Knowledge, Attitude and Awareness of Hepatitis B Vaccine Among Medical and Dental Students

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ABSTRACT

Hepatitis B is an infectious viral disease. The symptoms of this infection are vomiting sickness, tiredness, skin appears yellow in colour (yellowish skin), dark urine and pain in abdomen. The virus is mainly transmitted by blood or body fluids which are infected with viral pathogens. Health care workers and medical students in clinical years who come in contact with the patients are at the highest risk of acquiring this kind of infection. This study deals with the knowledge, attitude and awareness of hepatitis B vaccine. Questionnaire survey was conducted among 100 medical college students by giving them 20 questions based on the awareness of hepatitis B infection, mode of its transmission, dues of vaccination, and any booster dose. The obtained results were analysed in SPSS software. Descriptive and association statistics were done with chi square test. Based on the result it is shown that 64 % of students were aware of hepatitis B. 61% of students were aware about the cause of Hepatitis B. 73 % of people were aware about the Ideal age for vaccination. 41 % of students are aware about the Hepatitis B through doctors awareness programs and 38% of students are aware through the media. From the survey done it is proven that the knowledge, attitude and awareness of hepatitis B vaccine among medical and dental students was prevalent but not followed by the students due to their negligence.

KEY WORDS: VACCINE, HEPATITIS B, STUDENTS, AWARENESS, TRANSMISSION.

INTRODUCTION

Hepatitis B is an infectious viral disease caused by hepatitis B virus. It may be a chronic or acute infection (Logan and Katherine Rice, 1987). Often the symptoms of

this infection are vomiting sickness, tiredness, skin appears yellow in colour (yellowish skin), dark urine and pain in abdomen (Rubin, Strayer and Rubin, 2011). symptoms of this infection takes almost six months to appear. Often it leads to death if not treated (Pockros, 2000). The virus is mainly transmitted by blood or body fluids which are infected with virus pathogen (Zuckerman, 1993). In order to eradicate this virus 1976 Blumberg found a vaccine for hepatitis B (Muraskin, 2002). Based on dose it is recommended to be immunized within 24 hours of birth (Blumberg, 2018). In healthy people routine immunization protects them 95 % (Al Malki, 2014). In the

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case of immunosuppressed people additional doses are required (Paul and Arumugam, 2015). In case when the person is exposed to hepatitis virus but not immunized, then hepatitis B immune globulin is provided additionally to the vaccine given (Moticka, 2015). Since medical and dental students are exposed to blood and blood products frequently, the knowledge of prevention and transmission of the virus is indispensable.

Hepatitis B infection is a major global health problem affecting numerous people every year (Sayan and Akhan, 2012). Health care workers and medical students in clinical years who come in contact with the patients are at the highest risk of acquiring this kind of infection (Goldstein et al., 2005). Proper knowledge about hepatitis B infection among medical students, helps them to take appropriate precautions to prevent infection and also helps them to spread awareness about hepatitis B infection among patients, public and Healthcare professionals (Geberemichael et al., 2013). Three doses of hepatitis B vaccine at intervals of 0, 1 and 6 - 12 months are insisted for the basic health measure against

the virus (Ibrahim and Idris, 2014). Vaccination and use of properly sterilized Instruments are the two main ways of preventing hepatitis virus (Dawar, Yasmin and Jha, 2019).

Vaccine development: In the year of 1970s, two markable vaccines which act against Hepatitis B virus were developed in the United States and France, both the vaccines have purified antigen HBsAg which is obtained from the Serum collected from the HBsAg carrier ('Hepatitis B Vaccination Status among Medical Students at King Faisal University', 2016). These vaccines which are plasma derived and contain purified HBsAg had been subjected to a combination of aggressive biophysical and Biochemical treatments which results in the partial disruption of the surface antigen (Saini, Saini and Sugandha, 2010). A United States product contains 22 nm HBsAg particles with lack of pre-s-proteins whereas French HB vaccine contains some minimum amount of pre S2 and pre-s-1 antigens. Finally nowadays plasma derived vaccines seem to be highly immunogenicity, efficacious and safe (Bailoor, Patel and Rana, 2012).

