13 | 29 |
| Hepatitis B vaccine not taken | 4 | 12 | 16 | 7 | 5 | 12 | 5 | 11 | 16 |
| Percentage of vaccinated students | 84% | 52% | 68% | 64% | 60% | 62% | 64% | 44% | 58% |
| Chi-square with Yates correction | $X^2=4.50, p<0.05$ | | | $X^2=0.00, p>0.05$ | | | $X^2=1.98, p>0.05$ | | |

Discussion

HBV infection is caused by DNA virus with incubation period of 21-135 days.⁵ Hepatitis B virus (HBV) infection is an occupational risk for

physicians and surgeons especially in developing countries where a carrier rate is about 4%. HBV infection kills about 1.1 million people globally every year⁶. However, incidence of HBV infection could be brought down by giving proper education regarding its transmission and immunization of all medical students with Hepatitis B vaccine.

The level of knowledge regarding epidemiology was fairly good among III year medical students as compared to II year students. There is no formal school based health education in our country which may be the important reason of lower knowledge of Hepatitis B among II year students. Similar level of knowledge was found in the medical students of Delhi⁷. However the medical final year students are more knowledgeable as compared to students of Bangladesh and that of Vietnam⁸.

Scientific knowledge regarding HBV transmission is essential for medical students. They can take proper protection during their clinical posting as HBV is 50 times easier to transmit than HIV⁹. The study revealed majority of the final year medical students and very few students of II year had correct knowledge regarding transmission of the disease in contrast to first year students in Karachi who had better knowledge regarding the transmission.¹⁰

It is common information and many students have concluded that compared to other health care workers, medical students were more at the risk of exposure to risk factors of hepatitis B and especially per-cutaneous injuries^{11,12,13,14,15,16,17}. Final year students had better knowledge regarding prevention of HBV as compared to first year students. There is need for more focused efforts and preventive measures to be put in to protect the medical students from the deadly infection. Regarding PEP only 20% of the second year students were aware which calls for well structured health education programs stressing on the misconceptions prevalent among the students.

In the present study, 63% of the students were vaccinated against Hepatitis B. Although the percentage of vaccinated students was high among second year students but it is not statistically significant ($X^2=4.35, df=2, p>0.05$). This was higher than the vaccination status of 42% reported among medical students of Lahore and the vaccination status in a similar study conducted in Bombay.¹⁸ However in the present study, vaccination status of medical students was lower than the vaccination rate of 80% in

medical student, high lighted by a similar study conducted in Orissa, India.¹⁹

The present study concludes that there is lack of awareness among the medical students entering into the profession about the hazards of Hepatitis B, its transmission and mode of transmission. More over, all the students were not vaccinated against Hepatitis B, which made them more vulnerable to the disease. Since medical students are at increased risk of acquiring needle stick injury, and increased prevalence rate of Hepatitis B in India, medical students should be routinely vaccinated upon entry into the medical college. It is recommended that a policy be implemented for complete vaccination and health education of all medical students in first year in all medical colleges in our region. However, antibody titers should be routinely checked among all vaccinated because of non-response to the first series of vaccination.

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