

Awareness regarding hepatitis B and its vaccination status among medical students, doctors and paramedics studying & working at DHQ teaching hospital, Sahiwal

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ABSTRACT

Introduction: Hepatitis B is a risk factor for Health Care Workers (HCW) and medical students attending wards at hospital. Hepatitis B vaccine has been recommended since 1982 for use by HCWs to prevent HBV infection. The aim of this study was to evaluate the vaccination coverage among HCWs and medical students, their level of knowledge regarding vaccination as well as and their beliefs regarding Hepatitis B vaccine at a Teaching District Headquarter (DHQ) Hospital of Punjab, Pakistan.

Subjects and methods: This cross sectional descriptive study based on a questionnaire-based survey was carried out at DHQ Teaching Hospital, Sahiwal, Pakistan from April to July 2019. Doctors, medical students and paramedical staff involved in active physical care of the patients were included in the study.

Results: A total of 300 participants were provided questionnaire including consent, out of which 285 participants responded. There were 127 doctors (44.56%), 86 medical students (30.18%) and 72 paramedics (25.26%). 132 (46.31%) participants were fully vaccinated, 9.12% had received 2 doses of vaccine, 8.77% received only one dose whereas 35.43% were unvaccinated. Out of unvaccinated individuals, 32.35% reasoned lack of time being the main cause followed by other reasons including lack of need, lack of awareness and accessibility.

Conclusion: This study showed that vaccination coverage among HCWs was alarmingly low along with lesser knowledge of vaccination and infection. Therefore, HCWs and medical students are at an increased risk of acquiring Hepatitis B infection.

Keywords:

Hepatitis B; Vaccination; Health Care Worker; Medical Students

INTRODUCTION

Hepatitis B virus is a serious public health problem worldwide and cause chronic hepatitis, cirrhosis, and hepatocellular carcinoma (HCC). Approximately 75% of chronic carriers live in Asia and the Western Pacific.¹ Pakistan is highly endemic with HBV with nine million people infected with HBV and its infection rate is on rise. The reason may be the lack of proper health facilities, poor economic status and less public awareness about the transmission of major communicable diseases including Hepatitis B, Hepatitis C and HIV.⁹ Two different studies showed the prevalence of HBV in health care workers as 3.25% ± 1.202%.^{10,11} Hepatitis B Vaccine is the first cancer

preventive vaccine with a protective efficacy against hepatocellular carcinoma (HCC) of 70%.^{18,19}

Vaccine for Hepatitis B was made available in 1980s since then prevalence of hepatitis B has fallen considerably worldwide but in Pakistan it is still between 2% to 7%.²⁰ HCWs and students studying at hospitals are at high risk for contracting hepatitis infection. Studies have shown that prevalence of Hepatitis B among HCWs varies between 3.25(±1.2%) which is quite high.²¹

The vaccination for Hepatitis B is recommended worldwide for HCWs as well as medical students. Many related studies were carried out in different regions of Pakistan but basic causes that cause hindrance including lack of awareness, were never studied before. The main objective of this study was to check status of vaccination along with their attitude towards vaccination and awareness regarding infection and vaccination among HCWs and medical students of DHQ Teaching Hospital, Sahiwal.

Conflict of Interest: The authors declared no conflict of interest exist.

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SUBJECTS AND METHODS

This cross sectional descriptive study was carried out at DHQ Teaching Hospital, Sahiwal from 01-03-2019 to 31-07-2019, in order to analyze the vaccination status, attitude towards vaccination and awareness regarding Hepatitis B virus and its vaccination. Consent was taken on questionnaire and 300 participants were given a standardized questionnaire through convenient sampling. Every question of participants was properly addressed including confidentiality. The study was approved by ethical committee of Sahiwal Medical College. Questionnaire included demographic detail, questions for awareness about Hepatitis B virus and its vaccination, their attitude towards vaccination and about their current vaccination status. All HCWs (including doctors, para-medics) from Surgical and Allied, Medical and Allied Wards and medical students (3rd, 4th and Final Year) of both genders were included in this study. Out of 300 distributed questionnaires, 285 were returned with a response rate of 95%. Participants were categorized into fully vaccinated (who had received 3 doses of HBV vaccination at 0, 1 and 6 months and if received, booster dose), partially vaccinated (who had received one or two doses of vaccine) and non-vaccinated (who had not received any dose of vaccine). Similarly, according to evaluation score, the knowledge of participants was also assessed with 4 being complete and 0 with no knowledge.

All statistical analysis was carried out using SPSS for Windows version 25.0. Frequencies and percentages were calculated and results were presented in tabulated form.

Table 1. Characteristics of study participants

| Category | Frequency | Percentage |
|------------|-----------|------------|
| Doctors | 127 | 44.6 |
| Paramedics | 72 | 25.3 |
| Students | 86 | 30.2 |
| Total | 285 | 100 |

RESULTS

Among participants who completely filled the questionnaire, 127 were doctors, 72 were paramedics and 86 were medical students with continuous hospital exposure (3rd year MBBS and above).

