Validation of Magnetoencephalography in Mild Cognitive Impairment

Type of Project: Exploratory Clinical Research

Methods: Neuropsychology, Neurology, Magnetoencephalography

Status: Seeking $250,000 in funding

Study Period: Undetermined; three-year study

University of Utah Collaborative Units: Magnetoencephalography Laboratory

Investigators: Edward Zamrini, M.D. (Principal Investigator), Michael Funke, Ph.D.

Project Summary:

Patients with Alzheimer’s disease (AD) have slowing of cognitive processing speed. Using a cognitive evoked response potential (ERP) called mismatch negativity (MMN) by magnetoencephalography (thus MMNm), one can measure speed of cognitive processing. Patients with Mild Cognitive Impairment (MCI) have mild memory loss and a 14% per year risk of progressing into AD. On neuropsychological testing, patients with MCI have a memory profile similar to AD, but perform similar to normal individuals on non-memory functions. In this project, we wish to use MMNm as a tool to measure cognitive processing speed in AD, MCI and normal controls over a two-year period. We hope to validate MMNm as a tool to distinguish AD and MCI from normal controls, and to see if it can help track the rate of MMNm change or stability over a two-year period in AD, MCI and normal controls.

Potential Benefits:

If successful, this project may help us identify a prognostic marker for which patients with MCI are more likely to progress to AD. This approach may also help us measure the effect of medications for Alzheimer’s disease and MCI.