Research concept and pilot project: Using encoding strategies to understand False memories in Alzheimer’s disease.

Anothai Soonsawat 1,2, Michael Tat2,3, Rebecca Deason2,3, Andrew Budson1,2,3
1Harvard Medical School, 2VA Boston Healthcare System, 3Boston University School of Medicine

BACKGROUND

• Alzheimer’s disease (AD) is defined as a neurodegenerative disease of the brain characterized by a clinical dementia with prominent memory impairment. Patients with AD not only fail to retrieve desired information but also suffer from distortion of memory1.

• Memory depends on two different kinds of information, the item-specific information (details intrinsic to an item) and gist-based information (a general meaning or theme).

• In AD patients, they have impaired access to both item-specific and gist-based information. However, they were also found to rely more on gist information than the other type, which typically results in greater memory distortions relative to healthy controls (incorrectly claiming to have studied words that share the same general meaning/theme but in fact were never presented during the memory encoding)2.

• In memory tests, AD patients incorrectly endorse unstudied related lure words more often than older healthy adults. It has been demonstrated having participants use a strategy to focus on item-specific aspects of study items can reduce the incidence of false memory in younger adults3, older adults4 and also for participants with frontal lobe function impairment5.

• Goal for this study is to investigate the difference of memory recognition between participants with AD and controls, after provided with encoding strategies to promote item-specific processing and relational processing.

• This research project is a collaborative work of Harvard South Shore Psychiatry Program (HSS), VA Boston Healthcare System and Center for Translational Cognitive Neuroscience (CTCN). It is designed to be a part of Residency Pathways to Research (RPTR) for residents during PGY-IV.

METHOD & PROCEDURE

Recruitment: male and female at 60 years old and above. From VA Memory Clinic, Alzheimer’s Disease Center and their family members for controls. N = 15-20

Study phase

Patients will study lists of related words (e.g., OIL, COAL, SOLAR ENERGY, PETROLEUM). They will be asked to engage in one of three study strategies, in three separate session:

1. Item-Specific Encoding Strategy
2. Relational Encoding Strategy
3. No Encoding Strategy

Test phase

The word is “ELECTRICITY”

Item-Specific Relational Isolated

Electrodes

Older adults

Alzheimer’s

Table. A 2x3 mixed factorial design, with group (older adults and older adults with AD) as the between subjects variable, and type of encoding orientation (item-specific, relational and simple words without questions)

PREDICTED RESULTS

True and false recognition rates will be entered into a 2x3 mixed factor ANOVA. When participants engaged in relational encoding strategy, false recognition to the related lure words is expected to be greater than when they are provided with item-specific encoding strategy.