

HBsAg Status and Related Knowledge among the Partners of HBsAg Positive Patients

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Abstract:

Background: Hepatitis B is an infectious liver disease caused by the hepatitis B virus. Chronic hepatitis can induce liver cirrhosis and hepatocellular carcinoma; however, it is usually asymptomatic.

Methods: This cross-sectional study was carried out among 100 participants who were partner of HBsAg positive patients at Department of Gastroenterology in Rangpur Medical College & Hospital. Data was collected by face-to-face interview

Results: This study found that 31% of the partners of HBsAg-positive patients were also HBsAg positive and only 35% of partners had a good knowledge level of HBsAg where male partners (4.54±3.05) with higher education (5.67±2.50) with age range 31-40 years (5.03±3.24) had more mean knowledge score. Educational status was significantly associated (p<0.05) with the knowledge score.

Conclusion: About one-third partners were HBsAg positive and maximum had poor level of HBsAg related knowledge. So, a national HBsAg awareness campaign needs to be organized, with a focus on the illiterate and the active partners of HBsAg positive patients.

Keywords: Anti-HBc, ELISA, HBsAg, positive patients, status.

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Introduction

Hepatitis B is one of the major public health problems and a major cause of liver cirrhosis and hepatocellular carcinoma (HCC).¹ Worldwide estimates suggest that more than 2 billion people have been infected with HBV and that 248 million of these people are chronically infected (defined as hepatitis B surface antigen [HBsAg] positivity) for more than 6 months.² WHO estimates that 296 million people were living with chronic hepatitis B infection in 2019, with 1.5 million new infections each year.³ Approximately 780,000 people die every year from HBV infection; of these, 650,000 die from cirrhosis and hepatocellular carcinoma resulting from chronic infection.³ About 10 million people in Bangladesh have been suffering from hepatitis B. Bangladesh had a HBsAg-seroprevalence of 5.50% in healthy adult population.⁴

Hepatitis-B is an acute systemic infection with major pathology in the liver caused by (HBV) hepatitis-B virus. Symptomatic patients may have a pre-icteric or prodromal period followed by clinical hepatitis that typically occurs 11 to 24 weeks following exposure. Chronic diseases take longer time to show symptoms of hepatitis

B. It's more like a silent killer. HBV is contagious and is transmitted through parenteral, sexual and vertical (perinatal transmission) routes.²

Due to long incubation period, HBsAg positive patients can transmit the virus to others subconsciously due to lack of knowledge.⁵ Several studies assessed the knowledge hepatitis infection among family members, couples, their HBsAg status, vaccination status etc.^{3,6,7} As of 2018, a whopping 290 million people worldwide, accounting for 89% of the global hepatitis B and C-infected population, were unaware that they were infected.⁵ One study found patients with chronic HBV infection evaluated at a tertiary liver clinic did not know the HBV status of nearly 50% of their family members and lack of knowledge plays a discouraging role for screening test.⁷ Another study found only 46.4% of the study population had good knowledge of Hepatitis B virus (HBV) infection based on the knowledge assessment. In Bangladesh, two different studies showed more than 70% have knowledge among the participants.⁶

If chronic hepatitis B infection goes untreated it may end up later with cirrhosis of liver, hepatocellular carcinoma or liver failure.

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Considering this, the aim of the study was to explore the HBsAg status of a HBsAg positive patients and assessing their knowledge level which will figure out transmission of virus among partners and the level of knowledge affecting their life.

Methodology

This cross-sectional study was carried out at Department of Gastroenterology in Rangpur Medical College & Hospital from January 2024 to July 2024. Formal ethical clearance was taken from the ethical review committee of the Rangpur Medical College Hospital for conducting the study. Patients with the diagnosis of HBsAg positive were requested to bring their partners at their next follow-up visit. Convenient sampling was used to select 100 participants (partners of the patients) who were unaware of HBsAg status. Before collection of data all the patients were briefed about the purpose of study and informed written consent was obtained. The right of refusal to participate in the study, and confidentiality of the information was gathered, was assured to each of the respondents. The data collection team was warned about the privacy of the respondents.

A data collection sheet was prepared as research instrument considering the variables & objectives of the study. Then all the participants underwent thorough history and knowledge evaluation by face-to-face interview. Partners' blood sample was collected for ELISA test for Hepatitis B screening at the same of hospital. However, participants with HBsAg negative had also undergone for anti-HBc total to confirm infectious condition.

After collection of data, this was checked and verified for consistency and reduction of errors. Thereafter these data were transferred to a suitable master sheet for processing and subsequent analysis. Data was entered to the computer and saved in Statistical Package for Social Sciences (SPSS) software version 24.00. Quality and reliability of collected data was re-checked. Exploratory data analysis was carried out to describe the study population. Statistical significance was set as 95% confidence level. Frequency and percentage were used to express categorical variables. Mean and standard deviation were used to express continuous variables. To determine the association between categorical variables, chi square test was done. To determine the difference between continuous variables, independent sample t test, One-way ANOVA test was done, where applicable. For all statistical tests, p-value less than 0.05 was considered as statistically significant.

