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HEPATITIS B KNOWLEDGE AND PRACTICES AMONG CAMBODIAN IMMIGRANTS

Vicky M. Taylor, MD, MPH, Paularita Seng, Elizabeth Acorda, MA, Lyvan Sawm, and Lin Li, MD, MS

Received from the Cancer Prevention Program, Fred Hutchinson Cancer Research Center, Seattle, WA (VT, PS, EA, LL); Department of Health Services, University of Washington, Seattle, WA (VT); Cambodian Women's Association, Seattle, WA (PS); and Khmer Community of Seattle–King County, Seattle, WA (LS)

Abstract

Background—Chronic hepatitis B infection is the most common cause of liver cancer among Cambodians. Our objective was to describe Cambodian Americans' hepatitis B knowledge, testing, and vaccination levels.

Methods—A community-based telephone survey was conducted in Seattle. Our study sample included 111 individuals.

Results—Less than one-half (46%) of our study group had received a hepatitis B blood test, and about one-third (35%) had been vaccinated against hepatitis B. Only 43% knew that Cambodians are more likely to be infected with hepatitis B than whites.

Conclusions—Over 50% of our respondents did not recall being tested for hepatitis B. Important knowledge deficits about hepatitis B were identified. Continued efforts should be made to implement hepatitis B educational campaigns for Cambodians.

Keywords

Cambodians; Hepatitis B; Immigrants; Liver cancer

INTRODUCTION

Cambodians are one of the most disadvantaged and linguistically isolated racial/ethnic groups in the United States (US) (1). Over 99% of Cambodian Americans came to the US as refugees or immigrants over the last three decades, or are the children of these individuals (2). The 2000 US Census counted 206,000 Cambodians (1,2). However, Census figures are widely considered to represent an undercount of the actual population in refugee and immigrant groups (3). A majority of Cambodians live in one of three states: California, Massachusetts, and Washington (2,3). The US Cambodian community is relatively homogeneous and is characterized by a sense of identification with other Cambodian Americans; an emotional connection through the refugee and immigrant experience; and shared history, culture, religion, and language (4). Little is known about the disease prevention behavior of Cambodians, and few research projects have focused on this group (5).

Primary liver cancer occurs more frequently among Southeast Asians (Cambodians, Hmong, Lao, and Vietnamese) in the US than among individuals of any other race/ethnicity, and Southeast Asians are over ten times more likely to be diagnosed with primary liver cancer than non-Latino whites (6–8). For example, California cancer registry data indicate that the incidence rate among Southeast Asian men approaches 40 per 100,000, compared to 3 per 100,000 among non-Latino white men (7). This health disparity can be attributed to high rates of hepatitis B virus infection combined with low levels of hepatitis B vaccination coverage (9). Refugee program data show that over 10% of Cambodian immigrants are chronically infected with the hepatitis B virus, compared to less than 0.5% of the general US population (10,11).

In Asian countries where hepatitis B is highly endemic, transmission often occurs vertically at birth (12,13). However, several serologic studies conducted in the US show that the prevalence of previous infection increases steadily with age in Southeast Asian immigrant populations. Therefore, it is clear that horizontal transmission, through close household contact (e.g., sharing toothbrushes), also contributes to high hepatitis B infection rates among Southeast Asians (14,15). Finally, Cambodian American adults are at risk of hepatitis B infection from sexual activity with other members of their community (10).

Hepatitis B serologic testing is recommended for all US immigrants from endemic areas of the world such as Cambodia (16). Hepatitis B testing allows the identification of chronically infected individuals who may benefit from anti-viral therapy and should take precautions to avoid infecting others, as well as susceptible individuals who should be vaccinated against the disease (9). The President's Advisory Commission on Asian Americans recently called for population-based studies to better understand the health knowledge and practices of Asian Americans (17). In collaboration with a Cambodian Community Coalition, we conducted a needs assessment survey of Cambodian American men and women in Seattle, Washington during late 2005 and early 2006. This descriptive brief report focuses on Cambodians' hepatitis B knowledge, testing, and vaccination levels.

