



Hepatitis A and hepatitis B vaccination coverage among adults with chronic liver disease



Xin Yue^{a,*}, Carla L. Black^b, Alissa O'Halloran^a, Peng-Jun Lu^b, Walter W. Williams^b, Noele P. Nelson^c

^a Leidos Inc., Atlanta, GA, United States

^b Immunization Services Division, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, GA, United States

^c Division of Viral Hepatitis, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, GA, United States

ARTICLE INFO

Article history:

Received 3 April 2017

Received in revised form 8 January 2018

Accepted 11 January 2018

Keywords:

Hepatitis A vaccination

Hepatitis B vaccination

Chronic liver disease

National Health Interview Survey

ABSTRACT

Background: Infection with hepatitis A and hepatitis B virus can increase the risk of morbidity and mortality in persons with chronic liver disease (CLD). The Advisory Committee on Immunization Practices recommends hepatitis A (HepA) and hepatitis B (HepB) vaccination for persons with CLD.

Methods: Data from the 2014 and 2015 National Health Interview Surveys (NHIS), nationally representative, in-person interview surveys of the non-institutionalized US civilian population, were used to assess self-reported HepA (≥ 1 and ≥ 2 doses) and HepB vaccination (≥ 1 and ≥ 3 doses) coverage among adults who reported a chronic or long-term liver condition. Multivariable logistic regression was used to identify factors independently associated with HepA and HepB vaccination among adults with CLD.

Results: Overall, 19.4% and 11.5% of adults aged ≥ 18 years with CLD reported receiving ≥ 1 dose and ≥ 2 doses of HepA vaccine, respectively, compared with 14.7% and 9.1% of adults without CLD ($p < .05$ comparing those with and without CLD, ≥ 1 dose). Age, education, geographic region, and international travel were associated with receipt of ≥ 2 doses HepA vaccine among adults with CLD. Overall, 35.7% and 29.1% of adults with CLD reported receiving ≥ 1 dose and ≥ 3 doses of HepB vaccine, respectively, compared with 30.2% and 24.7% of adults without CLD ($p < .05$ comparing those with and without CLD, ≥ 1 dose). Age, education, and receipt of influenza vaccination in the past 12 months were associated with receipt of ≥ 3 doses HepB vaccine among adults with CLD. Among adults with CLD and ≥ 10 provider visits, only 13.8% and 35.3% had received ≥ 2 doses HepA and ≥ 3 doses HepB vaccine, respectively.

Conclusions: HepA and HepB vaccination among adults with CLD is suboptimal and missed opportunities to vaccinate occurred. Providers should adhere to recommendations to vaccinate persons with CLD to increase vaccination among this population.

© 2018 Elsevier Ltd. All rights reserved.

1. Introduction

Chronic liver disease (CLD) is one of the leading causes of mortality in the United States, with an estimated 33,000 CLD-related deaths occurring in 2011 [1]. The prevalence of hepatitis A infection is higher in patients with chronic liver disease than in the general population [2]. Infection with hepatitis A virus (HAV) or hepatitis B virus (HBV) can result in severe complications and increase the morbidity and mortality in patients with chronic liver disease [3].

Both hepatitis A (HepA) and hepatitis B (HepB) vaccines are safe and effective in patients with mild to moderate CLD [4–6]. To reduce HAV and HBV super-infection in patients with chronic liver disease, the Advisory Committee on Immunization Practices (ACIP) recommends HepA and HepB vaccinations [7,8]. A 2014 study showed that overall HepA vaccination coverage (≥ 2 doses) among adults aged ≥ 19 years with chronic liver conditions was 13.8%, and overall HepB vaccination coverage (≥ 3 doses) among adults aged ≥ 19 years with chronic liver conditions was 29.8% [9]. However, information on factors associated with HepA and HepB vaccination coverage among adults with CLD is limited. This study assessed HepA and HepB vaccination coverage and factors associated with vaccination among adults aged ≥ 18 years with chronic liver disease. This information can be utilized to develop strategies

* Corresponding author at: Immunization Services Division, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, 1600 Clifton Road NE, Mailstop A-19, Atlanta, GA 30333, United States.

E-mail address: hwg3@cdc.gov (X. Yue).

to increase HepA and HepB vaccination coverages among persons with CLD.

2. Methods

2.1. Study sample

Data were analyzed from respondents aged ≥ 18 years from the 2014 and 2015 National Health Interview Survey (NHIS), a probability-based annual household survey conducted by the National Center for Health Statistics of the Centers for Disease Control and Prevention [10,11]. Four core modules were included in the surveys: the household composition section, family core, sample adult core, and sample child core. One adult per family in each sampled household of the sample adult core was randomly selected and asked to complete the sample adult questionnaire, including questions about receipt of vaccination. Survey methods were similar in both years and have been published previously [12]. All analyses are based on combined data from the 2014 and 2015 NHIS. The final response rates for the sample adult core were 58.9% and 55.2% for 2014 and 2015, respectively.

