Prevalence, incidence and risk factors of dementia in Cuban admixed population.


Medical University of Havana
Institute of Psychiatry, KCL London
10/66 Dementia Research Group.
Crecimiento por 1000 habitantes

Porcentaje de esperanza de vida al nacer

Proportion of older adults

ANUARIO ESTADÍSTICO, 2013
The Cuban Dementia and Alzheimer Study

Playa Municipality, Havana & Santa Clara, Villa Clara

Total Municipalities Population Studied Over 65 years old approximately 40 000 inhabitants

Prevalence for each 100 inhabitants

Playa

- Dementia Syndrome: 9.3%
- Mild Cognitive Impairment: 7.5%
- Normal Aging: 83.2%

Santa Clara

- Dementia Syndrome: 7.1%
- Mild Cognitive Impairment: 7.5%
- Normal Aging: 85.4%

Alzheimer's Disease

- Normal Aging
- Mild Cognitive Impairment
  - Amnestic MCI
    - Memory Impairment only?
      - Yes
        - Single domain
          - Non-Amnestic MCI
            - Multiple domain
              - Other Dementia
        - No
          - Non-Amnestic MCI
            - Single domain
              - Other Dementia
      - No
        - Non-Amnestic MCI
          - Multiple domain
            - Other Dementia
10/66 Protocol

- Door knocking
- Cognitive test
- Clinical interview
- Socio-demographic and risk factor interview
- Physical/ neurological examination
- Blood test
- Informant interview

10/66 Dementia diagnosis
DSM IV Dementia
DSM IV/ ICD10 Depression

Esperanza
Aged 104 years!

The Havana and Matanzas prevalence and incident study sample.

Cross sectional study (2003-2005)
(Baseline sample n=3015)

Follow up
(Median=4.5 years)

Incident cohort at follow-up
(2006-2010)
(n=2 517)

Deceased: 608 (21.6%)
(Verbal autopsy)
Refused 20 (0.7%)
Untraceable 178 (6.3%)

Diagnosed with 10/66 or DSM-IV
(n=320)

Incident cases
(n=171)
PREVALENCE OF DEMENTIA BY AGE

### INCIDENCE OF DEMENTIA BY SEX AND AGE. AGING AND ALZHEIMER STUDY. CUBA

<table>
<thead>
<tr>
<th></th>
<th>Cases</th>
<th>Incidence CI 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>121</td>
<td>22.06 (18.46 - 26.36)</td>
</tr>
<tr>
<td>Male</td>
<td>50</td>
<td>17.81 (13.50 - 23.01)</td>
</tr>
<tr>
<td><strong>By age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65 - 69</td>
<td>16</td>
<td>5.83 (3.83 - 9.53)</td>
</tr>
<tr>
<td>70 - 74</td>
<td>45</td>
<td>17.98 (13.43 - 24.08)</td>
</tr>
<tr>
<td>75 - 79</td>
<td>47</td>
<td>27.31 (20.52 - 36.35)</td>
</tr>
<tr>
<td>80 +</td>
<td>61</td>
<td>46.72 (36.35 - 60.05)</td>
</tr>
<tr>
<td><strong>ALL</strong></td>
<td>171</td>
<td>21.17 (17.91 – 25.44)</td>
</tr>
</tbody>
</table>

* Incidence rate/ 1000 pyr
## Associations with Incidence dementia. Hazard ratio (HR and 95 % CI)

<table>
<thead>
<tr>
<th>Risk associations</th>
<th>HR (CI 95 %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>1.61 (1.09 - 2.38)</td>
</tr>
<tr>
<td>Vascular score</td>
<td>1.09 (1.04 - 1.13)</td>
</tr>
<tr>
<td>APOE 4</td>
<td>1.62 (1.25 - 2.10)</td>
</tr>
<tr>
<td>Older age, per 5 year group</td>
<td>1.64 (1.47 - 1.82)</td>
</tr>
<tr>
<td>Hypertension in middle age</td>
<td>1.35 (1.02 - 2.37)</td>
</tr>
<tr>
<td>More assets, (per assets)</td>
<td>1.17 (0.96 - 1.42)</td>
</tr>
<tr>
<td>Higher education per level</td>
<td>0.77 (0.67 - 0.98)</td>
</tr>
<tr>
<td>Sex, (men vs women)</td>
<td>0.87 (0.68 – 1.12)</td>
</tr>
<tr>
<td>Lower occupational attainment</td>
<td>0.98 (0.82 - 1.17)</td>
</tr>
<tr>
<td>Animal naming per word</td>
<td>0.92 (0.89 – 0.95)</td>
</tr>
<tr>
<td>Smoking</td>
<td>0.82 (0.40 - 1.48)</td>
</tr>
</tbody>
</table>
Does African Ancestry Protect Against Dementia? A Population Based Case-control Study

