ORIGINAL ARTICLE

Hepatitis-B Vaccination Status Among the Dentists of a Selected Hospital in Dhaka city

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Abstract:

Countries of South East Asia Region have high prevalence rates of viral hepatitis. Hepatitis B is a major public health problem of the region, although it varies widely among the countries. In the region, every year approximately 14-16 million people are infected with Hepatitis B Virus (HBV). It is estimated that there are 78 million HBV carriers, which is almost 6% of the total population of the region (1.4 billion, 1995). A cross sectional descriptive study conducted by face to face interview on the basis of a structured questionnaire to identify the selected Dentists in Dhaka city from January to June 2010 among the dentists of City Dental College Hospital and Pioneer Dental College Hospital. Total 120 dentists were included purposively from two hospital in Dhaka city. The study was done to determine the proportion of Hepatitis B vaccination among dentists in a selected hospitals, the history of exposure of hepatitis B among the dentist, why a group of dentist could not take hepatitis B vaccine. Among 120 respondents, most of them received vaccine (65.0 %) whereas 35.0% did not take any. Among 79 respondents, 48.1% (38) finished taking the vaccines whereas 51.9% (41) did not finish taking the vaccines. Negligence was found to be the major cause for not taking the vaccine and very few of them think that the prevalence of hepatitis B is high among dentist. Further in depth study could help investigate to explain role of these factors. All health care personnel should be trained up so that they can save themselves and can also motivate their clients, relatives and general population. Time to time special training is orientation courses should be offered to the dentist for improvement of knowledge regarding hepatitis B infection.

Introduction:

Viral Hepatitis is one of the major public health problems all over the world as it is silently gaining the momentum to cause an epidemic of vast magnitude. But there is no effective treatment available and only some preventive measure can protect the individual from contacting the disease to a longer extent.

More than 2 billion people worldwide have evidence of past or current HBV infection and 350 million are chronic carriers of the virus, 80,000 people, mostly young adults, get infected with HBV. More then 11,000 people have to stay in hospital because of Hepatitis-B virus. Hepatitis- B virus causes 60 to 80 percent of all primary liver cancer, which is one of the three top causes of cancer death in East and SEAR,

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the Pacific basin and Sub - Saharan Africa. At least 1 million people with chronic HBV infection die each year from cirrhosis and liver cancer. Hepatitis B is spreading fast in developing countries like Bangladesh but in the developed countries affects only certain risk group (Homosexual and drug addicts), living in large metropolitan areas[1]. As because there is no effective treatment Hepatitis- B and lengthy carrier state and ultimate fate is hepatocellular carcinoma and vaccination is the only way to prevent this. Being in the South- East region, it is likely Bangladesh having endemicity at more than eight percent[2]. Though national level study so far not has been carried out, a number of individual studies were carried out during the last decades. These studies are mostly Dhaka based and among different risk groups and shows 8 to 45 percent prevalence[3]. In Bangladesh, medical research regarding Hepatitis -B vaccine is limited. There is no true population based data available but HBV infection appears to be intermediately.

The Hepatitis B vaccine is 95% effective and can be given safely to infants, children and adults. The vaccine can prevent infection even when it is applied before or within 7 days after exposure to infection. Adult people should get 3 doses of Hepatitis B vaccine Adolescents 2 to 15 years of age may need only two doses of Hepatitis - B vaccine, separated by 4-6 months[4].

The HBV infection is a major public health problem globally. Approximately 30% of the world's population, i.e. about 2 billion people, have serological evidence of infection with Hepatitis B virus (HBV). It is estimated that 350 million of them have chronic HBV infection, about a million of who dies each year from chronic liver disease, including cirrhosis and liver cancer. HBV is second only to tobacco as a known human carcinogen[2]. Hepatitis B virus infection is the major cause of morbidity and mortality related to chronic Liver diseases. Asymptomatic carrier is the commonest source of infection with Hepatitis B Virus. HBsAg carrier rate varies world wide from the very low of 0.1% to 0.2% of the population in the developed countries to the very high rates of 10 to 15% in Africa and Far East[4].

Hepatitis B is an endemic disease through out the world especially in tropical and developing countries and also in some region of Europe. Its prevalence varies from country to country and depends upon a complex mixture of behavioral, environmental and host factors. It is highest in countries or areas where socio-economic status is lower, for example, China South East Asia and South America and it is lowest on countries or areas with high standards of living[5].

Countries of South East Asia Region have high prevalence rates of viral hepatitis. Hepatitis B is a major public health problem of the region, although it varies widely among the countries. In the region, every year approximately 14-16 million people are infected with Hepatitis B Virus (HBV). It is estimated that there are 78 million HBV carriers, which is almost 6% of the total population of the region (1.4 billion, 1995). If intervention measures are not taken and the present trends continues, there will be about 98 million HBV carriers by the year 2000.

The level of knowledge of the people regarding the causation of hepatitis B virus infection, i t's modes of transmission, prevent measures will determine the incidence and prevalence of it and their attitude on it will play an important role in preventing or minimizing consequences.

