Mild Cognitive Impairment: Cognitive Testing And EEG Changes With Go-NoGo

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BACKGROUND

• 16.8% of those over 65 have Mild Cognitive Impairment (MCI) (Graham et al., 1997)
• Inhibitory control is important for attention, working memory, social competence and emotion regulation (Kochanska, 1996)
• Inhibitory control can be affected in Mild Cognitive Impairment (Belanger, 2007)
• Event-Related Potentials (ERPs) are derived from electroencephalogram (EEG) and provide a measure of cortical activity with a high level of temporal resolution

METHODS

• 13 MCI patients from the Bruyère Memory Program and 13 HC’s from the general population
• Cognitive tests: MoCA, RBANS subtests, and Trail Making A & B
• NeuroScan NuAmps 4.3 and Brain Analyzer 2.1
• Mixed ANOVA analyses on P300 component: midline electrodes Fz, FCz, Cz, CPz and Pz
• Time interval: 400-500 ms post-stimulus onset

RESULTS

<table>
<thead>
<tr>
<th>Task Condition</th>
<th>MCI (n=13)</th>
<th>HC (N=13)</th>
<th>P</th>
<th>MCI (n=13)</th>
<th>HC (n=13)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Go</td>
<td>79.6 [14.0]</td>
<td>90.7 [6.7]</td>
<td>.016</td>
<td>357.2 [31.3]</td>
<td>363.7 [46.8]</td>
<td>.689</td>
</tr>
<tr>
<td>NoGo</td>
<td>78.6 [8.9]</td>
<td>90.7 [8.9]</td>
<td>.009</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

DISCUSSION

• MCI participants: lower accuracy than HC in both Go and NoGo conditions
• P300 mean amplitudes: smaller in MCI’s in both task conditions
• Results suggest people with MCI have problems with mechanisms of inhibitory control
• ERPs could have potential as a bio-marker for cognitive decline

ACKNOWLEDGEMENTS

• Funding: Bruyère Research Institute Growth Fund, MITACS Accelerate Internship Program
• Participants
• Dr. Taler’s EEG Lab: Equipment and staffing support