Interactions between genetic admixture, ethnic identity, APOE genotype and dementia prevalence in an admixed Cuban sample; a cross-sectional population survey and nested case-control study. *BMC Medical Genetics* 2011,
Admixture studies

• **Design**
  – Populations of mixed African and Caucasian ancestry
  – Genotype to measure ancestry directly in individuals (60 markers of admixture)

• **Hypothesis**
  – Higher levels of African ancestry associated with lower risk of dementia
## Association of APOE genotype with dementia

<table>
<thead>
<tr>
<th></th>
<th>Dementia N 273 (%)</th>
<th>No dementia N 2247 (%)</th>
<th>Crude PR (95% CI)</th>
<th>PR (95% CI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or 2 ApoE4 alleles</td>
<td>87 (31.9)</td>
<td>329 (14.6)</td>
<td>2.4 (1.9-3.0)</td>
<td>2.6 (2.1-3.2)</td>
</tr>
<tr>
<td>Number of ApoE4 alleles</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>186 (68.1)</td>
<td>1918 (85.4)</td>
<td>1.00 (ref.)</td>
<td>1.00 (ref.)</td>
</tr>
<tr>
<td>1</td>
<td>79 (28.9)</td>
<td>300 (13.4)</td>
<td>2.36 (1.9-3.0)</td>
<td>2.6 (2.0-3.2)</td>
</tr>
<tr>
<td>2</td>
<td>8 (2.9)</td>
<td>29 (1.3)</td>
<td>2.45 (1.3-4.6)</td>
<td>2.9 (1.6-5.3)</td>
</tr>
</tbody>
</table>

*Adj. age, sex and education
Mean admixture proportion by APOE allele status (case control subsample)

<table>
<thead>
<tr>
<th>APOE genotype Admixture proportions</th>
<th>No APOE allele (N= 445)</th>
<th>One APOE allele (N=119)</th>
<th>Two APOE allele (N=20)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>African mean 95% CI</td>
<td>0.15 (0.13-0.18)</td>
<td>0.19 (0.15 - 0.23)</td>
<td>0.35 (0.22-0.48)</td>
<td>P = 0.01</td>
</tr>
<tr>
<td>European mean 95% CI</td>
<td>0.82 (0.80-0.84)</td>
<td>0.78 (0.74-0.83)</td>
<td>0.62 (0.48-0.75)</td>
<td>P = 0.007</td>
</tr>
<tr>
<td>Native american</td>
<td>0.03 (0.02-0.03)</td>
<td>0.03 (0.02-0.04)</td>
<td>0.03 (0.02-0.05)</td>
<td>P = 0.65</td>
</tr>
</tbody>
</table>
Age and the incidence of dementia for persons with Apo E4 compared with persons without an Apo E4 allele.
Conclusions

- Dementia is at least as common in Cuba as in developed countries.
- APOE genotype is strongly associated with ancestry.
- The study shows that the relationship between APOE e4 and incident dementia is stronger in younger old persons than in older old persons and that this change must be taken into account in models of dementia.
- In this community-based population longitudinal study, some well-known risk factors for dementia, are confirmed but not others. New cohort studies are needed to study the effect of cardiocascular risk factors from mid- to late-life.
AGRADECIMIENTOS
Universidad Médica de La Habana
Policlinicos de Ciudad Habana y Matanzas
Centro Nacional de Genética Médica
Institute of Psychiatry, London

LA HABANA
Dra. Ana M. López Medina
Dra. Marina Calvo Rodríguez
Dra. Isis I. Sanchez Gil
Dra. Milagros A. Guerra
Dra. Lisseth Noriega Fdez
Dra. Milagros A.G. Klibanski
Dra. Beatriz Marcheco Teruel
Dra. Carmen Moreno Carbonell

MATANZAS
Dr. Adolfo Valhuerdi Cepero
Dra. Ruthbeskia Porto
Lic. Francis Arencibia