Clinical and epidemiological manifestations of Lyme disease in Hispanics admitted to a tertiary medical center in Long Island during 2010-2015

Abul Y, MD; Chow RA, MD; Spallone A, MD; Luft B, MD; Marcos LA, MD, MPH.

INTRODUCTION

- Lyme disease (LD) is the most commonly reported vector-borne illness in the U.S. with an estimate of 30,000 people diagnosed with LD every year.
- Long Island’s Hispanic population has grown dramatically in recent years, led by migrants from Latin America.
- A significant proportion of the workforce for outdoor employment (i.e., landscaping) in eastern Long Island is Hispanic, which places them at risk for acquiring LD.
- A recent study from the CDC showed that Hispanics were more likely than non-Hispanics to have signs of disseminated infection and onset during fall months.

OBJECTIVE

- We aim to describe the clinical presentation and epidemiological characteristics of LD in Hispanics (H) versus non-Hispanics (NH) who presented to Stony Brook University Hospital (SBUH) during the years of 2010-2015.

METHODS

- Study design: A retrospective chart review was performed in all patients with ICD-9 or ICD-10 diagnostic codes for LD from January 2010 to December 2015.
- Ethnicity: Persons self-identified as being of Hispanic ethnicity were included in the group H.
- Definitions
  - Confirmed cases were defined by a clinical scenario compatible with LD (erythema migrans, arthritis, central nervous system (CNS) involvement, carditis) and serological confirmation by western blot according to CDC criteria.
  - CNS involvement was defined as abnormal CSF fluid analysis
- Charts review: Descriptive clinical and epidemiological information gathered and analyzed:
  - Demographic characteristics
  - Past medical history
  - Symptoms on presentation
  - Outcomes

RESULTS

767 cases coded as LD per ICD-9 and ICD 10 between 2010-2015

EXCLUSION CRITERIA (N=535)
1. No serological evidence for Lyme
2. No erythema migrans
3. Reason for hospitalization was not Lyme
4. History of Lyme disease
5. Insufficient data
6. Missing medical records
7. Unable to find ethnicity

232 met inclusion criteria

EXCLUSION CRITERIA (N=535)
1. No serological evidence for Lyme
2. No erythema migrans
3. Reason for hospitalization was not Lyme
4. History of Lyme disease
5. Insufficient data
6. Missing medical records
7. Unable to find ethnicity

Table 1. Clinical and Demographic characteristics of study population

<table>
<thead>
<tr>
<th></th>
<th>Hispanics (H)</th>
<th>Non-Hispanics (NH)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (n = 232)</td>
<td>50</td>
<td>182</td>
<td></td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age – median in years (range)</td>
<td>50 (29-63)</td>
<td>52 (26-35)</td>
<td>0.7</td>
</tr>
<tr>
<td>Gender – n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>31 (13.3%)</td>
<td>94 (40.5%)</td>
<td>0.2</td>
</tr>
<tr>
<td>Female</td>
<td>19 (8.2%)</td>
<td>88 (38%)</td>
<td></td>
</tr>
<tr>
<td>Clinical characteristics – n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erythema migrans</td>
<td>21 (42%)</td>
<td>80 (43.9%)</td>
<td>0.8</td>
</tr>
<tr>
<td>Arthritis</td>
<td>5 (10%)</td>
<td>24 (13.2%)</td>
<td>0.5</td>
</tr>
<tr>
<td>Peripheral neuropathy including Bell’s palsy</td>
<td>5 (10%)</td>
<td>37 (20.3)</td>
<td>0.09</td>
</tr>
<tr>
<td>CNS involvement</td>
<td>3 (6%)</td>
<td>18 (9.9%)</td>
<td>0.4</td>
</tr>
<tr>
<td>Lyme carditis</td>
<td>2 (4%)</td>
<td>6 (3.3%)</td>
<td>0.8</td>
</tr>
</tbody>
</table>

Table 2. Seasonal differences in disease onset between H and NH

<table>
<thead>
<tr>
<th>Variables</th>
<th>OR</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disease onset during fall months</td>
<td>2.01</td>
<td>0.95-4.28</td>
<td>0.06</td>
</tr>
<tr>
<td>Disease onset during winter month</td>
<td>0.2</td>
<td>0.05-0.88</td>
<td>0.03</td>
</tr>
</tbody>
</table>

CONCLUSION

- Hispanics diagnosed with LD at this tertiary medical center presented with similar syndromes from LD than non-Hispanics but the disease onset is more frequent during fall months than NH, in agreement with the recent CDC study.

- Additional studies are needed to clarify the underlying factors related to this epidemiological difference.

REFERENCES