Table 1. Depicts the development of hepatitis vaccines and its implementation (Coursaget et al., 1982)

Type	Evolution of Hepatitis vaccine Name	Envelope antigen	Dosage
Plasma-derived, SHBs	Heptavax-B (Merck & Co., USA)	SHBs	HBsAg, 5-40 µg/dose
	Hevac B (Pasteur)	SHBsAg, (±MHBs*)	HBsAg, 5-20 µg/dose
	KGC (Korea Green Cross)	SHBsA	
Recombinant, yeast-derived*	RECOMBIVAX HB (Merck & Co.)	SHBsA HBsAg	HBsAg, 2.5-10 µg/dose
	Engerix-B (SmithKline, Belgium)	SHBsA HBsAg	HBsAg, 10-20 µg/dose
	TGP 943 (Takeda Chem, Japan)d	SHBsA, MHBs HBsAg	10 µg/dose
Recombinant, mammalian	GenHevac B (Pasteur, France)b	SHBs, MHBs	HBsAg+pre-S2, 20 µg/dose
	Bio-Hep-B/Sci-B-Vac	SHBs, MHBs, LHBs	HBsAg, pre-S2, pre-S
cell-derived	(Bio-Technology General, Israel)c,e		12.5-10 µg/dose
	AG-3 (Hepagene, Hepacare)	SHBs, MHBs, LHBs	HBsAg, pre-S2, pre-S1 10-
	(Medeva, UK, Evans UK)c,f		

Effectiveness of vaccine: If three primary doses are completed, then a blood test can be taken generally after a time period of 1- 4 months, in order to check if there's any Immunological response that is basically to find The level of anti hepatitis B surface antigen, in which antibody level is literally above 100 mIU/ml and it is common in majority of the individuals ('Hepatitis B vaccine. Demonstration of efficacy in a controlled clinical trial in a high-risk population in the United States Szmunn, W., Stevens, C. E., Harley, E. J., Zang, E. A., Oleszko, W. R., William, D. C., Sadovsky, R., Morrison, J. M. and Kellner, A. (1980). New England Journal of Medicine, 303, 833', 1981). An average antibody level between 10 to 100 ml is considered to have Bad immune response and those kinds of people are advised to have a booster dose. These kind of poor immune response are commonly seen in obese people, celiac disease, tobacco, smoking and in alcoholic and it is considered that the dosage is effective between five to seven years but Frequently It is believed that the

long term memory is stored from the immunological memory which blast out the loss of antibody level and therefore there is no need for the testing and there is no need for the administration of Additional booster doses in case of properly vaccinated immunocompetent persons (Szmunn et al., 1981)(Salisbury, Ramsay and Noakes, 2006).

MATERIAL AND METHODS

Sample Selection: A sum of 100 students were randomly selected from the university as a participant in the survey. The age range was between 18 - 30 years of age with the mean age of 23 years. The data collection questionnaire was developed after reviewing various similar literature.

Inclusion and Exclusion Criteria: Inclusion criterion set was the age group of 18 - 30 years who are studying

in medical and dental colleges are considered to do vaccination surveys. Exclusion criterion: students except dental profession all are excluded from this study.

Sampling Method: In the present study, the sampling method used is a random sampling method.

Data Collection and Tabulation: The questionnaire which was taken on a survey planet concerns about 20 questions mainly based on the Knowledge, attitude and awareness of vaccines among medical and dental students. Their responses were entered into the excel sheets and then tabulation of the data finally and the question comparison was done. The representation of the data is through the bar graph.

Statistical Analysis: The statistical software used IBM SPSS V22. The statistical test used is Chi square test (p value). Type of analysis used were descriptive analysis, demographic data.

