

Original Research Article

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Knowledge and Attitude of Medical Students towards Hepatitis B Infection

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ABSTRACT

Health care personnel especially medical students represent high risk population for Hepatitis B virus (HBV) infection. This study sought to assess the knowledge and attitude of medical students towards hepatitis B infection and its transmission and prevention. A cross-sectional study was conducted among 200 medical students at Tirunelveli Medical College. A self-administered questionnaire was used for data collection. In addition to basic demographic characteristics, the questionnaire included 18 questions about routes and modes of transmission, sequel and prevention of HBV. The students were also asked about their vaccination status. A high proportion of the study participants (72%) had good knowledge about HBV while 28% had acceptable knowledge. Good knowledge score was significantly higher among clinical year students ($p < 0.005$). Only 57% of them were vaccinated against HBV. The vaccination rate was same among pre-clinical year students (57%) and clinical year students (57%) ($p = 1.0$). The vaccination rate was highest among those who had good knowledge (59%), in comparison to those with acceptable knowledge (52%), ($p < 0.353$). Knowledge about HBV among the medical students at Tirunelveli Medical College is relatively good, with important gaps which need to be filled. A critical level of public awareness and vaccination coverage, particularly among pre-clinical year students, are essential to decrease burden of the disease in the future.

Keywords

HBV,
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Introduction

Hepatitis is an inflammation of the liver and may be caused by the virus Hepatitis B (HBV). Hepatitis B virus infection is a global problem, with 66% of all the world population living in areas where there are high levels of infection. (Park, 2007) There are more than 2 billion people worldwide, having evidence of recent or past HBV infection and 350 millions are chronic carriers of hepatitis B infection. In South East Asian Region there are estimated 80

million HBV carriers (about 6% of the total population. (Malik *et al.*, 2000) 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 carrier in India has been estimated to be over 40 million (Tandon *et al.*, 1996).

The practice of modern medicine has contributed lot in the increase of the cases

and spreading the disease in the society. Hepatitis B infection 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. Among the Health Care Personnel's, HBV is transmitted by prick of infected, contaminated needles and syringes in the skin or through accidental inoculation of the 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 to practice 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 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. Therefore, this study will be undertaken to assess the knowledge of medical students regarding hepatitis B infection and its transmission and prevention.

Subject and Methods

This cross sectional study was conducted among undergraduate medical students at Tirunelveli Medical College from July to August 2014. A total of 200 randomly selected students, from both preclinical (first, second year) and clinical (third and fourth year) study years, were invited to participate in the study. A specially designed

questionnaire was used for data collection. In addition to basic demographic characteristics, the questionnaire included 18 questions about routes of transmission (7 questions), modes of transmission (6 questions) and sequel and prevention of HBV (5 questions). The students were also asked about their vaccination status. The 18 questions included both correct and wrong statements on general routes and modes of transmission. One of the questions assessed students' knowledge about which virus, HBV or HIV, is more easily spread from person to person. The students were asked to answer each question with 'yes' or 'no'. Each correct answer was given a score of '1' while a wrong answer was given a score of '0'. Students' knowledge was classified to three levels according to the total score obtained; a total score of 0-6 was regarded as poor knowledge, 7-12 as acceptable knowledge and 13 and above as good knowledge. It was also pre-tested on ten students from both preclinical and clinical years to assess the reliability. All questions were clearly understood by students. The anonymity of respondents was assured and their verbal consent was obtained. The Institutional Research Ethics Committee approved the study. The statistical package for social sciences version 18 was used for data entry and analysis. Pearson chi Square was used to find the association at 0.05 level. A p value of ≤ 0.05 was regarded as statistically significant.

Results and Discussion

Of 200 students participated in the study, 50 % were females and 97% were in age group 20-21 year. Detail of demographic characteristics of participants shown in Table 1.

A high proportion of the study participants (72%) had good knowledge about HBV

while 28% had acceptable knowledge. Majority of respondents knew that HBV can be contracted from blood transfusion (89.5%) and infected needles (92%) while (76.5%) said that the disease can be transmitted through sexual contact. The proportions of respondents who had knowledge about household transmission through non-sexual routes like sharing razors, sharing toothbrushes and sharing towels were 69%, 39.5% and 85%, respectively. A relatively high proportion of the participants incorrectly identified the routes of transmission such as feco-oral route (40.5%), cough (31%) and holding hands (15.5%). About 93.5% of respondents knew that HBV is more easily spread from person to person than HIV, while about 92.5% of respondents knew that healthy carriers can infect others. Over 76% of participants thought that people with HBV can be infected for life and 87% mentioned that HBV can cause liver cancer while 42.5% considered it a curable disease. In terms of knowledge about preventive measures, 93% of respondents correctly identified vaccination as a way of preventing HBV infection but only 57% of students were vaccinated against HBV infection. Details of students' knowledge about HBV are shown in Table 2.