Flow chart of the study

Taking informed written consent	If denial
100 subjects enrolled	Excluded

Interview was taken from each patients
 Structured questionnaire form containing:

- Demographic data
- Age and gender parameter

- Knowledge level assessment
 - HBsAg determination by ELISA
- Completion of data collection
 Statistical analysis by SPSS 24.

Results

Table 1: Socio-demographic characteristics of participants (n=100)

Attributes		Frequency (n)	Percentage (%)
Age (years)	18-30	35	35
	31-40	25	25
	41-50	20	20
	51-60	12	12
	>60	8	8
	Mean±SD	38.02±13.14	
Gender	Female	70	70
	Male	30	30
Occupation	Business	22	22.0
	Day labour	5	5.0
	Housewife	34	34.0
	Service	27	27.0
	Student	4	4.0
	Unemployed/retired	8	8.0
Education	No formal education	15	15.0
	Primary	25	25.0
	SSC	19	19.0
	HSC	32	32.0
	Graduate or above	9	9.0

Table 1 above shows Socio-demographic characteristics of participants. The majority of the study participants (35.0%) were between the ages of 18 and 30, with a mean age of 38.02±13.14, according to Table 1. Women represented most of study participants (70.0%).

Housewives made up the largest proportion of participants (34.0%), followed by those in the service (27.0%) and business (22.0%) Regarding educational status, the majority of the participants (60.0%) were minimum SSC passed [Table 1].

Figure 1: HbsAg status of the studied participants (n=100)

Figure 1 resembles HbsAg status of the studied participants. Majority (69.0%) of participants were HBsAg negative and some 31.0% were HBsAg positive as shown.

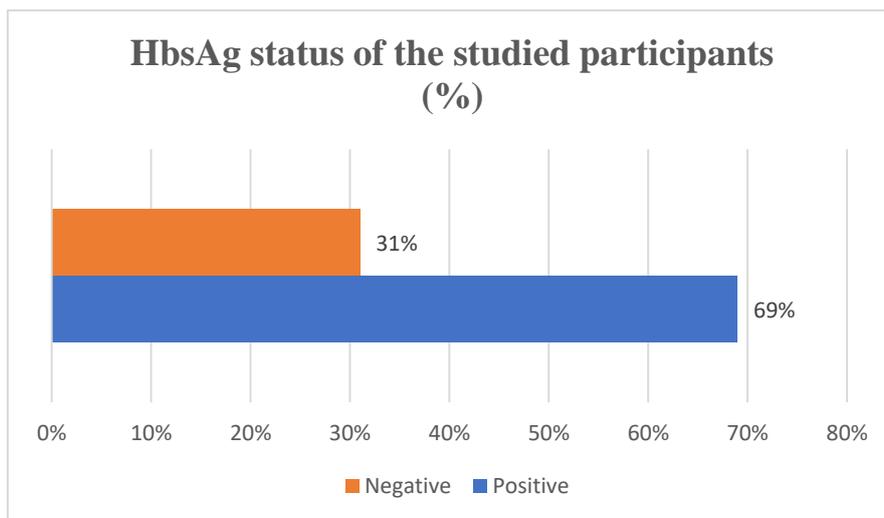


Figure 2: Anti-HBc total status of the HBsAg negative participants

Figure 2 indicates Anti-HBc total status of the HBsAg negative participants. Among negative HBsAg respondents, anti-HBc total was measured to confirm infectious condition, where, about 15 (21.7%) respondents were Anti-HBc total positive and 54 (78.9%) were Anti-HBc total negative.

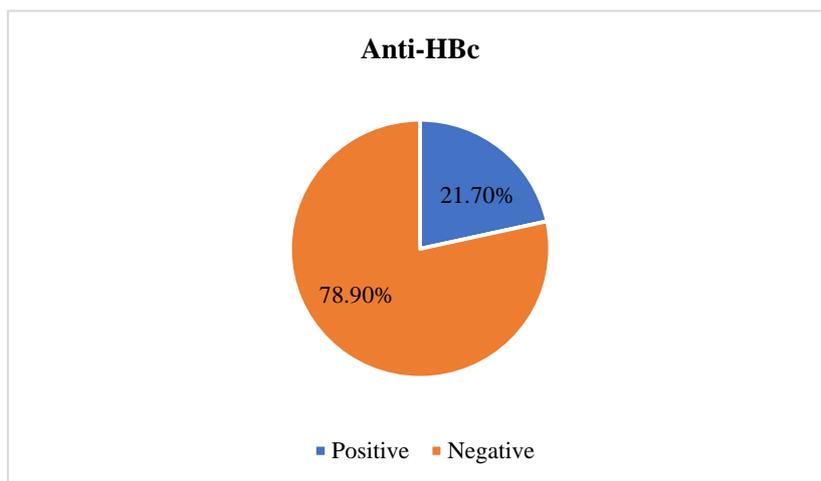


Figure 3: Total HBV infection status of the studied participants (n=100)