Bangladesh is a developing country. Here we have an area about 55,000 sq. miles inhabited by about 120x 106 people. The population thickness is about 2000 persons per square mile. We have a very low literacy rate. More than 80% people live in villages who used to practice time old life style. Most of the people are below poverty line' and few have access to pure drinking water. Evidently, ours is an ideal breeding place for the pathogenic microbes.

As a result. We face many health problems. In fact, we are facing deadly triangle composed of three major health problems. These are infection (I), malnutrition (M), Over population (O). Infectious diseases predominate in this country and thus infection is the prime mover to set the vicious cycle in motion1.

Among the microbial infections hepatitis due to B virus has brought down a deadlier profile and in Bangladesh it is an important public health problem in spite of intensification of primary health care. As there is suggestion that it may cause acute viral hepatitis, fulminant hepatic failure, chronic liver disease and hepatocellular carcinoma (HCC)[6].

Approximately 45% of the world population live in areas where chronic HBV infection is highly endemic (>8% of the population are HBsAg- positive); 43% live in areas of intermediate endemicity (2-7% HBsAg - positive); and 12% live in areas of low endemicity (<2% HBsAg - positive).

Mobin Khan and N. Ahmmed (International Hepatology Communications, 5, 1996, p.27) have reviewed the data of different authors to assess the magnitude of H B V infection of the country. HBV accounts for 35% acute viral Hepatitis, 40.5% chronic liver disease, 36.5% hepatocellular carcinoma and 29.1% cases of post transmission hepatitis. HBsAg is positive in .5% of healthy adult job seekers. Blood donors are n, routinely screened for HBsAg except in selected centers. They concluded that Hepatitis B Vaccine is the main etiological factor for liver disease in Bangladesh.

Thus the magnitude of this public health problem is huge, well recognized, but actually could be prevented. Immunization is effective (about95%) in prevailing susceptible benefit of vaccination, and does share the interest for the inclusion of HB vaccination into the National Immunization program.

In Bangladesh, HBsAg was detected on 27.2% of adult patients with acute hepatitis, while in 84 doctors with acute hepatitis, HBsAg was detected in 55 (65.5%) of them7. In Singapore it was found that dentists had 11.2% HBsAg positively compared to 4.2% in the general population. The acute Hepatitis due to H B V is also much higher in the health care personnel than in the general population[8].

The study was to design to assess the status persisting about hepatitis B Vaccine and its acceptance among the dentists. As hepatitis B virus, infection is a global problem, its prevention and control strategies should be based on adequate information on knowledge, attitude and health care seeking pattern of people on it. It will also help planners and researchers to find the constrains in accepting the vaccine by the dentists at large. It is also helpful in finding out the factors hindering in receiving hepatitis B vaccine by the dentist.

Materials and method:

This was a cross sectional descriptive study conducted by face to face interview on the basis of a structured questionnaire to identify the selected Dentists in Dhaka city from January to June 2010 among the dentists of City Dental College and Hospital and Pioneer Dental College and Hospital. Total 120 dentist were included purposively from two hospital in Dhaka city.

Results:

The main objective of this study was to determinate the status of hepatitis B vaccination among the dentist. Data were collected from 120 respondents dentist. Data were collected from 120 respondents who attended at City dental College Hospital and Pioneer Dental College and Hospital during the data collection day. Attempt was also made to relate hepatitis B vaccination with other variables used in the study.

The findings of the study are presented thereafter.

Demographic data:

Among 120 respondents maximum percentage 69.8% was from the age group 21-30. Mean age of respondents was 26 years. There were female 55.8% and male 44.2%. About 92% of respondents was Muslim, 5.8 % was Hindu and 2.5% was Christian. There was a prevalence of married person 65.0% than unmarried 35.0%. All respondents were well educated. 95.8% had honors degree and 4.2 % had master's degree. Spouse of respondents were also educated. Most of them 51.7% had honors/masters degree and were engaged with valid service (68.8%). Maximum respondents 32.5% had job length of 2 years, 26.7% had job length 1 year, and 15.0% & 5.8% were for job length 4 years and more than 5 years respectively. Majority of respondents 89.2% had monthly income of taka 10,000-20,000. The mean monthly income was taka 16658.

Table-I: Distribution of respondents according to status of receiving vaccines of hepatitis B

Status of receiving vaccines of hepatitis	Frequency	Percent
Yes	78	65.0
No	42	35.0
Total	120	100.0

Table-II: Distribution of respondents according to finishing of doses of vaccines

Finishing of doses of vaccines	Frequency	Percentage
Yes	38	48.1
No	41	51.9
Total	79	100.0

Table-I indicates that among 120 respondents, most of them received vaccine (65.0 %) whereas 35.0% did not take any. Table-II indicates that among 79 respondents, 48.1% (38) finished taking the vaccines whereas 51.9% (41) did not finish taking the vaccines.

