The Cuban Study of Aging and Dementia

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Dementia Touches Us All

• Progressive cognitive & functional decline
• Caused by brain degeneration
• Many different causes
  – Alzheimer’s disease (AD)
  – Parkinson’s dementia
  – Vascular
  – Vitamin deficiency
• Many different treatments
• No cures
Dementia: Global public health threat

• More than 47 million people estimated to be living with dementia in 2015: **numbers expected to double every 20 years**

• Among them, **58%** live in low- and middle-income countries – this proportion projected to rise to **71%** by 2050.
Dementia Prevalence

- 330,000 Caribbean live with Dementia
- In 2030, 620,000 people in Caribbean region will live with AD
- 1 in 4-6 seniors dies with AD or other dementia
- In 2010, cost of dementia in Caribe 2.98 billion USD. In 20 years, cost AD will double.
- Carer strain is a major problem, strongly associated with behavioural and psychological problems in the person with dementia

Source: ADI, World Alzheimer Report 2010
The developing countries context

- Dementia is a hidden problem
  - Little awareness
  - Not medicalised
  - People do not seek help
  - Unresponsive services
  - High levels of caregiver strain
Population 11.3 millions

Life expectancy 78.9 years
Men 76.7 years
Women 80.2 years

Dementia’s prevalence 8.2 - 10.2 %
(160 000 cases)

Incidence rate 21.7 per 1000/year
(28 760 new cases/year)

Mortality rate 195.5 per 1000/year
Research Agenda
The Cuban Study in Aging and Dementia

• **Pilot studies (1999-2002)**
  – Development and validation of culture and education-fair dementia diagnosis
  – Preliminary data on care arrangements

• **Population surveys – baseline phase (2003-2005)**
  – Prevalence of dementia and other chronic diseases
  – Impact: disability, dependency, economic cost
  – Access to services
  – Nested RCT of ‘Helping carers to care’ caregiver intervention

• **Incidence phase (2008-2010)**
  – Incidence (dementia, stroke, mortality)
  – Risk factors
  – Course and outcome of dementia/ Mild Cognitive Impairment

• **New prevalence wave. Intervention Programs (2016-2018)**
The Cuban Disability 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

<table>
<thead>
<tr>
<th>Playa</th>
<th>Santa Clara</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia Syndrome</td>
<td>9.3</td>
</tr>
<tr>
<td>Mild Cognitive Impairment</td>
<td>7.5</td>
</tr>
</tbody>
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Flowchart:

1. Normal Aging
2. Memory Impaired?
   - Yes: Amnestic MCI
   - No: Non-Amnestic MCI
3. Memory Impairment only?
   - Yes: Single non-memory domain impaired?
   - No: Other Dementia
4. Amnestic MCI single domain
5. Amnestic MCI multiple domain
6. Non-Amnestic MCI single domain
7. Non-Amnestic MCI multiple domain

Other Dementia
• 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

Dementia Incidence (per 1000 person years)

Female  22.06 (18.46 - 26.36)
Male      17.81 (13.50 - 23.01)
ALL       21.7  (17.91 – 25.44)

Disorders causing of dementia. 10/66 Cuban study.

- Alzheimer’s disease: 69%
- Vascular dementia: 17%
- Other dementias: 8.1%
- Parkinson dementia: 5.6%
Estimated numbers of people with dementia

2015: 160 000  1.2 % of the population

2030: 273 000  2.7 % of the population

“Increased longevity without quality of life is an empty prize. Large increases in the numbers of care dependent older people are predictable and largely inevitable. Dementia is the single largest contributor to needs for care among older people.”
Knowledge of risk factors or causes:

- Suggests ways of preventing disease through modification of risk factors
- Allows people at risk of a disease to be identified for purposes of preventive therapy
### Risk Factors for Incidence Dementia (Cuba) (HR and 95% CI Cox Regression)

#### Risk factors
- Stroke  
  2.84 (1.20 - 6.72) *
- Older age, per 5 year group  
  1.79 (1.37 - 2.37) *
- ApoE e4  
  1.93 (1.03 - 3.81) *
- Hypertension in middle age  
  1.35 (1.02 - 2.37) *

#### Protective associations
- Higher education per level  
  0.77 (0.67 - 0.98) *
- ↑ Skull circumference  
  0.81 (0.52 – 1.0) *
- ↑ Leg length  
  0.57 (0.49 – 0.78) *
- Animal naming verbal fluency  
  0.92 (0.89 – 0.95) *
- Sex, (men vs women)  
  0.79 (0.55 – 1.11) *
What Can I Do?

- Protect against vascular disease
- Exercise
- Participate social networks
- Mental activity
- See your doctor
3. Possible preventive strategies against dementia

- Promoting healthy lifestyles
  - non-smoking
  - moderate alcohol intake
  - physical activity

- Decreasing vascular burden
  - hypertension
  - heart failure
  - diabetes
  - stroke

- Increasing brain reserve
Does African Ancestry Protect Against Dementia?
A Population Based Case-control Study

Univ. de Ciencias Medicas - Habana, Matanzas Cuba
Centro Nacional de Genetica,
Institute of Psychiatry, Psychology & Neuroscience,
King College London, UK

Beatriz Marcheco Teruel, Juan J Llibre Rodriguez, 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,
• Increase promotion, information, education, and support for families, recognizing the role they play

• Developing dementia capable support services at all stages of the disease

• Focus efforts on prevention and early diagnosis both in the health sector and in society at large

• Assessing and improving the quality of health care, social care and long-term care support and services

• Implement Good Clinical Practice Guidelines for prevention and management of chronic diseases, with a community outreach component

• Increase availability of specialists in primary health care
The next steps

- New prevalence and incidence wave III (2016 - 2018)

  - What are the changes, over 10 years, in prevalence and social-patterning of chronic diseases (CDs) and underlying risk factors?
    - Cardiovascular risk (BP/ smoking/ fasting glucose/ cholesterol)
    - Diet (anaemia, B12, folate, subclinical hypothyroidism, albumin, anthropometry)
    - APOE and other genetics factors
    - Inflammatory and inmunosenescence markers

- Intervention! Implement and evaluate package of care for frail or dependent older people, including dementia

- Implement the National Plan
Conclusions

- The world is facing a new epidemic of unprecedented proportions
- Its effects will be felt particularly in low and middle income countries - currently least prepared to meet the challenge
- Societal costs will rise inexorably, driven by the increasing need for long term care
- Time for action
  - Scalable models of evidence-based clinical care to close the treatment gap
  - Progressive fiscal and social policy – long-term care
  - Prevention
  - Continuous monitoring of key indicators