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Sociodemographic Characteristics, Knowledge and Prevalence of Viral Hepatitis Infection among Vietnamese Americans at Community Screenings

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Abstract

Few studies have investigated the prevalence of hepatitis B virus (HBV) and C virus (HCV) infection among Vietnamese Americans (VAs). The purpose of this paper is to assess the prevalence of HBV and HCV infection, identify the sociodemographic characteristics of the HBV infected population and the level of HBV knowledge among VAs in the Baltimore-Washington-Metropolitan-Areas with data from a health fair in 2011. A total of 617 VAs received serological testing for HBV and HCV, and 329 completed a survey of HBV knowledge assessment. About 9% were infected with HBV and 5% with HCV. VAs younger than 30 years had the highest HBV prevalence (13.1%) followed by those age 41–50 years (12.1%). The prevalence of HCV infection was particularly higher among those older than 70 years old (13.9%). Misunderstanding HBV as a food-borne disease is prevalent among VAs. Efforts to develop public health screening and education programs targeting this population are warranted.

Keywords

Asian; community; hepatitis B virus; hepatitis C virus; screening; Vietnamese

Asian Americans represent over half of the 2 million chronic hepatitis B virus (HBV) cases in the U.S. population (1). Without proper treatment, chronic HBV infection can lead to liver cirrhosis and hepatocellular carcinoma (HCC). Vietnam is the third leading country of birth for chronic hepatitis B among immigrants in the U.S. and is estimated to account for

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Conflict of interests.

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11% of chronic hepatitis B cases in the U.S. from 1974–2008 (2). HBV screening programs targeting the AAPI population have existed over the last decade, but the majority of the screening programs have almost always been of Chinese ethnicity, with few Vietnamese participants (3,4).

HCV is another common chronic blood borne infection that is highly associated with HCC. In Vietnam, the estimated prevalence of chronic HCV ranged from 1% in the low risk general population to 87% in the high risk drug injection population (5), which showed the importance of assessing the prevalence of HCV infection among immigrants from Vietnam. However, there are only a few studies that have examined the prevalence of hepatitis C virus (HCV) infection among Vietnamese Americans (VAs), with the prevalence ranging from 2.2% to 15.4% (6,7). Little is known regarding the sociodemographic profile of those infected with the hepatitis B and C virus among VAs.

Chronic HBV infection is often asymptomatic. People who are infected can appear and feel healthy, but can still transmit the virus, which can lead to severe liver diseases. In order to prevent infections, the community needs to know the transmission routes of the virus (2). Assessing knowledge of HBV and HCV in large community sample can identify educational gaps in populations at risk for these diseases and support the need for resources to provide culturally tailored and targeted information.

The purpose of this report is to identify the status of viral hepatitis infection by serological results for HBV and HCV of VAs in Baltimore-Washington Metropolitan Areas, describe their sociodemographic characteristics, and evaluate their level of knowledge about HBV. The data was collected at a large Vietnamese health fair (VHF) in Northern Virginia in August 2011.

Methods

Patients and methods

A total of 617 VAs were tested for HBV and HCV infection in a hepatitis testing lab set up at the VHF free of charge. Blood samples were collected by venipuncture and tested for the hepatitis B surface antigen (HBsAg), hepatitis B antibody (HBsAb) and hepatitis C antibody. Participants with a positive result for the HCV antibody were considered to have an HCV infection. Among those tested, 329 completed a self-reported survey that included questions regarding the sociodemographics and a hepatitis B knowledge assessment (8). The survey was administered in both Vietnamese and English. The study protocol was approved by the Institutional Review Board of the Johns Hopkins Bloomberg School of Public Health.

Measures

Sociodemographic measurements were assessed in the self-reported survey, including educational attainment, length of stay in the U.S., health insurance status, and family history of HBV. HBV knowledge was assessed by their understanding of the mode of transmission and sequelae of HBV infection (8). Mode of transmission was measured with ten questions, such as whether hepatitis B can be spread by sharing food with an infected person, while

sequelae was measured with seven questions, such as whether they think that the majority of chronic hepatitis B patients have no symptoms (8).