MATERIALS AND METHODS

Survey Recruitment

The questionnaire and survey procedures were reviewed and approved by the Institutional Review Board at the Fred Hutchinson Cancer Research Center. A list of common Cambodian last names was applied to the telephone book for metropolitan Seattle (18). We identified 253 Cambodian households, and these households were all included in our survey sample. Households received an introductory mailing which included a letter (Khmer and English versions) as well as a small incentive (a culturally appropriate calendar). Each household was subsequently contacted by a bilingual (Khmer and English) Cambodian interviewer, and asked to complete a telephone interview. Respondents were offered \$10 as a token of appreciation for their time. Seven attempts were made to contact each household (including at least two daytime, two evening, and two weekend attempts). Respondents were given the option of completing the survey in Khmer or English.

Our Cambodian Community Coalition members believed that traditional approaches to random selection within households are not culturally acceptable to Cambodian immigrants. Specifically, they believed the survey response rate would be negatively impacted by any attempt to roster household members, and then randomly select one respondent in households with two or more eligible individuals. Coalition members also advised us against using the nearest birthday method of participant selection because a meaningful proportion of older Cambodians do not know their exact date of birth, and routinely use the first of January for US documentation purposes. Therefore, we made no attempt to randomly select household

members for survey participation and elected to interview any Cambodian adult (aged 18 years or older) who answered the telephone.

Survey Instrument

The questionnaire was developed in English, translated into Khmer using double forward methods, and pre-tested (19). Survey respondents were first asked if they had heard of hepatitis B. They were then read the following statement: "Hepatitis B is an inflammation of the liver caused by a viral infection. It sometimes makes the skin and eyes go yellow. People with hepatitis sometimes lose their appetite and experience nausea as well as vomiting." After the statement had been read, respondents were asked: "Have you ever had a blood test to see if you have been exposed to hepatitis B?" and "Have you ever had shots (vaccinations) to prevent you from getting hepatitis B?" Finally, respondents specified their gender, age, and where they were born. Foreign-born respondents were also asked how many years they had lived in the US.

The survey instrument included a section addressing knowledge about hepatitis B. Survey participants were asked whether they thought Cambodian or white residents of the US are more likely to be infected with hepatitis B, and whether they thought hepatitis B or AIDS is more easily spread from person to person. They were also asked whether they thought hepatitis B can be spread by sharing toothbrushes, during sexual intercourse, from mother to baby during childbirth, and by someone who looks and feels healthy. We also queried participants about routes of transmission that are not applicable to hepatitis B. Specifically, we asked whether they thought hepatitis B can be spread by eating food prepared by an infected person and by coughing or sneezing. Finally, we asked each respondent whether he/she thought people who get hepatitis B can be infected for life, hepatitis B disease can cause liver cancer, and there are medicines to treat hepatitis B disease.

Data Analysis

Proportion of life in the US (which is believed to be a good surrogate measure of acculturation) was calculated from age and years in the US (20). A summary knowledge score was computed from each participant's responses to the 11 knowledge items (possible scores 0 – 11). Chi-square tests and t-tests were used in to compare hepatitis B knowledge, testing, and vaccination levels among sub-groups (21). Independent associations were examined with unconditional logistic regression models (22).

RESULTS

Characteristics of Survey Sample

The survey cooperation rate was 88%. Specifically, 111 individuals completed surveys and only 15 households refused participation. The remaining households were in one of the following categories: Telephone disconnected (N = 48), no contact after seven attempts (N = 47), or household not Cambodian (N = 32). Thirty seven percent of the survey participants were men, 49% were less than 50 years of age, and 74% had lived in the US for less than 50% of their lives. Ninety one percent of the participants were born in Cambodia, 3% were born in Thai refugee camps, and 6% were born in the US. The majority (90%) preferred to complete their survey in Khmer (rather than English).

Hepatitis B Awareness and Knowledge

About two-thirds (64%) of the study group had heard of hepatitis B (before the disease was described to them). The mean knowledge score was only 4.9 (standard deviation: 2.5). Hepatitis

B awareness and higher knowledge scores were significantly associated with younger age and a greater proportion of life in the US, but not gender (Table I).

