Risk Factors in a Group of Puerto Rican Patients with Alzheimer’s Dementia

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Conflict of Interest Disclosure

Heriberto A. Acosta, M.D.
Has no real or apparent Conflicts of Interest to report
Puerto Rico Demographic Profile (1899 – 2010)
Population of 60 years or more

Negociado del Censo de los Estados Unidos, Puerto Rico.
## Puerto Rico
Average Age of Population from 1910 to 2050

<table>
<thead>
<tr>
<th>Año</th>
<th>Mediana de Edad</th>
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<tbody>
<tr>
<td>1910</td>
<td>18.5</td>
</tr>
<tr>
<td>1920</td>
<td>18.4</td>
</tr>
<tr>
<td>1930</td>
<td>18.3</td>
</tr>
<tr>
<td>1940</td>
<td>19.2</td>
</tr>
<tr>
<td>1950</td>
<td>18.4</td>
</tr>
<tr>
<td>1960</td>
<td>18.5</td>
</tr>
<tr>
<td>1970</td>
<td>21.5</td>
</tr>
<tr>
<td>1980</td>
<td>24.6</td>
</tr>
<tr>
<td>1990</td>
<td>28.5</td>
</tr>
<tr>
<td>2000</td>
<td>32.1</td>
</tr>
<tr>
<td>2009</td>
<td>36.3</td>
</tr>
<tr>
<td>2010</td>
<td>36.8</td>
</tr>
<tr>
<td>2020</td>
<td>41.5</td>
</tr>
<tr>
<td>2030</td>
<td>45.8</td>
</tr>
<tr>
<td>2040</td>
<td>49.3</td>
</tr>
<tr>
<td>2050</td>
<td>52.4</td>
</tr>
</tbody>
</table>

Reference: U.S. Census Bureau and Puerto Rico Planning Board
Study Methodology

A total of 432 patients were evaluated by a neurologist with experience with dementia. Informed consent was obtained as required to participate in the study.

A complete patient history, physical and neurologic exam was completed. Each patient was evaluated with a hematologic, endocrinology and chemistry test battery. The MMSE score was obtained in all patients, and a complete neuropsychological evaluation was done in a significant number of patients. The patients also underwent imaging studies.
## Demographic Information

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Age of onset (Years) (n=426)</td>
<td>78.13</td>
</tr>
<tr>
<td>Gender (% Male) (n=432)</td>
<td>162 (38%)</td>
</tr>
<tr>
<td>Gender (% Female) (n=432)</td>
<td>270 (63%)</td>
</tr>
<tr>
<td>Education (Mean Years) (n=419)</td>
<td>13.11</td>
</tr>
<tr>
<td>Initial MMSE</td>
<td>20.25</td>
</tr>
</tbody>
</table>
Age of Onset

Mean = 78 years
Frequency of AD Patients By Age of Onset

Age of Onset

Frequency
Distribution of AD Patients by Gender

- 38.00% Male
- 62.00% Female
Years of Education of AD Patients ($n=419$)

MEAN 13.11
Who lives with the AD patients?

- Spouse: 50.62%
- Other Person: 17.28%
- Caregiver: 8.23%
- Other family: 2.06%
- Son/Daughter: 18.52%
- Sister: 1.65%
- Brother: 0.82%
- Father: 0.00%
- Mother: 0.41%
- Alone: 0.41%
Most Frequent Medical Conditions Present in AD Patients

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension (%)</td>
<td>69%</td>
</tr>
<tr>
<td>Hyperlipidemia (%)</td>
<td>58%</td>
</tr>
<tr>
<td>Diabetes (%)</td>
<td>26%</td>
</tr>
</tbody>
</table>

(n=432)
Total Cholesterol (n=324)

Mean = 182.44386
Real Alzheimer’s Disease Patients with Hypertension

- Percent of Patients with AD (n=432)

- Hypertension
  - Yes: 68.75%
  - No: 31.25%
Percent of AD Patients with High Blood Pressure

- Yes: 70.10%
- No: 29.90%
Percent of AD Patients with Depression

- Yes: 54.30%
- No: 45.70%
Percent of Patients with Initial MMSE < 24

- First MMSE score <24

Mean Initial MMSE 20.25
Mean change/year -1.27
Most Frequent Risk Factors found:

1) High Blood Pressure 69%
2) Hyperlipidemia 58%
3) Depression 45%
4) Diabetes 26%
Years of Education

• In contrast to previous published literature, our patients demonstrated an older age of onset (78.1 year) versus the Latino AD patients (68.0 years). Also, a difference in scholarly was observed; an average of 13.1 years for our patients and 7.3 years of education for the Latino AD patients.

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Potentially Modifiable Risk Factors

- The identified risk factors might be susceptible to public health and educational programs that might reduce the incidence of AD in Puerto Rico.
Fig. 5. Geographical distribution of AD mortality rate in PR
The island of PR is divided in eight regions. The regions are illustrated on the map. The legend indicates the ranges of AD mortality rate distributed on the map.