There was statistically significant association between gender of students and their knowledge scores ($p < 0.005$) and the good knowledge score was significantly higher among students aged 20 years and above and students in clinical year study ($p < 0.0001$) (Table 3).

Only 57% students were vaccinated against HBV. The vaccination rate was the same between the clinical year study students (57%) and the pre-clinical year students (57%) ($p=1.0$) which has no statistically significant association. The vaccination rate

was highest among those who had good knowledge (59%) in comparison to those with acceptable knowledge (52%) which was statistically significant ($p < 0.353$) (Table 4).

Health care related transmissions of HBV have long been recognized as a source of HBV infection. Transmission of infection from patients to health care providers was common before widespread HBV vaccination of health care workers. HBV is a major health problem globally casting an enormous burden on health care system and major source of patient's misery. Health care workers, especially medical students are always in direct contact with patients and are vulnerable to the acquisition of these infectious diseases. They are involved in blood transfusion, injections and surgical operations in their practices. They should be aware of the risk involved in the treatment procedures and should take appropriate precautions in dealing with patients. (Shepard *et al.*, 2006)

A high proportion of study participants (72%) had good knowledge about HBV. In contrary, two other studies from Erbil, Iraq reported a high proportion of medical students and health care workers having poor knowledge about HBV, 49.3% and 14%, respectively. But a similar study from Ahmadabad, India had reported a good Knowledge of 86.7% about HBV among health care workers.

Majority of the medical students in this study identified blood transfusion and contaminated needles as the most important route of HBV transmission. However, a relatively low proportion of them identified sexual contact and sharing of household tools as important routes of transmission. In two other studies from Pakistan and India, an even higher proportion of medical

students identified the most common modes of transmission of HBV correctly. But a similar study from Erbil, Iraq shows relatively low proportion of medical students identified sexual contact and sharing household tools as important routes of transmission. Interestingly, many study participants (40.5%) wrongly identified feco-oral route and its attributes like eating food prepared by an infected person and cough as modes of transmission. A similar study from Erbil, Iraq only around half of the students had identified HBV is more easily spread than HIV. Such wrong perception might be related to their confusion between HBV and Hepatitis A virus infection which is common among people. In this study, almost all the students recognized that HBV is more easily transmitted than HIV. The wrong understanding of HIV being easier transmissible than HBV is common in many societies where HIV is a source of panic and stigma. (Soto-Salgado *et al.*, 2011) However, it is striking to have such wrong understanding (6.5%) among medical students too.

There was statistically significant association between the gender of students and their knowledge scores, the good

knowledge score was significantly higher among female students. Two similar studies from Egypt showed no statistically significant association between knowledge and gender of the students. (El-Nasser *et al.*, 2013)

Students' knowledge about HBV vaccine was satisfactory, in which 93% of students had knowledge about vaccination against HBV infection as one way of prevention of the disease. But a low proportion of the students (57%) had received HBV vaccination. The reason for such low vaccination rate could be attributed mainly because of poor policies of vaccination against HBV. But a similar study from Erbil, Iraq showed that the knowledge about HBV vaccine among medical students was not satisfactory (64%).

Interestingly, HBV vaccination rate (57%) was same among clinical year students and pre-clinical students. This finding was in disagreement with another study from India where 84 % of the medical students in the preclinical year were completely vaccinated for HBV as compared to 50-60% of the clinical year students and a study from Iraq had lower vaccination rate among pre-clinical year students.

Table.1 Demographic characteristics of study sample

| Characteristic | No. | Percentage (%) |
|-------------------|-----|----------------|
| Sex | | |
| Male | 100 | 50% |
| Female | 100 | 50% |
| Age | | |
| <19 | 78 | 39% |
| 20 -21 | 97 | 48.5% |
| 22+ | 25 | 12.5% |
| Study year | | |
| Preclinical | 100 | 50% |
| Clinical | 100 | 50% |

