PREVALENCE OF ANTIBODIES TO THE HEPATITIS C VIRUS AMONG ARAB AND CHALDEAN AMERICANS IN SOUTHEAST MICHIGAN, USA

Objective: The prevalence of antibodies to the hepatitis C virus (anti-HCV) in the United States is estimated to be 1.6%. There are no published studies on the prevalence of anti-HCV among the Arab/Chaldean American population in the United States.

Design: Retrospective review of data collected during an HCV public awareness program conducted by the Arab American and Chaldean Council. Inclusion criteria were that subjects had to be of Arab/Chaldean descent, born in an Arab country, and test positive or negative for anti-HCV using the “Home Access Hepatitis C Test.”

Main Outcome Measures: The overall estimated prevalence of anti-bodies to HCV was 5.4% among Arab/Chaldean Americans residing in southeast Michigan.

Results: Four hundred and eighty-four participants were tested for anti-HCV. The estimated prevalence among Chaldeans was 2% vs 5.9% among Arabs, which varied according to their country of origin. Anti-HCV positive results were more common in participants with a history of hepatitis (30.4%), jaundice (21.1%), blood transfusion (14.6%), treatment by non-sterile injection (13.6%), and tattoo/body piercing (10%). On binary logistic regression analysis, significant predictors for positive anti-HCV included history of hepatitis (OR: 19, 95% CI 2.58–139.93), blood transfusion (OR: 4.7, 95% CI 1.02–17.13), and tattoo/body piercing (OR: 4.2, 95% CI 1.02–17.13).

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Conclusion: To our knowledge, this is the first study to report the estimated prevalence of anti-HCV and risk factors among the Arab and Chaldean Americans in the United States. The estimated prevalence of anti-bodies to HCV is 5.4% in this population, a rate that is more than triple the national average. Because of the relatively small sample size and limited geographic region, more studies are needed to evaluate the true prevalence of HCV antibodies in this and other ethnic minority population. (Ethn Dis. 2013;23[1]:18–21)

Key Words: Hepatitis C, Arab American, Chaldean American, Ethnicity, Risk Factors

INTRODUCTION

The prevalence of antibodies to the hepatitis C virus (anti-HCV) in the United States is approximately 1.6% (equating to about 4.1 million anti-HCV positive persons).1 The prevalence of positive HCV RNA is approximately 1.3% (or about 3.2 million persons who are HCV RNA-positive).1 Survival is decreased in patients with HCV, especially in those who have developed cirrhosis. In 2007, the age-adjusted mortality rate among patients with HCV in the United States was higher than that seen for HIV (4.6 deaths per 100,000 persons per year vs 4.2 deaths per 100,000 persons per year, respectively). In addition, 73% of the deaths were in patients between the ages of 45 and 65 years.2

In 1999, the World Health Organization (WHO) estimated that 170 million individuals were chronically infected with HCV worldwide,3 with at least 21.3 million HCV carriers in the eastern Mediterranean countries, which is close to the number of carriers estimated in the Americas (13.1 million) and Europe (8.9 million) combined. Indeed, one of the highest rates of prevalence of HCV infection (14.7%) has been reported from Egypt.4 Data suggest that parenteral anti-schistosomal therapy played a major role in the spread of HCV throughout Egypt.5 Countries in the Middle East may have some additional risk factors for HCV transmission, such as reusing needles for medical therapy and shaving at community barbers that may increase their risk.6

Given that minorities in general have less access to health care,7 the additional risk factors for HCV in the Chaldean/Arab American community and the serious consequences of HCV, we attempted to estimate the prevalence of anti-HCV among the Arab/Chaldean American population residing in southeast Michigan (SE MI).

METHODS

A retrospective review of data collected from an Arab/Chaldean American population in SE MI during an HCV public awareness and education program was conducted by the Arab American and Chaldean Council (ACC), a non-profit organization, between 2005 and 2007. Chaldeans are Catholic Christians of Assyrian/Aramaic
descent. All the Chaldeans included in the study were originally from Iraq.

The HCV public awareness and educational program was announced in the local newspapers, on radio and television stations, at community events, and in places of worship in the community. In addition, flyers were distributed to local community markets. Study participants either contacted the ACC public health division staff, or volunteered during an outreach effort by the ACC staff. Participants were given an information sheet, filled out a questionnaire, and signed a consent form, which were all available in Arabic and English. They then underwent testing for anti-HCV using the “Home Access Hepatitis C Test,” which is FDA-approved. The test has a 99% accuracy rate, compared to a blood sample drawn by medical professional and tested using current test methods. Participant received $10 gift certificate for their participation.

Inclusion criteria for this retrospective study were: of Arab/Chaldean descent, born in an Arab country, and test either positive or negative for anti-HCV. Three subjects with an “indeterminate result” were retested. One retested positive and the other 2 negative. This study was approved by the Human Investigation Committee at Wayne State University.