As shown in Table II, a minority of survey respondents knew that Cambodians are more likely to be infected with hepatitis B than whites (43%), hepatitis B is more easily spread than AIDS (19%), hepatitis B cannot be spread by eating food that has been prepared by an infected person (28%), hepatitis B cannot be spread by coughing or sneezing (32%), hepatitis B can be spread by sexual intercourse (46%), and hepatitis B can be spread by someone who looks and feels healthy (43%). Between one-half and two-thirds knew that hepatitis B can be spread by sharing toothbrushes (53%), hepatitis B can be spread during childbirth (59%), people who get hepatitis B can be infected for life (52%), hepatitis B can cause liver cancer (67%), and there are medicines to treat hepatitis B disease (52%).

Hepatitis B Testing and Vaccination

Less than one-half (46%) of the survey participants reported previous hepatitis B testing, and only about one-third (35%) reported previous hepatitis B vaccination. The proportions of participants reporting they had been tested and vaccinated, tested but not vaccinated, vaccinated but not tested, and neither tested nor vaccinated were 26%, 20%, 9%, and 45%, respectively. Table I provides information about the percentages who had been tested for hepatitis B and had been vaccinated against hepatitis B by gender, age, and proportion of life in the US. Hepatitis B testing rates were very similar among demographic sub-groups. However, a greater proportion of life in the US was significantly associated with previous hepatitis B vaccination.

Association between Hepatitis B Knowledge and Practices

We compared knowledge scores among respondents who had and had not been tested for hepatitis B, and had and had not been vaccinated against hepatitis B. The mean knowledge score was significantly higher ($p < 0.01$) among individuals who had been tested for hepatitis B (mean = 5.7 – standard deviation = 2.1) than those who had not (mean = 4.3 – standard deviation = 2.6). Similarly, mean knowledge scores differed significantly ($p < 0.001$) among vaccinated (mean = 6.0 – standard deviation = 2.0) and non-vaccinated (mean = 4.4 – standard deviation = 2.5) individuals.

Multivariable Results

In a multivariable analysis of factors associated with hepatitis B testing, the knowledge score remained significant ($p = 0.03$), but gender, age, and proportion of life in the US were not significant. Similarly, only the knowledge score was significant ($p = 0.007$) in a multivariable analysis of factors associated with hepatitis B vaccination.

DISCUSSION

Our study indicates that less than one-half (46%) of Cambodians in the US Pacific Northwest have been tested for hepatitis B. We conducted a survey of Cambodian women in Seattle during 1999 (23). A comparison of findings from our 1999 and 2005–2006 surveys suggest improvements in hepatitis B testing levels over the last few years have been modest.

Specifically, 38% of the Cambodian women who completed our 1999 survey reported previous hepatitis B testing, compared to 46% of the Cambodian women in our 2005–2006 survey. The National Task Force on Hepatitis B is currently conducting hepatitis B educational campaigns (24). However, we are not aware of any programs that have specifically targeted Seattle's Cambodian community.

We have previously reported that 11% of Chinese immigrants to Seattle have been vaccinated for hepatitis B without prior testing (to establish whether they are chronically infected with the disease) (25). Similarly, 9% of our Cambodian study sample reported that they had been vaccinated against hepatitis B, but not tested. In Asian countries, the majority of hepatitis B carriers are infected as infants or young children (13). It is likely that a proportion of Asian Americans who have been vaccinated without testing are actually carriers who, in some cases, would benefit from medication to control their chronic hepatitis B disease (26).

We identified some important knowledge deficits with respect to hepatitis B. Less than one-half of our respondents knew that Cambodians are more likely to be infected with hepatitis B than whites (43%) and that hepatitis B can be spread during sexual intercourse (46%). In addition, relatively few respondents knew that hepatitis B cannot be transmitted by eating food that has been prepared by an infected person (28%) or by coughing and sneezing (32%). Chronically infected Cambodians may be infecting others because they lack knowledge about hepatitis B transmission routes.

