

Prevalence of Hepatitis-B and C Virus Infections in Overseas Job Seekers in the Rangpur Division

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Viral hepatitis is a major global public health problem also in Asia. Both hepatitis B virus (HBV) and hepatitis C virus (HCV) infections are rapidly spreading in the developing countries including Bangladesh. This might be due to the lack of health education, lack of awareness and lack of vaccination. Also there is lack of information on their prevalence among the general population. HBV and HCV related chronic hepatitis is the main cause of cirrhosis and hepatocellular carcinoma (HCC) that are responsible for a high rate of morbidity and mortality. So, a population-based serological survey was conducted in the Rangpur division, Bangladesh to determine the prevalence and risk factors of HBV and HCV infections among the overseas job seekers. The cross sectional data was collected from the department of microbiology in the Rangpur Medical College from 11/02/2013-16/03/2013[1st phase]; 28/07/2013-29/09/2013[2nd phase] and 18/03/2015-23/04/2015[3rd phase] among the 3019 G2G overseas job seekers. A descriptive analysis was performed. Demographic and behavioural characteristics were collected in a preformed data sheet. Then blood tested for hepatitis B surface antigen (HBsAg), antibody to HBV core antigen (anti-HBc) and anti-HCV antibodies (anti-HCV) in the department of microbiology. Out of 3019 participants, 51 were HBsAg positive. Based on the results, prevalence of HBV and HCV in Bangladesh has the similarity with other Asian countries. Based on the results, prevalence of HBV and HCV in Bangladesh has the similarity with other Asian countries. It indicates HBV and HCV are the emerging public health problems in a developing country like Bangladesh. Health awareness and education programme may help to prevent the fatality. Further study should emphasize on peoples perception, knowledge and practice behaviour on HBV and HCV infection.

[Dinajpur Med Col J 2017 Jan; 10 (1):43-49]

Key words: HBV, HCV, HBsAg, anti-HBc, anti-HCV, HCC, overseas, job seekers

Introduction

Hepatitis is an inflammation of the liver, most commonly caused by a viral infection. Acute hepatitis is seen sporadically round the year in Bangladesh.¹ There are five main hepatitis viruses, referred to as types A, B, C, D and E. These five types

are of greatest concern because of the burden of illness and death they cause and the potential for outbreaks and epidemic spread. In particular, types B and C lead to chronic disease in hundreds of millions of people and together, are the most common cause of liver

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cirrhosis and cancer.² Viral hepatitis is the leading cause of liver cancer and the most common reason for liver transplantation. So World hepatitis day is observed on every 28th July world wide. Little data are available on hepatitis prevalence in Bangladesh.⁴ But according to WHO, Bangladesh is one of the countries or areas with moderate to high risk of hepatitis A and hepatitis B.⁵ As a South East Asian country Bangladesh is considered endemic for hepatitis B virus (HBV) infection.⁶

Viral hepatitis is a serious public health problem affecting billions of people globally. Caused mainly by hepatitis viruses A, B, C, D and E, and rarely by cytomegalovirus (CMV), Epstein-Barr virus (EBV) and fungal infections, the spectrum of hepatitis range from sub-clinical to milder and life threatening illness including hepatocellular carcinoma.^{7,8} Globally two billion people are infected with HBV, and 350 millions of them have chronic (lifelong) infections, who are at high risk of death from liver cirrhosis and liver cancer that kill more than one million people globally each year.⁹ In Bangladesh, there is paucity of information on the prevalence of HBV infections among general population and majority of the previous studies were conducted in selected group of people with higher risk factors such as blood donors, drug addicts, commercial sex workers (CSWs) or hospitalised patients.¹⁰⁻¹⁴ However, a recent report showed 5.5% HBsAg positivity among the general population living in Savar, a semi-urban area on the outskirts of Dhaka.¹⁵ Although HBsAg is the most reliable biological biomarker of HBV infection, and the anti-HBc antibody is an important marker for surveying the burden of HBV infection as it persists even after resolution of infection, and thus identifies both past and current HBV infection.¹⁶