Statistical analysis

Proportions of HBV infected (HBsAg+), protected (HBsAg–, HBsAb+) and susceptible (HBsAg–, HBsAb–), and HCV infected participants were presented by gender and age groups. We used chi-squared tests to compare sociodemographic characteristics among HBsAg positive and negative participants. We presented the proportions of correct answers on each hepatitis B knowledge item.

Results

Among the 617 persons tested, the mean age was 50.7 years (standard deviation [SD] = 14.1, ranged 20–82) and about 63% were female. Fifty-four (8.8%) had chronic HBV infection (Table 1). Four hundred thirty (69.7%) were not infected and protected, and 133 (21.6%) were susceptible for infection. For HCV, among the 617 persons, 29 (4.7%; Table 1) tested positive and only one person was infected with both hepatitis B and C.

Among the 617 participants, there was no statistical difference between males and females for having neither HBV nor HCV infection. Participants 50 years old had a higher prevalence of HBV infection than those >50 years old (11.4% vs. 6.8%; $p<0.05$). Those younger than 30 years had the highest HBV prevalence (13.1%) followed by those 41–50 years old (12.1%). The prevalence for HCV infection was particularly high among those older than 70 years old (13.9%) than the rest of the age groups (ranged from 0% to 6.7%).

Among the 329 that completed the survey, more than 98% self-identified as Vietnamese and the average length of stay in the U.S. was 12.1 years (SD=10.5). The prevalence of chronic HBV infection was not significantly different across various education levels or insurance status, but significantly higher among those with a family history of HBV infection than those without (20.8% vs. 5.1%; $p<0.01$). The prevalence of chronic HBV infection significantly varied depending on the length of stay in the U.S., with 0–5 years having the highest prevalence (16.4%), followed by more than 20 years (10.1%) and 6–20 years (3.8%; $p<0.01$).

Proportions of correct hepatitis B knowledge among the 329 VAs were presented in Table 2 by each item of the assessment. For all 10 items regarding HBV transmission mode, none of the items were correctly answered by more than half of the participants. Moreover, only less than 30% of participants correctly answered the following questions, such as whether hepatitis B can be spread by sharing food with an infected person or by being coughed or sneezed on by an infected person. For all 7 items regarding sequelae of HBV, most of the items had incorrect responses from over half of the participants.

Discussion

Based on the screening data collected in 2011 at a large community health fair for VAs in the Baltimore-Washington Metropolitan area, it was estimated that about 9% were infected

with HBV and 5% with HCV infection. The large heterogeneity of viral hepatitis infection prevalence among VAs in different U.S. regions shows the need for continued screening and monitoring in communities with large VA populations.

The HBV infection prevalence from our study is similar to most studies that provided Vietnamese-American-specific data, which ranged from 6.5 to 10.5% (6, 7); yet, much lower than a prevalence report from California (13.8%) (3). This might be due to regional or sampling differences. Additional studies are needed to determine the factors associated with the observed geographic differences.

For HCV infection, our data showed a lower prevalence than one study with a community sample of VAs (4.7% vs. 15.4%, sample size 39) (6), but similar to another study in the same region (5.2%, sample size 77) (7). Several reasons may contribute to the large variation of HCV infection prevalence between studies, such as limited sample size or different recruitment methods in the community health fairs.

In our study sample, VAs older than seventy years old had a much higher HCV infection prevalence than the other age groups, which may be due to the lack of universal screening for HCV in blood donors before 1992. The majority of HCV infections in the U.S. are a result of infected blood transfusions before 1992, which likely accounts for the higher rates of chronic HCV infection among older populations in the United States (9).

We found that prevalence of chronic HBV infection was significantly higher among those with a length of stay in the U.S. between 0–5 years, and those with more than 20 years. Vietnamese immigrants who stayed in the U.S. more than 20 years were the eldest group (mean age 58) among the three groups; hence, most were born before the introduction of hepatitis B vaccinations and were more likely to be infected. For those who recently immigrated to the U.S. within 5 years, they were more likely to have been born and infected in a country, such as Vietnam, in which the disease is endemic.