Figure 3 shows total HBV infection status of the studied participants. Overall, HBsAg and anti-HBc total interpretation showed, about 46% participants (partners of HBsAg positive patients) were positive for HBV infection and rest 54% were negative.

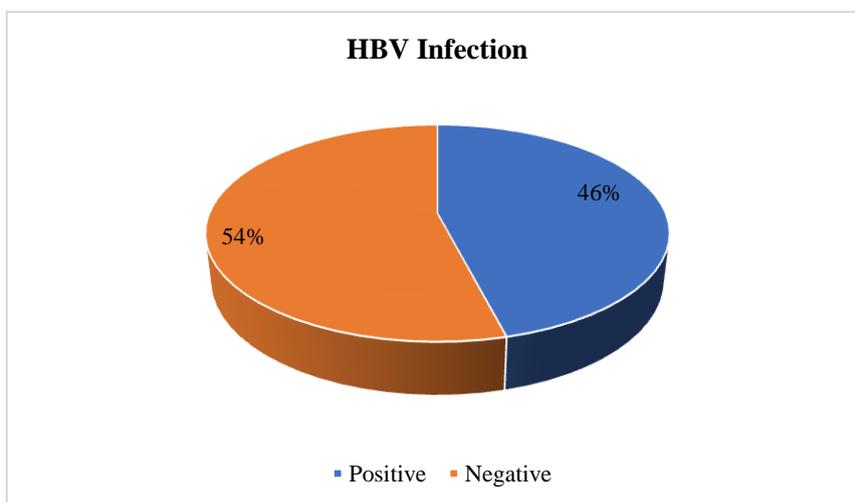


Table 2: Distribution of the studied participants by the knowledge regarding HBV (n=100)

Knowledge regarding HBV		Percentage
Knowledge level	Poor	65.0
	Good	35.0
Mean score	4.40±2.79 (0-9)	

Table 2 shows that the mean score for knowledge level was 4.40±2.79, where the minimum score was 0 and the maximum score was 9. Regarding knowledge level, 65.0% of the participants had a poor level of knowledge, whereas 35.0% had a good level of knowledge.

Table 3: Association of Socio-demographic characteristics of the studied participants with the knowledge score (n=100)

Attributes		Knowledge score Mean±SD	p-value
Age (Years)	18-30	4.96±3.35	0.105
	31-40	5.03±3.24	
	41-50	4.13±1.69	
	51-60	3.60±1.68	
	>60	3.0±0.74	
Gender	Female	4.23±1.97	0.617
	Male	4.54±3.05	
Occupation	Business	4.44±3.09	0.779
	Day labour	3.40±2.19	
	Housewife	4.02±2.02	
	Service	4.68±2.15	
	Student	5.25±2.22	
	Unemployed/retired	4.25±1.39	
Education	No formal education	2.40±2.03	0.006
	Primary	3.64±1.44	
	SSC	4.13±2.69	
	HSC	5.21±2.53	
	Graduate or above	5.67±2.50	

Table 3 illustrates that the mean knowledge score was highest for 31-40 years of age range and mean knowledge level score was more for the male participants than the female. Educational status was significantly associated ($p<0.05$) with the knowledge score. No significant association was found between age, gender, occupational status and knowledge score ($p>0.05$).

Discussion

Bangladesh together with the Indian sub-continent is recognized as a country with a moderate prevalence of Hepatitis B.⁸ Beyond this rather surface-level characterization, there remains considerable ambiguity regarding the epidemiology of Hepatitis B virus infection in the country. The lack of reliable epidemiological information has been cited as one of the key challenges to effective hepatitis B response in Bangladesh.⁹ Knowledge regarding Hepatitis has been demonstrated to be associated with disease management and outcomes, with improved management and outcomes among those with increased knowledge of the disease.^{10,11} Further as knowledge of transmission improves, rates of disease screening and incidence have been shown to decrease.¹² There is a lack of data regarding knowledge assessment among the partners of HBsAg patients. This study aimed to assess the HBsAg Status and Related Knowledge Among the Partners of HBsAg Positive Patients.