According to evaluation score, based upon the questions incorporated in questionnaire, among 127 doctors; 4 (3.14%) had complete knowledge (4 score), 111 (87.40%) had good knowledge (3 score), 11 (8.66%) had moderate knowledge (2 score), 1 (0.78%) had little knowledge (1 score) and none had no knowledge (0 score). Similarly, among 72 paramedics 3 (4.1%), 49 (68.05%), 9 (12.50%), 6 (8.33%), 5 (6.94%) had complete, good, moderate, little and no knowledge respectively. Among 86 students 67 (77.90%) had good knowledge, 18 (20.93%) had moderate knowledge, 1 (1.16%) had little knowledge, nobody had complete or no knowledge. Regarding mode of transmission of Hepatitis B, out of total 285 participants, 2.46% had full knowledge, 79.65% had good knowledge, 13.33% had moderate knowledge, 2.81% had little knowledge and 1.75% had no knowledge.

Regarding information on significance of Hepatitis B vaccination for HCWs, 4 out of 127 doctors (3.14%), 0 out of 72 paramedics and 1 out of 86 students (1.16%) had complete knowledge. Similarly, 67 out of 127

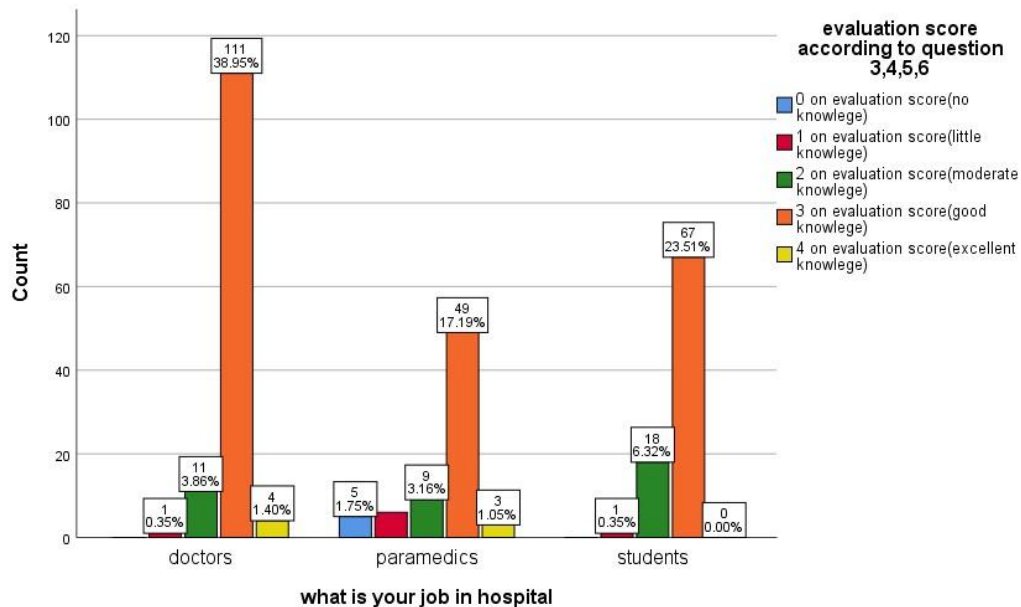


Figure No. 1: Level of knowledge about hepatitis B

(52.75%) doctors, 28/72 (38.88%) paramedics and 33/86 (38.37%) students had good knowledge. From the whole; doctors, paramedics and students who had complete knowledge were 1.40%, 0% and 0.35% respectively. Similarly, HCWs and students having good knowledge were; 23.51% doctors, 7.72% paramedic and 8.77% students from the whole participants.

From 285 participants, 1.75% has complete knowledge, 40% have good knowledge, 37.54% had moderate knowledge, 17.54% had little knowledge and 3.16% had no knowledge regarding hepatitis B vaccination assessed by evaluation score of section regarding vaccination.

Among 285 participants (HCWs and students), 184 or 64.56% had received at least single dose of hepatitis B vaccination. Among these 184 vaccinated individuals 117 had 3 doses, 15 also had booster dose with complete 3 doses course, 26 had 2 doses and 25 had single dose. Vaccination status differed among participants also, with 101/127 (79.52%) doctors, 39/72 (54.16%) paramedics, 44/86 (51.16%) students had been vaccinated. 157 (85.33%) out of 184 vaccinated individuals have received last dose more than 6 months ago while only 8.07% know the correct duration of protection i.e. 20 years or more and no one rechecked their immune status. Out of 285 participants, 101 were not vaccinated (not a single dose). Among these 32.35% said they do not have time, while 16.67% enlisted other causes including lack of motivation, laziness and dangers of side effects e.g. autism, sterility. Similarly, 15.69% said they do not see the need, 14.71% said they were not aware of vaccination, 4.9% said they might contract hepatitis B virus and 1.96% said it's expensive.