Table.2 Distribution of sample by general knowledge about HBV

| QUESTIONS | RESPONSE | | | |
|---|----------|-------|-----|-------|
| | YES | | NO | |
| | No. | % | No. | % |
| KNOWLEDGE ABOUT ROUTE OF TRANSMISSION | | | | |
| Sexual contacts | 153 | 76.5% | 47 | 23.5% |
| Infected needles | 184 | 92% | 16 | 8% |
| Blood transfusion | 179 | 89.5% | 21 | 10.5% |
| Sharing sharps | 138 | 69% | 62 | 31% |
| Sharing toothbrush | 79 | 39.5% | 121 | 60.5% |
| Sharing towels | 30 | 15% | 170 | 85% |
| Faeco - oral route | 81 | 40.5% | 119 | 59.5% |
| KNOWLEDGE ABOUT MODE OF TRANSMISSION | | | | |
| HBV is more easily spread from person to person than AIDS | 187 | 93.5% | 13 | 6.5% |
| HBV carriers (although they look healthy) can easily infect others | 185 | 92.5% | 15 | 7.5% |
| HBV can be spread by eating food prepared by an infected person | 41 | 20.5% | 159 | 79.5% |
| HBV can be spread by eating food that has been pre-chewed by an infected person | 101 | 50.5% | 99 | 49.5% |
| HBV can be spread by being coughed on by an infected person | 62 | 31% | 138 | 69% |
| HBV can be spread by holding hands with an infected person | 31 | 15.5% | 169 | 84.5% |
| KNOWLEDGE ABOUT SEQUEL AND PREVENTION | | | | |
| People with HBV can be infected for life | 152 | 76% | 48 | 24% |
| Do you think HBV can cause liver cancer | 174 | 87% | 26 | 13% |
| HBV disease can cause death | 186 | 93% | 14 | 7% |
| HBV disease can be cured | 85 | 42.5% | 115 | 57.5% |
| HBV vaccine prevent the infection | 186 | 93% | 14 | 7% |

Table.3 Association between knowledge score and demographic

| Variable | No | Knowledge | | | | | | P value |
|-------------------|-----|-----------|----|------------------|-------|-----------|-------|---------|
| | | Poor(0-6) | | Acceptable(7-12) | | Good(≥13) | | |
| | | No | % | No | % | No | % | |
| GENDER | | | | | | | | |
| Male | 100 | 00 | 0% | 37 | 37% | 63 | 63% | 0.005 |
| Female | 100 | 00 | 0% | 19 | 19% | 81 | 81% | |
| AGE | | | | | | | | |
| <19 | 78 | 00 | 0% | 33 | 42.3% | 45 | 57.7% | 0.0001 |
| 20 – 21 | 97 | 00 | 0% | 13 | 13.4% | 84 | 86.6% | |
| 22+ | 25 | 00 | 0% | 10 | 40% | 15 | 60% | |
| STUDY YEAR | | | | | | | | |
| Preclinical | 100 | 00 | 0% | 37 | 37% | 63 | 63% | 0.005 |
| Clinical | 100 | 00 | 0% | 19 | 19% | 81 | 81% | |

Table.4 Association of vaccination status with the study year and knowledge score

| Variable | Vaccination Against HBV | | | | P Value |
|------------------------|-------------------------|-----|-----|-----|---------|
| | Yes | | No | | |
| | No. | % | No. | % | |
| STUDY YEAR | | | | | |
| Preclinical | 57 | 57% | 43 | 43% | 1.0 |
| Clinical | 57 | 57% | 43 | 43% | |
| KNOWLEDGE SCORE | | | | | |
| Poor | 00 | 0% | 00 | 0% | 0.353 |
| Acceptable | 29 | 52% | 27 | 48% | |
| Good | 85 | 59% | 59 | 41% | |

The level of knowledge regarding HBV was fairly good among clinical year students as compared to pre-clinical students since there is no formal school based health education regarding communicable diseases for pre-clinical students in the curriculum of medical college which may be the important reason of lower knowledge about HBV among them. Higher level of knowledge about HBV among clinical year students compared to pre-clinical year students has been also reported from other settings.⁸ The poor vaccination status in this study is alarming and efforts are made to explore the reasons behind such poor vaccination status and understand whether the actual problem is in the medical curriculum or external

factors in the society.

This study has a number of limitations. The findings are limited to the undergraduate medical students only. It does not cover nursing, dentistry and paramedical students that are also frequently exposed to the risk of HBV infection. The relatively small sample makes it difficult to detect factors that have statistically significant association with students' knowledge and vaccination status. The findings particularly in terms of vaccination status are liable to information bias as it merely based on students' report without cross-checking with their vaccination records.

In conclusion, knowledge about HBV among Medical Students at Tirunelveli Medical College is relatively good, with important gaps which need to be filled, to encourage them to vaccinate against HBV. A critical level of public awareness and vaccination coverage, particularly among pre-clinical year students, are essential to decrease the burden of the disease among health care workers in the future since the current vaccination status is only 57%. Further research needs to explore the reasons behind such poor vaccination status and knowledge about HBV in a more depth manner. Awareness, precaution and protection should be advocated to curb the root cause of spread of HBV infection among health care workers. Therefore, there is a need for well planned and clear policies for HBV screening, vaccination and serological response checkups for all medical students.

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