Table-III: Distribution of respondents according to completion months of vaccine

Months of vaccine taken	Frequency	Percentage
0,1,2 month	1	1.5
0,1,6 month	45	66.2
Cannot remember	22	32.4
Total	68	100.0

Vaccination awareness:

Table-III indicates 66.2% (45) took their vaccine in 0, 1, 6 month. About 97.4 % (74) checked previously the presence of hepatitis B in their body. Only 61 of respondents checked for hepatitis B before taking vaccine. 22.8% (18) of respondents did not check hepatitis B before taking vaccine. Almost 75% (57) of respondents had a need to check the efficacy of after receiving the vaccine. 79.2% (61) did not confirm the efficacy of vaccine after receiving it. But only 20.8% (16) confirmed the efficacy. 30% of respondents confirmed that the vaccine was effective. But 70% (28) confirmed that the vaccine was not effective and 28.9% (11) of respondents took vaccine again.

Almost 34.7% (25) of respondents noticed the expiry date of vaccine. But majority of respondents (65.3%) did not notice that. Vaccine was stored properly in 63.4% (45) cases. But it was not properly stored in 36.6% of cases. 68% of respondents took vaccine in proper method but 32% did not received vaccine in proper way. Majority of respondents (53.5%) did not use one time needle for taking the vaccine. 46.5 (38) used one time needle. Almost 54.9 % (39) of respondents maintained proper gap between taking vaccines. But 45.1% did not. Total 45 respondents didn't maintain the proper gap to take vaccine unwillingly.

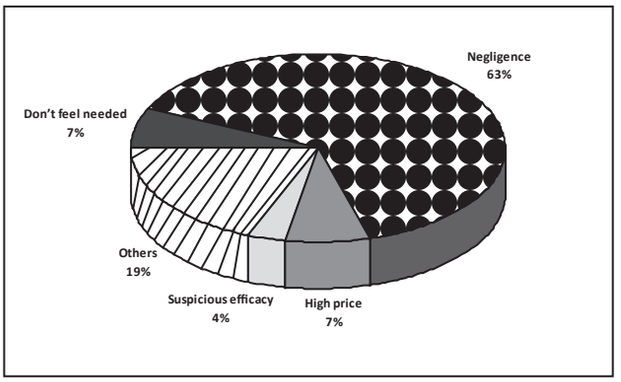

Figure-1: Distribution of respondents according to cause for not taking the vaccines

There was important relation with noticing expiry date and any reaction after first dose of hepatitis B vaccine (P<0.05). Respondents who didn't notice the expiry date, most of them faced reaction after first dose of hepatitis B Vaccine.

There was important relation with respondents noticing expiry date of vaccine and need for taking vaccine again (P<0.05). The prevalence was higher to take vaccine for 2nd time who didn't notice the expiry date of vaccine.

Discussion:

All the respondents to the questionnaire knew about the availability of the hepatitis-B vaccine. This suggests a high awareness amongst dental staff of its importance, and is similar to, the findings of such a study done on Hepatitis B vaccinationin United kingdom[9].

About 37% of respondents thought prevalence of hepatitis is high among dentist. About 64% didn't think so. There were few causes of high prevalence of hepatitis B among dentist. These were accidental injury, improper sterilization, lack of protein, more blood contact, more exposure, no conception, sharp cutting injury, using sharp tools. These finding were closely related to the finding of the study conducted by Ahmed Q[10].

There were significant relationship between genders and receiving hepatitis B vaccine status (p< 0.01). More female took hepatitis B vaccine than male.

There was no relation (p>0.05) among educational qualification with receiving hepatitis B vaccine. There was important relation with noticing expiry date and any reaction occur after first dose of hepatitis B vaccine (P<0.05) which was warned in the Fendrix (hepatitis B surface antigen) package inserts5. Respondents who didn't notice the expiry date, most of them faced reaction after first dose of hepatitis B vaccine. Thus, expired vaccine might be related to exposure of reaction after first dose.

Taken together of these findings are a further indication that a substantial proportion of dentists is not serious about hepatitis B vaccination. Hence, adequate information and protection to avoid bleeding incidents regarding this matter should be given to the medical practitioner at the time of vaccination. Vaccine should be stored properly and expired vaccine should be discarded. In addition, further advice and counseling is necessary so that they are encouraged to seek on-going protection against HBV at regular intervals.

Among dentist of selected hospital in Dhaka City and a total 120 respondents (dentist) were interviewed. It was a cross sectional study and carried out in city dental college and hospital & Pioneer hospital in Dhaka City. So it may not reflect the true picture of the whole nation. The magnitude of the problem of hepatitis B is a growing public health concern in Bangladesh. For the prevention of the disease adequate protection is essential for the dentist. It is evident from this study result that comparatively junior dentist are more aware & vaccinated to the most harmful infected disease like hepatitis B. Most of the respondents had consciousness about personal protection equipment which is a good sign and maximum dentist received hepatitis B vaccine and they checked previously the presence of hepatitis B surface antigen in their body, but small amount of the confirmed the vaccination efficacy after complete the vaccination.

Conclusion:

Negligence was found to be the major cause for not taking the vaccine and very few of them think that the prevalence of hepatitis B is high among dentist. Further in depth study could help investigate to explain role of these factors.

All health care personnel should be trained up so that they can save themselves and can also motivate their clients, relatives and general population. Time to time special training is orientation courses should be offered to the dentist for improvement of knowledge regarding hepatitis B infection.

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