Arg-ADNI

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WW-ADNI update, Boston, July 12, 2013

*speaker
Argentina has the greatest percentage of at-risk individuals, those age 65 years and older, in South America.
On February 7, 2011, the Argentine Ministry of Science agreed to complement support of Argentina ADNI and create and support future national Argentine initiatives for AD research.

ADNI protocol received Institutional Review Board approval at FLENI on February 10, 2011.
We completed recruitment of 60 Argentine adults, age 55-90 years.

We hope this sample will comprise part of the baseline for a larger Argentina ADNI 2 cohort of 300, involving other sites.
• First participant screened March 2011
• Initial target for single-center, pilot study: 15 AD, 30 MCI, 15 healthy C
• 60th participant screened Jun 2013
• Total n as of June 2013:
  • 15 AD (60% women, age 77±5 years)
  • 30 MCI (48% women, age 70±7 years)
  • 15 C(60% women, age 66±8 years)
• Clinical evaluation, neuropsychological evaluation, blood sampling including DNA banking, MRI in all patients (data in LONI).

• Two patients scheduled for screening failed due to claustrophobia.

• 8 participants included into the protocol declined lumbar puncture (13.3 %). Another patient was anticoagulated.
• Functional brain imaging delayed due to lack of access to florbetapir.

• FLENI's PET/cyclotron facility 40 km away from clinic (need to optimize logistics and increase patient comfort makes it convenient to do amyloid and FDG imaging on the same day).
PET scanning as of June 2013

<table>
<thead>
<tr>
<th></th>
<th>FDG</th>
<th>FDG normal</th>
<th>PiB</th>
<th>PiB +</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD</td>
<td>7</td>
<td>0</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>eMCI</td>
<td>14</td>
<td>3</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>IMCI</td>
<td>11</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Healthy</td>
<td>13</td>
<td>10</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Aβ42

**Longitudinal evaluations**

<table>
<thead>
<tr>
<th>Location</th>
<th>Round</th>
<th>Result</th>
<th>Mean</th>
<th>SD</th>
<th>CV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buenos Aires (Lab 85)</td>
<td>2012-10QC-L</td>
<td>437 pg/mL</td>
<td>418 pg/mL</td>
<td>77 pg/mL</td>
<td>18.5%</td>
</tr>
</tbody>
</table>

### T-tau

**Longitudinal evaluations**

<table>
<thead>
<tr>
<th>Location</th>
<th>Round</th>
<th>Result</th>
<th>Mean</th>
<th>SD</th>
<th>CV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buenos Aires (Lab 85)</td>
<td>2012-10QC-L</td>
<td>126 pg/mL</td>
<td>171 pg/mL</td>
<td>38 pg/mL</td>
<td>22.1%</td>
</tr>
</tbody>
</table>

### P-tau

**Longitudinal evaluations**

<table>
<thead>
<tr>
<th>Location</th>
<th>Round</th>
<th>Result</th>
<th>Mean</th>
<th>SD</th>
<th>CV (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buenos Aires (Lab 85)</td>
<td>2012-10QC-L</td>
<td>34 pg/mL</td>
<td>40 pg/mL</td>
<td>10 pg/mL</td>
<td>23.7%</td>
</tr>
</tbody>
</table>
Association between volumetric MRI outcomes and cognitive test scores

<table>
<thead>
<tr>
<th></th>
<th>Left Hippocampus</th>
<th>Right Hippocampus</th>
<th>Total Brain</th>
<th>Brain (minus ventricles)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>General</td>
<td>MCI</td>
<td>General</td>
<td>MCI</td>
</tr>
<tr>
<td>RAVLT - Trial 6</td>
<td>0,60*** (35)</td>
<td>0,49* (21)</td>
<td>0,61*** (35)</td>
<td>0,46* (21)</td>
</tr>
<tr>
<td>Clock Drawing</td>
<td>0,24 (37)</td>
<td>0,03 (22)</td>
<td>0,31 (37)</td>
<td>0,12 (22)</td>
</tr>
<tr>
<td>Category Fluency</td>
<td>0,49** (38)</td>
<td>0,38 (23)</td>
<td>0,55*** (38)</td>
<td>0,44* (23)</td>
</tr>
<tr>
<td>Trail Making A</td>
<td>-0,45** (38)</td>
<td>-0,10 (23)</td>
<td>-0,50** (38)</td>
<td>-0,20 (23)</td>
</tr>
<tr>
<td>Trail Making B</td>
<td>-0,35* (36)</td>
<td>-0,11 (23)</td>
<td>-0,40* (36)</td>
<td>-0,16 (23)</td>
</tr>
</tbody>
</table>