We compared the HBV knowledge in this study population to the results of a previous study conducted among VAs in Seattle in 2005 and found that knowledge deficits prevailed (10). In particular, a few myths about hepatitis B transmission routes related to a person's daily life, such as confusion in whether HBV is a food-borne disease or blood-borne disease remained high or even higher compared to previous data (10). Misunderstanding the transmission route may strengthen the stigma against people with HBV, such as isolating those considered promiscuous or perceiving them as not practicing good hygiene, which should be addressed by more effective culturally-tailored interventions.

This study has several strengths. First, there were a large number of VAs screened and the cohort may be one of the largest ever reported for VAs. Second, this is the first HBV and HCV study of the VA population in this geographic area. Third, the study analyzed data that was ethnic specific. The findings in this report, nevertheless, are subject to a few limitations. The data collected from a health fair is subject to selection bias. VAs going to a health fair might be those who lack access to regular health care or those who are of lower socioeconomic status. Also, due to financial constraints, we were unable to test for hepatitis

B core antibodies, which would have identified previous exposure and clearance versus prior vaccination.

However, this report highlights that VAs in the Baltimore-Washington-Metropolitan-Areas older than seventy years old are at greater risk for hepatitis C infection, and a low level of HBV knowledge still prevails among VAs compared to data from about ten years ago. More efforts are needed to monitor the viral hepatitis infection rate among VAs in different regions of the U.S. given the wide range of prevalence reported in the literature. The information should be compiled into a national database to understand why these differences exist.

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Prevalence of hepatitis B virus (HBV) and hepatitis C virus (HCV) infection by gender and age among Vietnamese Americans from the screening result of large health fair in Baltimore-Washington Metropolitan area, 2011 (N=617)

Table 1

	Total	HBV infection status				HCV	
		HBsAg+	HBsAg-, HBsAb+	HBsAg-, HBsAb-	Antibody+		
	No.	No.	(%)	No.	(%)	No.	(%)
Gender							
Male	227	20	(8.8)	163	(71.8)	44	(19.4)
Female	390	34	(8.7)	267	(68.5)	89	(22.8)
Age group (yrs)							
<=30	61	8	(13.11)	42	(68.85)	11	(18.03)
31-40	79	7	(8.9)	54	(68.4)	18	(22.8)
41-50	124	15	(12.1)	82	(66.1)	27	(21.8)
51-60	195	16	(8.2)	135	(69.2)	44	(22.6)
61-70	122	6	(4.9)	92	(75.4)	24	(19.7)
>70	36	2	(5.6)	25	(69.4)	9	(25.0)
Total	617	54	(8.8)	430	(69.7)	133	(21.6)

Table 2

Proportion of correct hepatitis B knowledge among Vietnamese Americans from the screening result of large health fair in Baltimore-Washington Metropolitan area, 2011 (N=329)

Hepatitis B Knowledge Questions	% Right answer
HBV transmission mode (10)	
Do you think hepatitis B can be spread...?	
1. From infected mother to child during childbirth	33.7
2. By eating food prepared by an infected person	31.6
3. By sharing a toothbrush with an infected person	34.4
4. By sharing food with an infected person	29.2
5. By sharing a razor with an infected person	38.3
6. By eating food that has been pre-chewed by an infected person	22.5
7. By being coughed or sneezed by an infected person	27.7
8. By having sexual intercourse with an infected person	41.0
9. By holding hands with an infected person	40.7
10. By breast feeding from an infected mother	19.2
Sequelae of HBV (7)	
Do you think that...?	
1. Hepatitis B can cause liver cancer	53.2
2. Chronic hepatitis B causes liver cancer and/or cirrhosis if not properly managed	48.3
3. People with hepatitis B are infected for life	29.8
4. Hepatitis B infection cannot be cured, but the disease can be managed	37.4
5. The majority of chronic hepatitis B patients have no symptoms	33.4
6. Hepatitis B virus is significantly more contagious than HIV/AIDS	34.0
7. A hepatitis B infected person, who looks and feels healthy, can still spread hepatitis B	45.3