RESEARCH COMMUNICATION

Hepatitis B Knowledge and Vaccination Levels in California Hmong Youth: Implications for Liver Cancer Prevention Strategies

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Abstract

Although chronic infection with hepatitis B virus (HBV) is one of the major risk factors for liver cancer, the level of knowledge about liver cancer risk factors and HBV transmission, as well as vaccination have not been assessed in this population. We interviewed Hmong youth living in Fresno, California about liver cancer risk factors. General knowledge of HBV was common, but knowledge of specific modes of transmission was low. For example, only 49% knew that HBV was transmitted by sexual intercourse. We also observed very low prevalence of HBV vaccination (12%), although a majority reported knowing that shots can prevent disease (68%). Liver cancer prevention and control methods targeted to Hmong youth are needed.

Key Words: Hmong - hepatitis B - knowledge - prevention and control - vaccination

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Introduction

Hepatocellular carcinoma incidence in the U.S. is higher among Asian Americans (20.7/100,000 for men and 7.8/100,000 for women), compared to whites (6.7/100,000 for men and 2.6/100,000 for women) (Jemal et al., 2004). The higher incidence among Asian Americans is attributed to their higher prevalence of hepatitis B virus (HBV) (8% to 15%), compared to all of North America (<2%) (Alter and Mast, 1994).

The Hmong people are an ethnic minority who migrated from southern China to the mountainous regions of Vietnam, Thailand, and Laos during the nineteenth and early twentieth centuries. Hmong immigrated to the U.S. beginning in the mid-1970's. Greater than expected rates of liver cancer have been reported for Hmong in California [proportional incidence ratio (PIR)=3.4, 95% confidence interval (CI): 1.1, 7.9] (Mills and Yang, 1997) and Minnesota (PIR=8.1, 95% CI: 3.9, 14.7) (Ross et al., 2003). HBV knowledge levels and vaccination rates among the Hmong are likely to be low given their more recent immigration to the U.S. and greater skepticism of Western medicine, compared to other Asian American ethnic groups. Few data have been collected that characterize barriers to HBV vaccination and serologic testing among Southeast Asians (Jenkins et al., 2000; Taylor et al., 2002; Taylor et al., 2000; Thompson et al., 2002), and none that are specific to Hmong.

Materials and Methods

Study participants were recruited from either the Lao Family Organization's Family Supportive Service For Young Adults Program membership roster or a roster of Hmong taken from the 2003 Fresno City phone book, using a previously developed list of 18 Hmong surnames (Mills and Yang, 1997). Recruiting calls were conducted by bilingual staff from two Hmong community-based organizations in Fresno. Eligibility included being able to speak Hmong or English, having a Hmong surname and being between 15 and 25 years of age.

Interviews were conducted by telephone (N=24) or in-person (N=41) in Hmong (N=9) or English (N=56). The questionnaire assessed HBV knowledge, serologic testing and vaccination levels, and health beliefs along with demographic and socio-demographic information, type of health insurance and utilization of health care. Questions

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Table 1. Distribution of Demographic Characteristics among Hmong Youth by Age Group

	Participant age group	
	15 - 18 years	19 - 25 years
Total (N)	20	45
Demographic characteristics		
Mean age, years (SD*, range)	17.1 (1.1, 15-18)	21.9 (2.4, 19-25)
Sex, N (%)		
Female	12 (60)	30 (67)
Male	8 (40)	15 (33)
Marital status, N (%)		
Single	16 (80)	22 (49)
Married	4 (20)	18 (40)
Living with partner (or living as married)	0	5 (11)
Highest level of education among participants older than 18 years, N (%)		
≥high school graduate	n/a	30 (67)
Mean number of people per household, (SD*, range)	9.4 (4.1, 4-15)	6.1 (3.3, 1-15)
Household annual income range, N (%)		
<$20,000	3 (15)	13 (29)
$20-50,000	9 (20)	20 (44)
>$50,000	0	6 (13)
Don't know	8 (40)	6 (13)
Sociodemographic characteristics		
Place of Birth, N (%)		
U.S.	11 (55)	18 (40)
Thailand	8 (40)	12 (27)
Laos	1 (5)	15 (33)
Religious affiliation, N (%)		
Christianity	6 (30)	7 (16)
Animism/Shamanism	12 (60)	30 (67)
None	2 (10)	7 (16)
Missing	0	1 (2)
Language usually spoken in the home, N (%)		
Only Hmong	0	0
Mostly Hmong, some English	3 (15)	18 (40)
Both equally	7 (35)	15 (33)
Mostly English, some Hmong	10 (50)	10 (22)
Only English	0	2 (4)