Respondents were asked “Have you ever received the hepatitis B vaccine?” and, if yes, “Did you receive at least 3 doses of the hepatitis B vaccine, or less than 3 doses?”; “Have you ever received the hepatitis A vaccine?” and, if yes, “How many hepatitis A shots did you receive?”; and “Has a doctor or other health professional ever told you that you had any kind of chronic, or long-term liver condition?” For this study, persons self-reporting receipt of 2 doses of HepA or 3 doses of HepB vaccine were considered to be fully vaccinated for HepA or HepB. Respondents with CLD were defined as those who answered “Yes” to the question “Has a doctor or other health professional ever told you that you had any kind of chronic, or long-term liver condition?”; otherwise they were considered to be without CLD. Additional NHIS questions were used to stratify vaccination coverage by age, sex, education, employment status, poverty status, health insurance coverage, race/ethnicity, region of residence, marital status, receipt of influenza vaccination in the past 12 months, whether or not respondent has a primary doctor, number of medical office visits in the past 12 months, having traveled to regions with intermediate or high prevalence of HAV or HBV infection (defined as travel outside of the USA since 1995 to location other than Europe, Japan, Australia, New Zealand, or Canada), and whether or not the respondent has diabetes.

2.2. Statistical analysis

All analyses were performed using SAS (version 9.3.2) callable SUDAAN (version 11.0.0). Point estimates for vaccination coverage and 95% confidence intervals were calculated. Estimates were weighted by age, sex and race/ethnicity to represent the U.S. non-institutionalized civilian adult population. Survey procedures were used to account for the multi-staged, clustered and stratified sample design in NHIS. Bivariate analyses were conducted using Pearson chi-square tests to compare population distributions between those with and without CLD. T-tests were conducted to test differences in vaccination coverage between those with and without CLD status and differences within each demographic subgroup among those with and without CLD. Multivariable logistic regression models were used to assess factors independently associated with ≥ 2 dose HepA or ≥ 3 dose HepB vaccination coverage among adults with and without CLD. Adjusted prevalence differences and 95% confidence intervals for the associations between these factors and HepA or HepB vaccination coverage are presented.

3. Results

A total of 68,995 adults aged ≥ 18 years were included in the study, of which 927 (1.2% weighted) reported having CLD (Table 1). The majority of persons with CLD were aged ≥ 50 years (69.6%), female (51.4%), not in the work force (57.2%), lived at or above poverty level (78.1%), had private or public insurance (48.3%, 42.9%, respectively), were non-Hispanic white (67.7%), married (51.2%), received influenza vaccination within the past 12 months (55.2%), had a primary doctor for health care (91.8%), and visited a doctor's office at least once in the past 12 months (90.9%). Compared with those without CLD, persons with CLD were older, less educated, less likely to be employed and to ever have been married, and more likely to be below poverty level, have public health insurance, be divorced or separated, have received influenza vaccination in the past 12 months, have a primary doctor, have ≥ 10 medical office visits in the past 12 months, and have diabetes (Table 1).

Overall, 19.4% of adults aged ≥ 18 years with CLD reported receiving at least 1 dose of HepA vaccine compared with 14.7% of those without CLD ($p < .05$ comparing those with and without CLD for ≥ 1 dose, data not shown). Among adults aged ≥ 18 years with and without CLD, 11.5% and 9.1% reported receiving ≥ 2 doses of HepA vaccine, respectively (Table 2). Among adults with CLD, higher ≥ 2 dose HepA vaccination was associated with age 18–49 years, being a high school graduate, having a college education or higher, living in the West, and having traveled to regions with intermediate or high prevalence of HAV infection (Table 2). Among adults without CLD, higher ≥ 2 dose HepA vaccination was associated with age 18–49 years, having a high school education or higher, being employed, having private health insurance, being of non-Hispanic other race/ethnicity, living in regions other than the Northeast, never having been married, having received influenza vaccination in the past 12 months, having had at least one medical office visit in the past 12 months, and having traveled to regions with intermediate or high prevalence of HAV infection (Table 2).

In multivariable analysis, among adults with CLD, ≥ 2 dose HepA vaccination coverage was 7.9 percentage points lower among those aged ≥ 65 years compared with those aged 18–49 years. Coverage was 12.4 and 7.6 percentage points higher, respectively, among those with a high school education or a college degree or higher compared with those with less than a high school education, 12.1 percentage points higher among those from the western region compared with those from the Northeast, and 11.8 percentage points higher among those who had traveled to regions with intermediate or high prevalence of HAV infection compared with those who had not traveled to these regions, controlling for all other factors. Among adults without CLD, characteristics similar to those in persons with CLD that had differences in adjusted coverage compared with the respective reference groups included age, education, regions of residence and travel to regions with intermediate or high prevalence of HAV infection (Table 2).

Overall, 35.7% of adults with CLD reported receiving at least 1 dose of HepB vaccine compared with 30.2% of those without CLD ($p < .05$ comparing those with and without CLD for ≥ 1 dose, data not shown). Among adults aged ≥ 18 years with and without CLD, 29.1% and 24.7% reported receiving ≥ 3 doses of HepB vaccine, respectively (Table 3). Among adults with CLD, higher ≥ 3 dose HepB vaccination was associated with age 18–49 years, having some college education or higher, living in the Midwest region, and being divorced or separated (Table 3). Among adults without CLD, higher ≥ 3 dose HepB vaccination was associated with age 18–49 years, being female, having a high school education or higher, being employed, living at or above the poverty level, having

Download English Version:

<https://daneshyari.com/en/article/8485991>

Download Persian Version:

<https://daneshyari.com/article/8485991>

[Daneshyari.com](https://daneshyari.com)