It is evident that HBV and HCV infections are both major global health problems, and they are rapidly spreading in developing countries due to the lack of health education, poverty, illiteracy and lack of hepatitis B vaccination. As many chronically infected individuals remain asymptomatic, and thus undetected for many years, we planned this population-based serological study to determine the prevalence of HBsAg,

The Govt. of the Peoples Republic of Bangladesh decided to send job seekers in Malaysia via G2G process. As a part of this process they are to undergo investigations to determine medically fitness in the microbiology department of Rangpur Medical College. For this purpose, a medical board was formed who is to follow a prescribed investigation chart. During examination of blood the medical board found asymptomatic HBV infections in a no of cases. So the authors felt interest to make a publication to inform all concerned about the prevalence of HBV infections among the overseas job seekers in the Rangpur division, Bangladesh.

As many chronically infected individuals remain asymptomatic, and thus undetected for many years; since the overseas job seekers are in an excellent position to pass these information to the upcoming, we planned this population-based serological study to determine the prevalence of both HBsAg and anti-HBc infection and their HBV vaccination status and to disseminate basic information to the overseas job seekers on hepatitis, jaundice, hepatitis B and hepatitis C among the overseas job seekers and to identify the possible risk factors for acquiring the infections in the Rangpur division, Bangladesh. We hope that the findings might guide eventually the development, adaptation, and evaluation of prevention strategies.

Methods

The cross sectional data was collected from the microbiology department of Rangpur Medical College and descriptive analysis was performed from 11/02/2013—16/03/2013[1st phase]; 28/07/2013—29/09/2013[2nd phase] & 18/03/2015—23/04/2015[3rd phase] among the 3019 G2G overseas job seekers. They were 1st selected by lottery in the union office level or in the ministry level by online registration. Then they were asked by SMS from the ministry to report before the medical board at the microbiology department of Rangpur Medical College for medical examination in 3 different phases.

Study subjects were selected by the following purposive sampling procedure. The study participants ranged between the ages of 18 and 45 years. The study was approved by the ethical review committee of Rangpur Medical College. Anybody having obvious infection & any deformity were not included in this study. Apparently asymptomatic healthy individuals were included in this study. The objectives and the procedures of the study were explained in detail to the subjects. Written, informed consent was obtained from all patients. The study was approved by the ethical review committee of Rangpur Medical College. They were informed about the risk and benefit before enrollment of the study. The questions gathered the information according to supplied G2G format for

Results

Malaysia job seekers as given by the line director, G2G project, DGHS.: relating socio-demography-age, gender, educational level, number of family member, marital status, monthly income, factors pre-disposing to the transmission of hepatitis B and C, number of injections received in the last year, vaccination status, history of surgery, blood or blood products transfusion, dental treatment, treatment following an accident/injury, history of tattooing or acupuncture treatment, ear/nose piercing, saloon shaving and regarding circumcision. When we found some asymptomatic HBsAg positive case, we felt interest, took full history & did necessary investigations. Jaundice or diagnosis of HBV or HCV infection among participants, siblings, parents or other family members, Saloon shaving and regarding circumcision. Demographic information was prospectively recorded and substantiated by means of inspection of medical records. We collected 5ml of venous blood from each for testing for HBsAg and anti-HCV. The tests were performed by stat Fax Eliza Reader, Model-303 plus, serial no. 303.6571. Findings were collected & the data were recorded in a pre-designed data collection sheet and analyzed by using Microsoft Excel and SPSS v-20 computer program. Chi-square test was used to find out statistical significance.

Table I: EPI & TT Vaccination Status (n=3019)

Received vaccines (EPI) in childhood	Number	Percentage	p
Yes	2586	85.7%	<0.001
No	433	14.3%	
Received TT injection for tetanus			
Yes	2650	87.8	<0.001
No	369	12.2	