In this present study, all the participants were partners of HBsAg positive patients and the mean age for the studied participants was 38.02±13.14 (SD) years and the majority of the studied respondents (80%) belonged to 18-50 years of age. And the majority (70%) were female in this study which means the majority of the HBsAg positive patients were male. A nearly similar study was done in Bangladesh and it showed that the mean age for the studied HBsAg positive patients were 42.5±12.3 (SD) years and the mean age for the control group was 37.8±14.6 years.¹³

This current study showed that, regarding educational status, the majority of the studied respondents (32%) completed their education up to SSC followed by decreasing order completed primary (25%), completed HSC (19%), no formal education (15%) and graduate or above (9%) besides the majority (34%) were housewives followed by decreasing order service (27%), business (22%). A study was done in Bangladesh to assess the knowledge and awareness among the admitted HBV patients in Bangladesh and they found that 34.3% were illiterate, 37.1% completed primary, 8.6% completed SSC, 12.9% HSC, 4.3% graduated and 2.9% post-graduate and in terms of occupation 18.6% were farmer, 34.3% were retailer, 17.1% were housewives, 7.2% were day labor, 21.4% were service holder.¹³

In this present study, 31% of the studied participants were HBsAg positive and 69% were HBsAg negative. Among the HBsAg negative participant, again anti-HBc total was measures to ensure any HBV infectious condition. And, anti-HBc total was positive among 21.7% respondents among negative HBsAg. However, after overall assessment of HBsAg and anti-HBc total among participants, total HBV infection positive participants were 46% of this study. Similar data wasn't available in Bangladesh but a study was done in Bangladesh where 201 adult fever cohorts recruited to determine the prevalence of Hepatitis B virus infection and to identify occult HBV infection, anti-HBc was documented in 72/201 (36%) participants, active HBV was 16/201 (8%) and occult infection was in 3 of 201 patients.¹⁴ On the other hand, in a study conducted in China showed, the prevalence of chronic HBV infection was 4.3% in couples, while the prevalence of exposure 32.7%.¹⁵ Again another study suggested, 14.35% couples were HBsAg positive, however, among these affected couples, 95.00% had a discordant status of HBsAg positivity, including 5.28% wife only and 8.35% for the husband only.¹⁶

The mean score for knowledge level was 4.40 ± 2.79 where the minimum score 0 and the maximum score was 9. Regarding knowledge level, in this study, 65% of the participants had a poor level of knowledge whereas 35% had a good knowledge level. A nearly similar study was done in Bangladesh to see the knowledge level among HbsAg positive patients and the control group, they used 38 questions to assess the knowledge and they found that, among the HBsAg positive patients, 14.3% had highly dissatisfactory knowledge, 20.1% had dissatisfactory knowledge, 41.4% had neither dissatisfactory nor satisfactory knowledge, 24.2% had satisfactory knowledge and no one had highly satisfactory knowledge, among the healthy control group, 27.2% had highly dissatisfactory knowledge, 24.2% had dissatisfactory knowledge, 34.3% had neither dissatisfactory nor satisfactory knowledge, 14.3% had satisfactory knowledge.¹³ A survey of knowledge about HBV among new military recruits in China was done and they found that 83.6% demonstrated poor knowledge about HBV whereas 16.4% demonstrated adequate knowledge.³ Another study showed that only 16% of pregnant HBsAg positive mothers had an adequate level of knowledge.¹⁷

This study found that the mean knowledge score was more for the 31-40 years of age range but there wasn't any significant association in terms of age range and knowledge score ($p > 0.05$) also this study showed that the mean knowledge level score was more for the male participants than the female but there wasn't any significant difference regarding knowledge score among male and female ($p > 0.05$) but the educational status was significantly associated with the knowledge score. The mean knowledge score was significantly higher for participants with completed HSC and graduate or above compared to no formal education ($p < 0.05$). Although occupational status wasn't significantly associated with knowledge score it was seen that those who were students and service holders had higher knowledge scores than others. Another study showed that age, and education were associated with knowledge scores, they found that participants in age groups 19-21, 22-24 had a significantly higher number with good knowledge than the participants with <19 years of age, also college degree or above had more number of participants with good knowledge score than participants with no education.³ Another study also showed a significant association between education and knowledge level.¹⁷

Conclusions

This study evaluated the HBsAg status and related knowledge among the partners of HBsAg positive patients. In this study, maximum partners of the HBsAg positive patients were 18-40 years of age, female, and passed SSC or above. About one-third partners were HBsAg positive and maximum had poor level of HBsAg related knowledge. Participants who passed HSC or above had significantly higher knowledge score than participants with no formal education. However, as this study was a single centered study so it wasn't possible to generalize through these findings. Further larger multicenter study is recommended with appropriate design to validate findings of this study. Despite several limitations, study findings suggest that HBsAg awareness program should be run in whole country, especially among active partners of HBsAg positive patients and illiterate population.

Conflict of Interest

There is no conflict of interest.

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Authors contribution

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