

STUDY OF HEPATITIS B IMMUNIZATION STATUS OF STUDENTS IN NISHTAR
MEDICAL UNIVERSITY MULTANDr. Maha Saher¹, Dr. Muhammad Bahawalzeb² and Dr. Aliza Abbass Syed^{*3}¹Pmdc#88804-p.²Pmdc#90776-p.³Pmdc#80318-p.

*Corresponding Author: Dr. Aliza Abbass Syed

Pmdc#80318-p.

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ABSTRACT

Background: Hepatitis B virus (HBV) infection causes significant morbidity and mortality worldwide. Occupational exposure of health care workers and medical students increase their risk of acquiring HBV infection, and many authorities recommend vaccination. However, significant proportions of health care workers do not receive HBV immunization, and remain at increased risk to HBV infection. **Objectives:** To study the vaccination status against Hepatitis B among medical students enrolled in Nishtar Medical University. **Methods:** This cross sectional, randomized, observational study was done at Nishtar Medical University, Multan. It has a total of 1500 medical students from first year to final year. All students were interviewed using a pre structured questionnaire to find out the vaccination status of these students and the reasons for not getting vaccinated. **Results:** A total of 175 medical students were approached to participate in the study but only 150(85%) students (M=75, F=75) gave response. Out of the total 150 students, 117 (78%) were vaccinated against Hepatitis B. amongst this group 90 (77%) had completed their vaccination schedule of 03 doses and 27 (23%) were partially vaccinated. Vaccination uptake was higher 63 (84%) in females as compared to males 53 (71%). Reasons of not vaccination were lack of knowledge about consequences (15.5%), casual behavior (36%), don't know where to obtain the vaccine (12%), fear of injection (10%), busy in studies (10%) and financial problems (8%). Only 74 (63%) students were screened before taking the vaccine. **Conclusions:** Despite the availability and accessibility of a cost effective Hepatitis B vaccine since mid-80s, the vaccination coverage among medical students is low. Health education needs to be improved in all medical students.

KEYWORDS: Hepatitis B, vaccination, medical students, Vaccine, Cost effective.

INTRODUCTION

Hepatitis B virus (HBV) infection is seen in all ages and all around the world with high morbidity and mortality. According to global statistics over two billion cases are infected with Hepatitis B of whom 350 million are chronic carriers.^[1] Every year more than one million of the affected individuals die because of complication such as cirrhosis and liver cancer which happens despite the availability of an effective vaccine with minimal/transient side effects.^[2] Pakistan Medical Research Council in its seroprevalence survey has shown national HBsAg prevalence as 2.5%. The gender wise distribution in Punjab province is 3.4% in males and 1.7% in females.

The Health care workers and medical students are at risk of infection with Hepatitis B through occupational exposure to blood and infectious body fluids.^[3] Therefore it is important for medical students to be actively protected against HBV through vaccination. The

introduction of hepatitis B vaccine has increased the annual budget for immunization services by approximately 56%. It is predicted that more than 4000 future deaths shall be averted annually by this intervention.^[4] It is found that the monovalent hepatitis B vaccine is considerably more cost-effective than the hepatitis B vaccine in combination with DPT. A safe and effective vaccine against HBV is available since 20 years and is effective in preventing infection when given before or shortly after exposure. The currently available Hepatitis B vaccine is extremely safe. A study from Lahore reported that 49% health care workers and 42% medical students were vaccinated against hepatitis B. Internationally the vaccination coverage among medical students was 11% in South Florida and 29% in Yemen.^[5]

This study was planned in a public sector medical college in South Punjab to assess the status of vaccination in this group and determine the reasons of

non- vaccination with the aim of improving the health status of the community.

METHODOLOGY

This cross sectional, randomized, observational study was conducted from November 2017 to April 2018 at Nishtar Medical University, Multan. All enrolled medical students (N= 150) from first year to final were invited to participate in the study. Year wise breakup of students was 1st year n=30, 2nd year n=30, 3rd year n=30, 4th year n=30 and 5th year n=30. A pre-structured and tested questionnaire was given to all participants. After taking the consent, the students were explained the aims of the study and each student was given the questionnaire to fill themselves. The information gathered was age, gender, year of study, screening before vaccination, history of vaccination, completion of all 3 doses and reasons for not getting vaccinated. Complete vaccination was defined as all three doses of vaccine and incompletely vaccination was less than 3 doses of vaccine.

The questions also include the history of Hepatitis B infection among the medical students. Collected data were analyzed by SPSS 21.

Ethical Considerations

Ethical approval was taken from the academic council of the University and an informed consent was obtained from each student. Anonymity of the respondents was ensured.

RESULTS

Out of 175 medical students, 150 (M=75, F=75) completed the questionnaire giving a response rate of 85%. Age of the participants ranged from 17-29 years.

Out of 150 participants, 117 (78%) were vaccinated against HBV. In the vaccinated group, 90(77%) completed all 3 doses of their vaccination schedule and remaining 27 (23%) students were incompletely vaccinated. Rate of vaccine uptake was higher in females 63 (84%) than in males 53(71%). The proportion of complete vaccination decreased from 50% in the first year to 46% in second year and remained the same in the third year and increased in fourth year (73%) and again went up in the final year (83%). Reasons of not vaccination were lack of knowledge about consequences (15.5%), casual behavior (36%), don't know where to obtain the vaccine (12%), fear of injection (10%), busy in studies (10%) and financial problems (8%). Prior screening was done in 74 (63%) students before the vaccination.

