

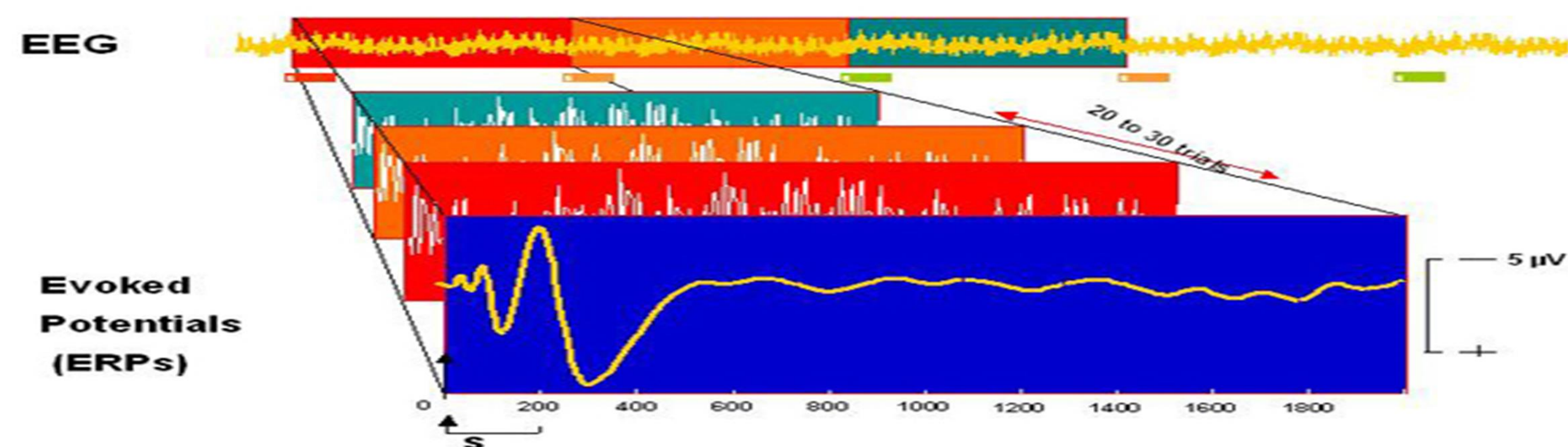
Mild Cognitive Impairment: Cognitive Testing And EEG Changes With Go-NoGo

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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



- This study examined ERPs during an inhibitory control Go-NoGo task in patients with MCI and healthy controls (HC)

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

Participants

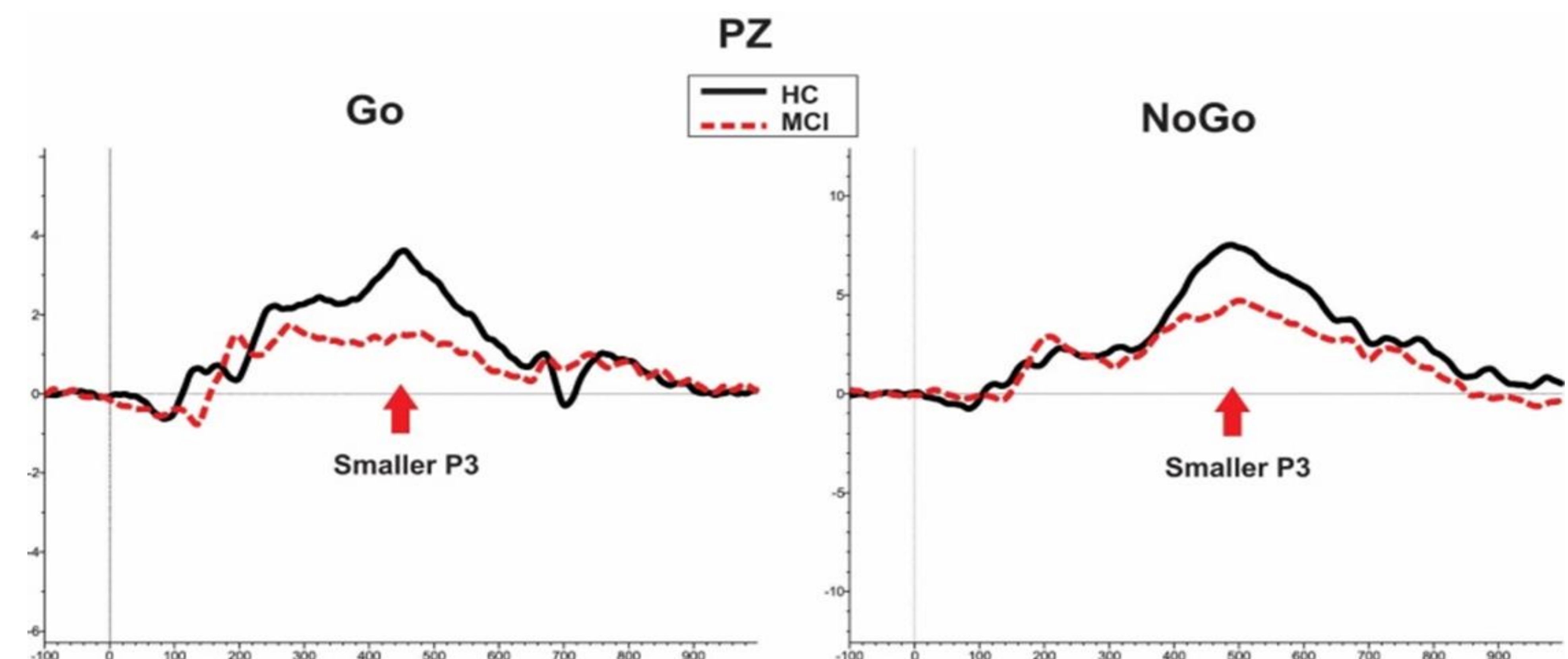
	MCI (n=13; 7 females)	HC (n=13; 9 females)	P
Age	75.8 (6.6)	72.7 (6.5)	.241
Education	14.5 (3.0)	16.9 (1.8)	.022

Cognitive Tests Results

Test	MCI (n=13)	HC (n=13)	P
MoCA	22.9 (2.7)	27.5 (1.7)	<.001
RBANS Total	80.1 (8.9)	115.4 (9.9)	<.001
Imm. Memory	71.4 (9.1)	110.1 (11.4)	<.001
Del. Memory	60.8 (13.9)	108.5 (13.8)	<.001
Visiospat/Constr	107.2 (16.1)	125.6 (8.6)	.002
Language	90.7 (8.7)	99.3 (14.0)	.071
Attention	94.4 (13.3)	107.7 (12.4)	.014

RESULTS

Task Condition	ACCURACY (%)			RESPONSE TIME (msec)		
	MCI (n=13)	HC (N=13)	P	MCI (n=13)	HC (n=13)	P
Go	79.6 (14.0)	90.7 (6.7)	.016	357.2 (31.3)	363.7 (48.8)	.689
NoGo	78.6 (9.9)	90.7 (8.9)	.009	N/A	N/A	N/A



Main effect of Group ($F(1,24)=5.36, p=.03$), indicating that people with MCI exhibited smaller P300 amplitudes than HC

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