RESULTS

A total of 492 participants, from 16 different zip code areas, were tested for anti-HCV. Eight participants who were born in the United States were excluded from further analysis. Of 484 participants, 26 patients (5.4%) tested positive for anti-HCV, with at least one participant from each zip code area except for one. Demographic characteristics of the 484 participants and estimated prevalence rates of anti-HCV among different demographic variables are shown in Table 1. Among the 26 participants who tested positive for anti-HCV, the majority were female (54%), between 40–59 years of age (60%), married (88%), had a high school education or less (68%), unemployed at the time of the study (56%), and had no health insurance (65%). Of these 26 participants, 39% had a household income <$15,000 and 4% were retired.

The majority of participants positive for anti-HCV were Arab (96%) with only one Chaldean. Of the positive participants, the majority (n=12, 46%) were from Egypt, as expected. Six (23%) were from Yemen. Our sample size is too small to extrapolate overall prevalence among different Arab ethnic communities; the estimated prevalence of anti-HCV according to country of origin is shown in Table 2.

Estimated prevalence of anti-HCV among participants with risk factors for HCV is shown in Table 3, with the highest estimated prevalence among those with a history of hepatitis. Of the 10 risk factors for anti-HCV examined, six were statistically significant according to a chi square test. (Table 3).

In regard to risk factors among participants who tested positive for anti-HCV, 6.4% had history of intravenous drug injection, 3.8% admitted to risky sexual behavior, 54% had shared personal hygiene products, 24% had received a blood transfusion, 13% have received an injection by a non-sterile needle, and 14% have had some form of surgical operation. Of the 6 participants with a history of blood transfusion, 4 had the transfusion prior to 1992; the remaining 2 had a transfusion in 2004 and 2006. Six participants (24%)
recalled having hepatitis, and 3 participants were previously told they had hepatitis C. Four participants recalled having jaundice. Using binary logistic regression analysis, history of hepatitis, blood transfusion, and tattoo or body piercing were predictors of positive anti-HCV (Table 4).

**DISCUSSION**

To our knowledge, this is the first study to examine the estimated prevalence of anti-HCV among the Arab and Chaldean Americans in the United States. We found an estimated anti-HCV prevalence of 5.4% among this community in southeast Michigan.

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**Table 3. Estimated prevalence of anti-HCV among participants with certain risk factors**

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Participants with Risk Factor (n)</th>
<th>Estimated Prevalence of Anti-HCV (%)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood transfusion</td>
<td>41</td>
<td>14.6</td>
<td>.02</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>23</td>
<td>30.4</td>
<td>.001</td>
</tr>
<tr>
<td>Jaundice</td>
<td>19</td>
<td>21.1</td>
<td>.01</td>
</tr>
<tr>
<td>Intravenous drug injection</td>
<td>267</td>
<td>6.7</td>
<td>n.s</td>
</tr>
<tr>
<td>Treatment by non-sterile injections</td>
<td>22</td>
<td>13.6</td>
<td>n.s</td>
</tr>
<tr>
<td>Pricked by a needle or shared needles</td>
<td>331</td>
<td>4.2</td>
<td>.04</td>
</tr>
<tr>
<td>Tattoos or body piercing</td>
<td>110</td>
<td>10</td>
<td>.02</td>
</tr>
<tr>
<td>Have shared personal hygiene products</td>
<td>303</td>
<td>4.3</td>
<td>n.s</td>
</tr>
<tr>
<td>Surgical operation</td>
<td>33</td>
<td>9.1</td>
<td>n.s</td>
</tr>
<tr>
<td>Risky sexual behavior</td>
<td>1</td>
<td>100</td>
<td>.05</td>
</tr>
</tbody>
</table>

Recalled having hepatitis, and 3 participants were previously told they had hepatitis C. Four participants recalled having jaundice. Using binary logistic regression analysis, history of hepatitis, blood transfusion, and tattoo or body piercing were predictors of positive anti-HCV (Table 4).

**Strengths and Limitations of the Study**

To our knowledge, this is the first study to examine the estimated prevalence of anti-HCV and risk factors in the Arab/Chaldean American community. Limitations include small sample size, possible selection bias since participants volunteered to be tested, and all participants were from only one geographic location (SE MI).

**CONCLUSION**

Minorities in general have less access to health care and well-regarded research suggests that 83,000 deaths each year in the United States are attributable to racial and ethnic health disparities. In addition, in such minority communities,
diseases such as HCV and others, that maybe sexually transmitted, bear a stigma. Thus, patients may be less likely to seek a diagnosis or treatment. In some cases, primary care physicians may be less likely to test for HCV in these individuals because they may think cultural norms would suggest a lower prevalence of this disease. Further studies are needed to better address these communities’ needs and increase awareness about HCV in this community.

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REFERENCES