Table II: Risk Factors of HBV & HCV infection

Risk Factors	Number	Percentage	p
Times of injections received in last 1 year			
One	2090	69.2%	<0.01
More than one	850	28.1%	
No	79	2.7%	
Received blood transfusion			
Yes	1290	42.7%	<0.01
No	1729	57.3%	
Donated Blood			
Yes	1528	50.7%	<0.001
No	1491	49.3%	
Underwent any surgery			
Yes	845	28%	<0.001
No	2174	72%	
Underwent dental procedure in clinic and hospital			
Yes	970	32.1%	<0.01
No	2049	67.9%	
Suffered from liver disease/jaundice			
Yes	760	25.1%	<0.001
No	2259	74.9%	
<i>Mother suffered from liver disease</i>			
Yes	570	18.9%	<0.01
No	2449	81.1%	
<i>Member of family suffered from liver disease</i>			
Yes	612	20.2%	<0.05
No	2407	79.8%	
<i>Circumcision was done by</i>			
MBBS doctor/Hospital	808	26.8%	-
Unregistered doctors/Hazam	1024	73.2%	
<i>Received treatment for injury/ accident</i>			
Yes	1185	39.2%	>0.1
No	1854	60.8%	
<i>Received hepatitis B vaccines</i>			
Yes	870	28.9%	<0.001
No	2149	71.1%	
<i>Went Barber saloon for shaving</i>			
Yes	2426	88.3%	-
No	593	19.7%	
<i>Went to beauty parlor</i>			
Yes	380	12.6%	-
No	2639	87.4%	
<i>Performed Tattooing on body or received acupuncture treatment</i>			
Yes	154	5.1%	<0.001
No	2865	94.9	
<i>Member of family was suffering from hepatitis B virus infection</i>			
Yes	200	6.7%	>0.1
No	2819	93.3%	
<i>Member of family was suffering from hepatitis C virus infection</i>			
Yes	2942	97.4%	-
No	77	2.6%	

We found only 51 cases (2.9%) positive for HBsAg (confirmed by Eliza method) and none (0%) for Anti HCV. A 30 year old young man who was positive for HBsAg had no family history of liver disease and HBV infection but he had been circumcised by Hazam and frequently went to barber shop for shaving. The other 35 year old man who was positive for HBsAg had no personal and family history of liver disease but circumcised by unregistered doctor and sometimes went to barber shop for shaving. Others had history of injury, operative procedure or needle contact. EPI and TT vaccination status of the participants is shown on Table I. Data on exposure to risk factors of hepatitis B and C among the primary school teachers are presented in Table II.

Discussion

In our study, we have found a very low rate of prevalence of HBV infection overseas job seekers in the Rangpur division. This is probably due to religion values. Several epidemiological studies have shown that at least 20% of all new HBV infections are due to unsafe injections in developing countries. At least 50% of injections are unsafe. Average 95% of all injections are therapeutic, the majority of which were judged to be unnecessary.¹⁷⁻²⁰ A significant proportion of overseas job seekers underwent surgical procedures (25.2%) and dental procedures (46.6%) posing them in a high risk of HBV and HCV infection. In a study Qureshi H et al., showed a significantly increased risk of HBV and HCV infections following dental treatment.²¹ In a review article Mahboobi N., and her colleagues concluded that dental treatment can be included among the risk factors of HBV and HCV infection.²² We found 70% of our male participants used go barber shop for shaving which could be a risk for HBV and HCV transmission. Jimenez et al showed barber shaving as a significant factor in the community transmission of

hepatitis B virus in Egypt.²³ A significant proportion (30%) of participants had a family history of liver disease and a personal history of liver disease and jaundice (37.7%), revealing that liver disease is very common. Qureshi H et al, showed a significantly increased risk of HBV and HCV infections among family members.²¹ We found about 5.1% of participants had a history of blood transfusion which could be a potential risk for HBV and HCV transmission.

Conclusion

The prevalence of different forms of hepatitis in Bangladesh is high. Routine immunizations, community education regarding the diseases are highly warranted here. Government should take necessary steps regarding this issue. Safe blood transfusion need to be ensured. Though we have found a very low rate of HBV and HCV infection in overseas job seekers but they were exposed to various risk factors. By arranging health awareness programs and educational workshops, knowledge of the risk factors to be disseminated to the overseas job seekers in Bangladesh, so that they can teach the upcoming generation and thereby can play an important role in preventing HBV and HCV infection. Further, more long-term population-based surveillance studies, with extended serology of HBV infection, are needed to more accurately assess the hepatitis B true disease burden in Bangladesh, the impact of vaccination, and to guide prioritization of scarce health care resources.

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