

Hippocampus and amygdala functional connectivity at rest in patients with Mild Behavioral Impairment due to AD



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Background

Mild Behavioral Impairment (MBI) has been proposed as a predictive marker of Alzheimer's disease (AD) and may precede the onset of Mild Cognitive Impairment (MCI)¹.

Objectives

We used **Functional Connectivity (FC)** to compare MCI-AD patients with and without MBI, focusing on regions vulnerable in early Braak stage and critical for emotion.

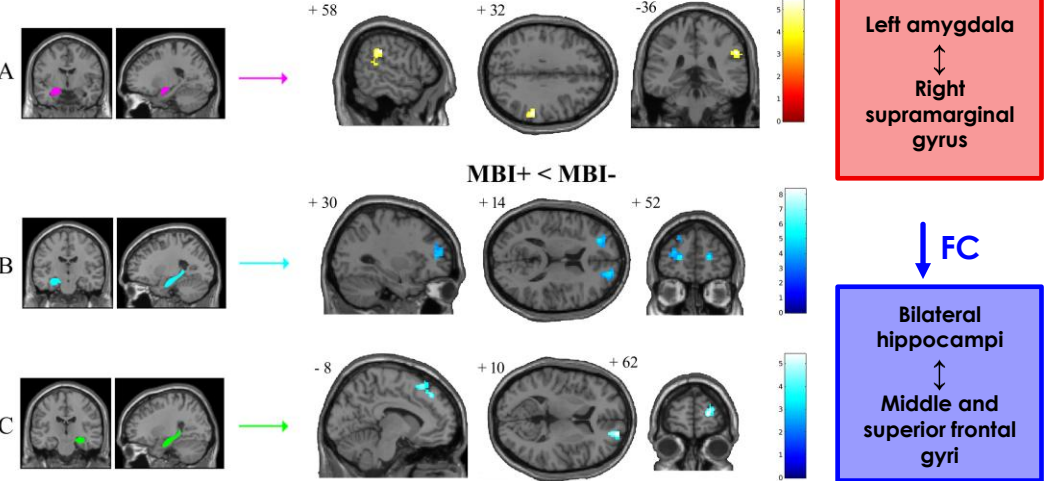
Methods

- **29 MCI-AD patients** were retrospectively classified as MBI+ and MBI- using **MBI-Checklist**²
- Seed-based FC analysis on **resting state fMRI** (CONN Toolbox)
- **Bilateral amygdala and hippocampus** as ROIs.

	MBI+ N = 17	MBI- N = 12	Group Comparison
Age (years)	68.2 (± 6.8)	66.2 (± 6.8)	p = 0.4
Gender (F/M)	8:9	5:7	p = 0.8
MMSE	26.6 (± 1.8)	27 (± 1.6)	p = 0.8
School age	11.7 (± 4.3)	11 (± 3.5)	p = 0.7

Results

ROIs



Conclusion

- Behavioral symptoms may stem from **abnormal salience processing** involving amygdala
- Executive dysfunction likely reflects **weakened hippocampal-frontal control**³
- An **amygdala-driven alternative pathway** may underlie early neuropsychiatric changes⁴

1. Scheuermann JS et al. (2024). J Alzheimers Dis. doi: 10.1177/1387287241291231; 2. Ismail et al. (2017). J Alzheimers Dis. doi: 10.3233/JAD-160979; 3. Matsuoka T, et al. (2023) PCN Rep. doi: 10.1002/pcn5.81; 4. Stouffer KM, et al. (2024) Brain. doi: 10.1093/brain/awad411