In general, levels of hepatitis B knowledge were lower than among the Chinese immigrants who participated in our 2005 Seattle survey. As examples, 70% of our Chinese survey participants knew that hepatitis B can be transmitted during childbirth, 54% knew the virus can be transmitted during sexual intercourse, and 79% knew the virus can be spread by an individual who looks healthy (25).

There are few publications addressing hepatitis B control interventions for Southeast Asian American adults. However, the San Francisco Vietnamese Health Promotion Program used pre- and post-intervention surveys in experimental and control communities to evaluate a media-based, community outreach campaign targeting Vietnamese Americans. Following a one-year intervention, hepatitis B serologic testing among adults increased from 24% to 48%, and childhood hepatitis B vaccination rates increased from 41% to 61% in the experimental community (27). A more recent Vietnamese Health Promotion Program study evaluated the effect of a media education campaign on Vietnamese adults' knowledge about hepatitis B and documented significant increases in the proportions who knew hepatitis B can be spread by sharing toothbrushes, hepatitis B can be spread during sexual intercourse, and hepatitis B can cause liver cancer. These two studies demonstrate that media campaigns can positively impact hepatitis B knowledge levels and preventive behaviors (28).

Strengths and Limitations

Our study has several strengths: We used population-based sampling methods, administered the survey in the language of each participant's choice, and had an excellent cooperation rate. However, our study also has several limitations. Specifically, respondents were recruited in one geographic area of the US (and our findings may not be generalizable to other states), only households with listed telephone numbers were eligible (and it is unclear to what extent such households are representative of Seattle's Cambodian community), survey respondents may have had different preventive behavior patterns than those who were unreachable, no attempt was made to randomly select a survey participant in households with two or more eligible individuals, and our study relied on self-reported data (which may be faulty due to inaccurate recall or desirability bias). Since ethnic minorities tend to over-report screening test receipt when compared to non-Latino whites, it is likely that our study over-estimated levels of hepatitis B testing among Cambodians (29).

Conclusion

Avoidable mortality from hepatitis B-related liver disease is one of the most important health disparities experienced by Asian Americans (17). Cambodian immigrants are over 25 times

more likely to have evidence of chronic hepatitis B infection than the general US population (10,17). Our study findings confirm the need for continued efforts to develop and implement targeted educational campaigns to reduce the high burden of chronic hepatitis B infection and liver cancer in the US Cambodian community. Such campaigns should aim to increase hepatitis B serologic testing rates, hepatitis B vaccination rates among individuals who remain susceptible to infection, and levels of knowledge about routes of hepatitis B transmission.

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Table 1

Hepatitis B Awareness, Knowledge, and Practices by Demographics (N=111)

Variable	Total %	Heard of Hepatitis B %	Mean knowledge score (SD)	Hepatitis B Testing %	Hepatitis B Vaccination %
Gender					
Male	37	73	5.4 (2.7)	46	34
Female	63	59	4.7 (2.3)	46	36
Age					
<50	49	78 ^a	5.9 (2.0) ^b	51	45
≥50	51	57	4.4 (2.5)	46	28
Proportion of life in US					
<50%	74	58 ^b	4.8 (2.3) ^a	48	30 ^a
≥50%	26	93	6.1 (2.4)	52	56

^a p<0.05^b p<0.01

Table II**Hepatitis B Knowledge (N=111)**

Variable	N	%
Cambodians are more likely to be infected with hepatitis B than whites	48	43
Hepatitis B is more easily spread than AIDS	21	19
Hepatitis B <u>cannot</u> be spread by eating food prepared by an infected person	31	28
Hepatitis B <u>cannot</u> be spread by coughing and sneezing	35	32
Hepatitis B can be spread by sharing toothbrushes	59	53
Hepatitis B can be spread during sexual intercourse	51	46
Hepatitis B can be spread during childbirth	66	59
Hepatitis B can be spread by someone who looks healthy	48	43
People who get hepatitis B can be infected for life	58	52
Hepatitis B can cause liver cancer	74	67
There are medicines to treat hepatitis B disease	58	52