*SD=standard deviation

were adapted from previous studies among Cambodian (Taylor et al., 2002) and Vietnamese (Jenkins et al., 2000) populations. The interviewer validated the self-reported HBV vaccination by visually inspecting the shot record that indicated the receipt of the three-shot series. For the telephone interviews, participants were asked to read the information from the shot record. The Institutional Review Board at the University of California, Davis approved this study.

Results

Population characteristics are presented in Table 1. Data are presented separately for those 15 to 18 and 19 to 25 years, because in California, HBV vaccinations are available to anyone 18 years or under through the Centers for Disease Control and Prevention's Vaccines for Children Program.

In general, knowledge of HBV was low in this study population (Table 2). The data presented for questions related to HBV mode of transmission are representative of the responses for all 15 questions related to HBV knowledge. Knowledge of how HBV is spread was similarly low by age group, for example, only about 49 percent knew that sexual intercourse could spread HBV and only about 55 percent knew about vertical transmission (e.g. mother to child during birth) of the virus. Although knowledge that shots can prevent disease was high and discussion of liver disease is prevalent in the community, there was a low percentage who reported being recommended for HBV testing or vaccination by a doctor. The prevalence of HBV vaccination was low in both age groups, although about 49 percent of the study population had ever received serological testing for HBV.

Discussion

From a prevalence study of Hmong youth living in Fresno, California, we reported that only 12 percent completed the 3-shot HBV vaccination series, based on validated self-reported information. Our results were similar to those previously reported for Vietnamese from validated self-reported data (range: 10% to 12%) (Jenkins et al., 2000), but much lower compared to the 78.8 percent observed for

Table 2. Distribution of Hepatitis B Virus (HBV) Knowledge, Vaccination and Serologic Testing among Hmong youth by Age Group

	Participant age group	
	15 - 18 years n=20 n (%)	19 - 25 years n=45 n (%)
HBV knowledge and health belief characteristics		
Answered "yes" to the following:		
HBV can be spread by sharing a toothbrush	9 (45)	15 (33)
HBV can be spread through sexual intercourse	10 (50)	22 (49)
HBV can be spread from mother to baby during childbirth	11 (55)	25 (56)
HBV causes liver cancer	13 (65)	27 (60)
HBV can be cured	10 (50)	20 (44)
Shots can prevent disease	14 (70)	30 (67)
Shots can be harmful	10 (50)	12 (27)
Ever heard of hepatitis B virus infection	15 (30)	28 (62)
Heard people talk about liver disease at least once last year	15 (75)	34 (76)
Ever recommended for HBV testing or vaccination by a doctor	5 (25)	14 (31)
HBV vaccination and serologic testing history		
Ever received HBV 3-shot validated vaccination	4 (20)	4 (16)
Ever received self-reported serologic test	10 (50)	22 (49)

seventh graders of all ethnicities vaccinated after California's mandate for hepatitis B vaccination prior to middle school has been in effect (California Department of Health Services. Immunization Branch, 2004), and lower than the 40 percent reported for all Asian Pacific Islander children in the U.S. aged 7 to 18 years (Wing et al., 1998).

We reported a high percentage of Hmong having ever been tested for HBV (49%). This result is likely to be an overestimate of the true number given the reported low levels of specific knowledge, and low percentage of Hmong had reported being recommended for testing or vaccination by a doctor, in this study.

Our findings should be viewed as exploratory, because data were collected from a small sample of Hmong, and may not be representative of the base population. Our study population seemed to represent traditional Hmong characteristics in terms of language spoken at home, household size, younger age at marriage, and practice of the traditional Shamanism religion. The Hmong are perhaps the least acculturated and most inaccessible among Asian American ethnic groups, making this population less likely to have received education about liver cancer risk factors and the need for HBV vaccination in campaigns aimed at the general population.

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