

Mild cognitive impairment subtypes. An MEG study

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INTRODUCTION.

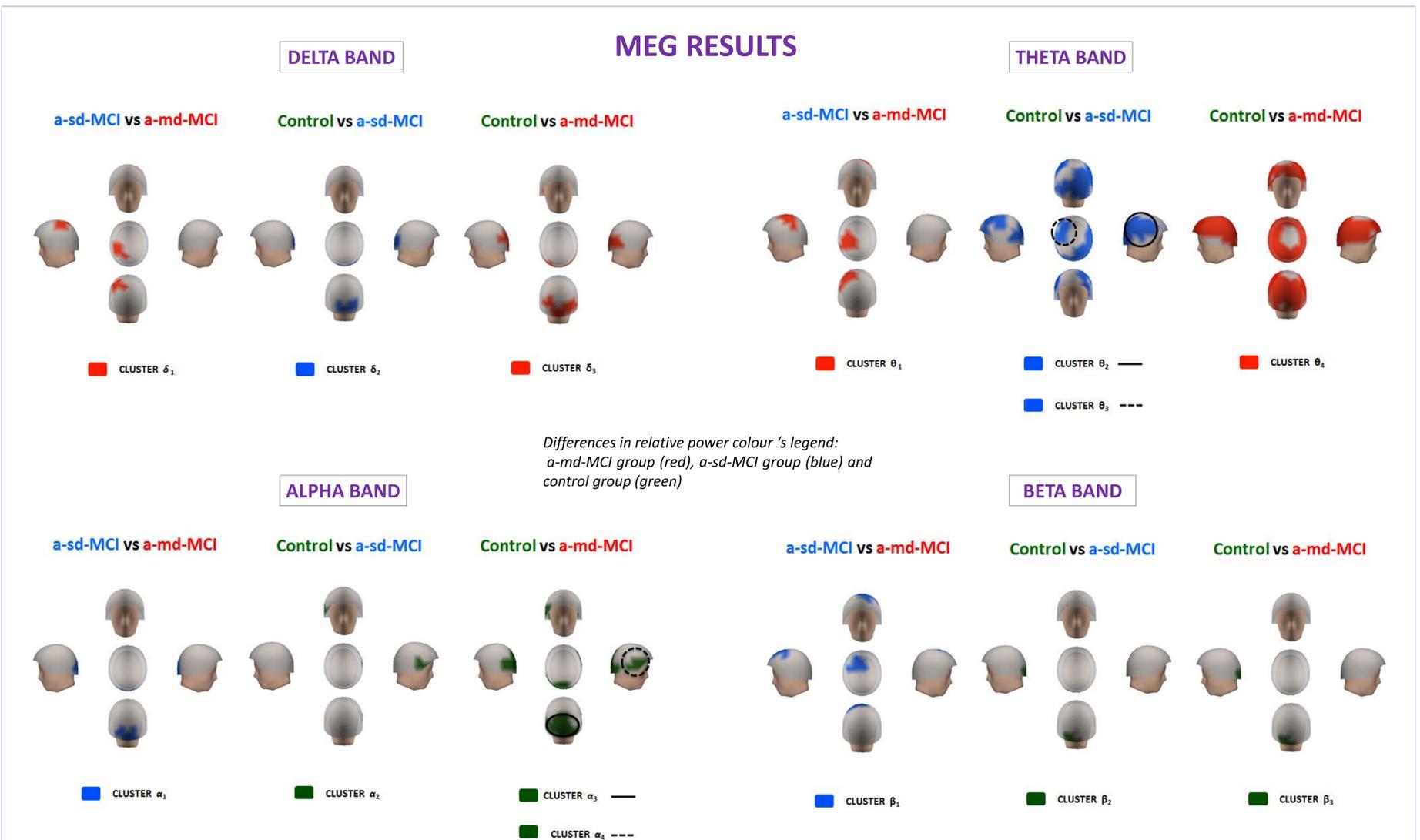
Previous studies of the dementia continuum have characterized the early disruption of the brain oscillatory activity at the stage of Mild cognitive impairment (MCI). Most of them have found a “slowing” of EEG/ MEG rhythms in this population; increased power at slow frequency bands (δ & θ) and a decrease in the high frequency range (α & β). The amnesic subtype of MCI shows the highest rate of progression to Alzheimer Disease (AD). However, little is known about the differences between being a single (a-sd-MCI) or a multidomain amnesic MCI patient (a-md-MCI).

METHODS.

Elekta-Neuromag Magnetoencephalography (MEG) 3' resting state eyes closed recordings were analyzed for a populations consist in 33 Controls, 33 a-sd-MCI and 36 a-md-MCI. Groups were well matched for education and age. Data were segmented in 4 seconds trials. After automatic and visual trials selection (minimum 15 trials per subject). MEG power spectrum was calculated through a multitaper method (mtmfft) with discrete prolate spheroidal sequences (dpss) as windowing function and 1 Hz smoothing.

OBJECTIVES.

Our main goal is study the power differences between a-sd-MCIs and a-md-MCIs in order to test whether the a-md-MCI patients exhibit a spectral pattern more proximate than a-sd-MCIs to the typical AD-profile.



Results showed expected behavior; MCIs increased power at lower frequencies and decreased in the highest, compared with control group. More importantly, clear differences emerged from the comparison between the two amnesic MCI subtypes; a-md-MCI showed a increased power at delta and theta and a decreased power at alpha and beta bands compared with a-sd-MCI group.

CONCLUSIONS.

These results suggest that a-md-MCI patients are characterized by a brain activity profile that is closer to that observed in AD. Therefore, it might be hypothesized that the likelihood of conversion to dementia would be higher within this MCI subtype.