Shown are pearson's r (n).
*: p<0,05; **:p<0,01; ***p<0,001
# Association between CSF biomarkers and cognitive test scores

<table>
<thead>
<tr>
<th></th>
<th>ABeta42 General</th>
<th>ABeta42 MCI</th>
<th>tTau General</th>
<th>tTau MCI</th>
<th>pTau General</th>
<th>pTau MCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAVLT - Trial 6</td>
<td>0.48* (21)</td>
<td>0.26 (15)</td>
<td>-0.67*** (21)</td>
<td>-0.79*** (15)</td>
<td>-0.58** (20)</td>
<td>-0.65** (15)</td>
</tr>
<tr>
<td>Clock Drawing</td>
<td>0.25 (23)</td>
<td>0.09 (16)</td>
<td>-0.44* (23)</td>
<td>-0.35 (16)</td>
<td>-0.32 (22)</td>
<td>-0.25 (16)</td>
</tr>
<tr>
<td>Category Fluency</td>
<td>0.40 (24)</td>
<td>0.23 (17)</td>
<td>-0.60** (24)</td>
<td>-0.61** (17)</td>
<td>-0.62** (23)</td>
<td>-0.66** (17)</td>
</tr>
<tr>
<td>Trail Making A</td>
<td>-0.12 (24)</td>
<td>-0.07 (17)</td>
<td>0.34 (24)</td>
<td>0.39 (17)</td>
<td>0.47* (23)</td>
<td>0.51* (17)</td>
</tr>
<tr>
<td>Trail Making B</td>
<td>0.09 (24)</td>
<td>0.39 (17)</td>
<td>0.15 (24)</td>
<td>-0.04 (17)</td>
<td>0.12 (23)</td>
<td>0.03 (17)</td>
</tr>
</tbody>
</table>

Shown are Pearson's r (n).
*: p<0.05; **:p<0.01; ***p<0.001
General: $r = -0.67^{***}$
MCI: $r = -0.79^{***}$

*: $p<0.05$; **: $p<0.01$; ***: $p<0.001$
Brain Bank.

FLENI houses the only brain bank in Argentina, the 2nd in South America. ADNI participants are being asked to consent brain donation at the time of death.
Brain banking: opportunities, challenges and meaning for the future

Kretzschmar
Nature Reviews Neuroscience 10, 70-78 (January 2009)
Future tasks

• Agreement with GE to begin employing their ABeta imaging compound
• DIAN
• Grant application to study children of AD patients 45-65 y.o. with an ADNI-like protocol + autonomic and circadian abnormalities.
ARGENTINA NEUROCOGNITIVE SECTION

- **Neurologists**
  - Ricardo Allegri
  - Jorge Campos
  - Alejandra Amengual
  - Marcos Fernández Suárez
  - Patricio Chrem
  - Julieta Russo

- **Psychologists**
  - María Eugenia Martín
  - Valeria Grondona
  - Florencia Clarens
  - Lucía Crivelli
  - Elisa Smyth
  - Gabriela Kuzis

- **Psychiatrists**
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  - Pablo Bagnati
  - Lucas Drucaroff
  - Salvador Guinjoan

- **Speech therapists**
  - Liliana Sabe
  - Cristina Medina
  - Agustina García Cuerva
  - Victoria Uribelarrea
  - Mónica Feldman
**Radiology**

- Dra. Silvia Vazquez
- Lic. Claudio Wierszylo
- Bioeng. German Falasco
- Lic. Leandro Urrutia, Physicist

**Biomarkers/Pathology**

- Dr. Gustavo Sevlever
- Dr. Horacio Martinetto
- Dr. Ezequiel Surace

- **Epidemiology**

- Dr. Deborah Gustafson
Thank you

ADNI Argentina