Table 1: Frequency distribution table of age of students who take part in study n=150.

| Age (years) | Frequency | Percent (%) |
|-------------|-----------|-------------|
| 17 | 1 | 0.7 |
| 18 | 11 | 7.3 |
| 19 | 25 | 16.7 |
| 20 | 30 | 20 |
| 21 | 28 | 18.7 |
| 22 | 23 | 15.3 |
| 23 | 22 | 14.7 |
| 24 | 7 | 4.7 |
| 25 | 2 | 1.3 |
| 29 | 1 | 0.7 |

Table 2: Knowledge about vaccine availability n=150.

| Knowledge | Frequency | Percent |
|-----------|-----------|---------|
| Aware | 138 | 92 |
| Not aware | 12 | 8 |

Table 3: Frequency distribution table of status of vaccination of students of all years n=150.

| Year of study | Completely vaccinated | Incomplete vaccination | Not vaccinated | Don't remember |
|---------------|-----------------------|------------------------|----------------|----------------|
| 1st | 15 | 5 | 6 | 4 |
| 2nd | 14 | 6 | 9 | 1 |
| 3rd | 14 | 9 | 5 | 2 |
| 4th | 22 | 3 | 3 | 2 |
| 5th | 25 | 4 | 1 | 0 |

Table 4: Complete vaccination percentage of Males vs. Females n=90.

| Year of study | Male | | Female | |
|---------------|-----------|------|-----------|------|
| | Frequency | %age | Frequency | %age |
| 1st | 07 | 47 | 08 | 53 |
| 2nd | 05 | 33 | 09 | 60 |
| 3rd | 08 | 53 | 06 | 40 |
| 4th | 10 | 67 | 11 | 73 |
| 5th | 11 | 73 | 14 | 93 |

Table 5: Frequency distribution table of time of vaccination n=150.

| Time of vaccination | Frequency | Percent |
|-------------------------|-----------|---------|
| <i>Before admission</i> | 74 | 49.3 |
| <i>After admission</i> | 47 | 31.3 |
| <i>NA</i> | 29 | 19.3 |

Table 6: Frequency distribution table showing the year of vaccination for those who were vaccinated after admission n=58.

| Year | Frequency | %age |
|------------|-----------|------|
| <i>1st</i> | 38 | 66 |
| <i>2nd</i> | 8 | 14 |
| <i>3rd</i> | 4 | 07 |
| <i>4th</i> | 3 | 05 |
| <i>5th</i> | 5 | 08 |

Table 7: Frequency distribution table showing the cause of being non-vaccinated n=58.

| Reason/Cause | Frequency | % age |
|---|-----------|-------|
| <i>Didn't know consequences</i> | 09 | 16 |
| <i>Fear of prick/side effects</i> | 06 | 10 |
| <i>Don't know where to obtain the vaccine</i> | 07 | 12 |
| <i>Casual behavior</i> | 21 | 36 |
| <i>Financial problems</i> | 05 | 09 |
| <i>Busy in studies</i> | 06 | 10 |
| <i>Others(not specified)</i> | 04 | 07 |

Table 8: Frequency of students who submitted the vaccination certificate at time of admission n=150.

| Status | Frequency | %age |
|------------|-----------|------|
| <i>Yes</i> | 129 | 86 |
| <i>No</i> | 21 | 14 |

Table 9: Frequency of students who submitted certificate after vaccination n=150.

| Status | Frequency | %age |
|------------|-----------|------|
| <i>Yes</i> | 77 | 51.3 |
| <i>No</i> | 73 | 48.7 |

DISCUSSION

Only 60% medical students were fully vaccinated against Hepatitis B, though these health care producers have a higher chance of acquiring this and other infections in their professional life.^[6] The need for HBV vaccination in this group should be a priority. The 60% vaccination in our subjects is similar to a study done in North Sydney 64% but higher than the study done in Lahore (42.2%), South London (33%), Sweden (40%), Egypt (16%), and Yemen (29.5%).^[7] The fact indicates that discrete qualitative variables affect the uptake of vaccine more than its availability.

The increase in the uptake of vaccine with the advancing age and professional years in MBBS indicate increasing awareness about the disease.^[8] Similar result were found in the nursing students of tertiary care hospital of Peshawar. Higher vaccination coverage in girls was seen in the present study and same was reported from Lahore. Despite the availability of HBV vaccine for more than two decades over 90% coverage has not been achieved in this group.^[9] The most frequent reason for not getting vaccinated in the present study were lack of knowledge of consequences (29.2%), casual behavior (24.8%), don't know where to obtain the vaccine (21.7%), fear of

injection (10.5%). These are serious issues and need to be improved by educating them. Reasons of not vaccination were lack of knowledge about consequences (15.5%), casual behavior (36%), don't know where to obtain the vaccine (12%), fear of injection (10%), busy in studies (10%) and financial problems (8%). These are also baseless reasons and need to be improved by education. Casual behaviour was cited as the main reason for not getting vaccinated. 49% students were vaccinated before admission to university and 31% students got vaccinated after admission to university. 47% students got their vaccination without screening and 77% students didn't checked their Anti-HBs titers. 55% students have their siblings vaccinated and 52% students have their roommates vaccinated. Fortunately 100% students were free of Hep.B.

CONCLUSION

After the study, it is concluded that despite the availability of cost effective vaccine, the vaccination rate among medical students of Nishtar Medical University is not upto the mark and this is alarming situation.

RECOMMENDATIONS

- Educate the students about the benefits of vaccination.
- Free vaccine should be easily available for medical students in hospital.
- At the day of admission in 1st year, all the non-vaccinated students should be screened and given 1st dose of HBV vaccine.

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