RESULT AND DISCUSSION

Hepatitis vaccine is mainly meant to prevent hepatitis B Infection. Based on the dose the first dose is required Within a day that is 24 hours of birth Which is followed by two or more doses of vaccine as recommended (Eisa, Eifan and Al-Sum, 2012). In the case of healthy individuals normal Routine immunization results in Protection for about 95 % of individuals. In case of immunocompromised individual additional doses are required but not necessary for all individuals. In the case of individuals who are not immunized but have been exposed to hepatitis B virus are insisted to have Hepatitis B immune globulin in addition to the vaccine (Rahman, 2015). The vaccine is taken mainly by injecting it into the muscle. In case of these injections pain may occur at the site of injection. The technique used to produce hepatitis B vaccines are recombinant DNA techniques.

Figure 1: Pie chart showing that 61% (green) of people were aware about hepatitis B and 39% (blue) of people were not aware of hepatitis B

Based on the result it is shown that 45 % of students between the age of 20 - 30 years of age had attended the survey. In which male were 31 % and females were

58 %. From fig 1 it is shown that 61 % of students were aware of hepatitis B. 66% of students were aware about the cause of Hepatitis B. Previous study done among the preclinical students it had shown that 93 % of students were aware about the basic knowledge of hepatitis B. (Mathur et al., 2020) Figure 2 depicts that 74 % of people were aware about the Ideal age for vaccination. 41 % of students are aware about Hepatitis B through doctors awareness programs and 38% of students are aware through the media. In Previous study it had been shown that 56 % of doctors were aware about the vaccination significance (Ibrahim and Idris, 2014).

Figure 2: Pie chart showing that 74% (green) of people were aware about the ideal age of vaccination and 26% (blue) of people were not aware about the ideal age of vaccination

Figure 3: Pie chart showing that 30% (khaki) of people neglected the vaccine, 29% (blue) of people considered it as not necessary whereas 22 % (green) of the respondents have fear of injection and 19% (purple) of people were not aware about the vaccine

Figure 3 shows that 29 % of students think that it is not necessary to take vaccines and another 30 % of students have neglected the vaccine. Figure 4 depicts that 34 % of students think that the main mode of transmission of hepatitis B is by sharing of needles, 24% of people think that it is transmitted from mother to child, 23% of people think that it is due to multiple sex partners and

19% of people thinks that its transmitted by transfusion of blood. Figure 5 insists that 60% of people have completed the course of vaccination whereas 40% of people have not completed the course of vaccination. In previous study it had been shown that 81 % of students thinks that hepatitis B is mainly transmitted through blood transfusions (Giri, Panda and Sahoo, 2016). this was well correlated with our study.

Figure 4: Pie chart showing that 34% of the people think that Hepatitis B is transmitted by sharing the needles(khaki), 24% of people think that it is transmitted from mother to child(blue), 23% of people think that its due to multiple sex partners(green) and 19% of people thinks that its transmitted by transfusion of blood(purple).

Figure 5: Pie chart showing that 60% (green) of people have completed the course of vaccination whereas 40% (blue) of people have not completed the course of vaccination

When we compared the age groups with the awareness of the Hepatitis B vaccination (Figure 6), we found that the study population aged between 18-20 years have more knowledge about Hepatitis vaccination than the other age groups in our study population. This reveals that the students of first and second year were more aware about the Hepatitis B vaccination as they need to undergo a medical fitness before admission into the institutions. This may be a reason behind the results of association between the age and awareness of Hepatitis B vaccination.

Figure 6: The bar chart represents the association between the age and awareness of hepatitis B. X axis represents the age of the respondents whereas the Y axis represents the number of respondents. Majority of the study population of aged between 18-20 years are more aware about the Hepatitis B vaccination than the other age groups and the difference was also significant statistically. Chi Square test: $p = 0.00 (<0.05)$

CONCLUSION

From the survey done it is proven that there was a moderate level of knowledge, attitude and awareness of Hepatitis B vaccine among medical and dental students and the study population aged between 18-20 years are more aware than the other age groups. It was also found that most of the study population are not following the vaccination schedule properly due to their negligence. Even though Hepatitis B infection is fatal to humans it can be eradicated through vaccines developed through recombinant technology but far since no proper awareness about the mode of transmission and the preventive measures it remains fatal.

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Conflict of Interest: The authors declare that there were no conflicts of interest in the present study.

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