DISCUSSION

Hepatitis B Virus is transmitted via body fluids and is considered as occupational risk among HCWs and medical students visiting hospital. Since 1982, when Hepatitis B vaccine was recommended for HCWs, incidence of Hepatitis B infection has reduced among health care workers.

In this study, 300 participants were given questionnaire out of which 285 (95%) responded. This response rate was well within figures reported from Mirpur Khas with 95% and more than that in Peshawar 78.7%, Islamabad 85% and Multan 87%.²²⁻²⁵ In this study, 46.31% of the respondents were fully vaccinated, 9.122% had received two doses of vaccine, 8.77% received only one dose and 35.43% were unvaccinated.

In contrast, a study from Lahore showed 33% HCWs were fully vaccinated, 27% have either taken single or two doses and 40% were unvaccinated.²⁶ The difference in results can be due to inclusion of only medical students in that study who might have lesser knowledge and concern regarding HBV vaccination due to lack of practical knowledge in hospital. A study conducted by Ali and coauthors showed higher vaccination rate among all participants 59.4%²⁶ in contrast to current study which showed 46.31%, it may be solely due to inclusion of students in this study. Vaccination status among doctors in both studies is comparable; 64.56% in this study and 62.1% in their study. But vaccination status in paramedics was 38.88% in this study compared to 55.1% in their study which may be due to better training of paramedics in hospitals of Islamabad, Rawalpindi and Lahore where their study was conducted.¹⁶ Study from Karachi showed 62.07% of the HCWs were fully vaccinated and 12.64%, 25.29% were partially vaccinated and not vaccinated respectively, while in Peshawar 73.42% health care workers were fully immunized against Hepatitis B in a study during 2013-14.^{23,24}

The current study showed around 46.31% of vaccination coverage which is better than most parts of the country but still very low because more than half of HCWs and students were unvaccinated and this low coverage poses very high risk among professionals, medical students and patients. In this study there was enormous difference between vaccination status of doctors, paramedics and medical students, 64.56%, 38.88% and 25.58% respectively, similar to studies reported from Northwest Pakistan and Peshawar.^{13,23} This might be due to lack of proper training, awareness and rules implementation (regarding compulsory vaccination of hepatitis in HCWs). The medical students' vaccination coverage of Hepatitis B was lower in Sahiwal Medical College; some reasons include lack of awareness, unacceptable attitude towards vaccination, lack of practical knowledge and taking rule for compulsory vaccination with no strict checking by administration at the time of admission. Study conducted in Lahore where the difference of vaccination status among males and females was statistically significant while in our study it was close to none.²⁵ Most common reason of not receiving vaccine against hepatitis B in present study was lack of time due to busy schedules and overwork (32.35%). Other reasons were rather vague indicating the beliefs regarding side effects, lack of motivation, laziness but

some individuals did check the definite reason including **they don't see the need, lack of awareness, contraction of infection** and very least individuals thought its expensive. These beliefs suggested the main hindrance in maximum vaccine coverage is lack of awareness, positive attitude and prevalence of misconceptions regarding vaccination of Hepatitis B. These observations support previous report that health care professional usually neglect personal needs like vaccination because of their hectic work routine and personal commitments.²⁸ Provision of vaccination, awareness programs among masses, regular evaluation of antibody titer and strict screening for Hepatitis B should be compulsory for all HCWs and medical students. Similarly measure for reduction of stress must be taken by government so that professionals as well as medical students can give their maximum for welfare of patients and themselves. Participants of this study had lesser **awareness regarding Hepatitis B infection's** spread, severity, risk of exposure in hospital and general knowledge about virus with only 2.45% reaching 4 on evaluation score indicating complete knowledge but 79.64% of participants had good knowledge (3 on evaluation score). Out of these achieving score of 3, 38.95% were doctors followed by medical students 23.51% and 17.19% being paramedics. Similarly, regarding vaccine awareness, general knowledge of vaccine, its effectiveness, number of doses and duration of protection were asked among participants and were later evaluated on evaluation score being 4 for maximum knowledge. 1.75% of all participants reached perfect score of 4 but 40% scored 3 on evaluation score with doctors being top with 23.61 of this 40 percent individuals followed by students 8.77% and paramedics 7.72%. This showed hierarchy of knowledge with doctors being at top followed by students and then paramedics might be because of lack of detailed knowledge regarding infection and vaccination in medical students and paramedics. In contrast, previous studies from Punjab showed nearly all participants believed in the effectiveness and safety of Hepatitis B vaccine i.e. 98.6% and 92% in doctors and nurses respectively.^{25,26} This difference need further evaluation but some of it can be explained by regional difference with above four hospitals being at larger cities of Pakistan with better awareness programs and best vaccination programs too. Similarly, the students included in our research altered the results to some extent as well as study being single centered decreased the results.

CONCLUSION

Vaccination coverage among medical students and support health care workers in a Teaching DHQ had been alarmingly low along with lesser knowledge of vaccination and infection. This makes them increasingly vulnerable to risk of acquiring Hepatitis B infection.

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