Alpha power is associated with hippocampal volume in Alzheimer’s disease: A combined MEG & MRI Study

Jemma Pitt1, Andrew J Quinn1, Ece Kocagoncu2, Melek Karadag-Assem2, Juliette Lanskey2, Anastasia Klimovich-Gray1, Yun-Ju Cheng4, Vanessa Raymont1,2, James B Rowe4, Anna Christina Nobre1 and Mark W Woolrich1


1. Background

• New Therapeutics in Alzheimer’s Disease (NTAD) is a multi-centre, longitudinal study to develop reliable and sensitive biomarkers in the early stages of Mild Cognitive Impairment (MCI) and Alzheimer’s disease (AD) 1
• Hallmark of MEEG abnormalities in AD patients is changes to power/frequency of alpha 2,3

2. Aims

In this study we explored;
• The spontaneous alpha oscillations in the existing NTAD cohort
• How they relate to diagnostic condition (patients vs. controls), resting task (eyes open vs. eyes closed), and hippocampal atrophy

3. Methods

• 15 controls* (MMSE M=29)
• 46 MCI & AD patients* (MMSE M=24)
• MEEG recordings for two 5-minute resting-state sessions with eyes open and eyes closed
• T1-weighted MR scan used to calculate the hippocampal volume

4. Results

• Individual differences in alpha peak frequency associated with hippocampal volume and MMSE

5. Next steps

• Data collection will be completed
• Further analyses will be conducted to standardize these measures

References

1. NTAD protocol paper; https://www.medrxiv.org/content/10.1101/2021.05.18.21257340v1

Contact Information

Jemma Pitt
jemma.pitt@psych.ox.ac.uk