

Detecting Dementia subtype: Who will benefit from Magnetic therapies?

Dementia has many types Alzheimer's, Lewy Body, Vascular, Fronto-temporal and so on. Dementia can occur as a mix of types and the most common mix is a mix of Alzheimer's and Vascular Dementia. We need to know exactly the type of dementia a patient has. If we do we can optimize and personalize that person's cognitive and treatment therapy.

There are many factors that may influence whether a dementia patient responds to electromagnetic therapy. These factors include dementia type and severity, cerebrovascular symptomology as well as, depressive and anxious state.



Brian Lithgow

One of a number of tools Prof Brian Lithgow, Research Manager at RHC, and Dr Zahra Moussavi, University of Manitoba, are using to determine Dementia sub-type is Electrovestibulography which can measure a physiological signature for Alzheimer's and Alzheimer's (AD) with a mix of Vascular dementia (ADcvd).

Their research shows that the physiological basis for each dementia type is different. So far based in their

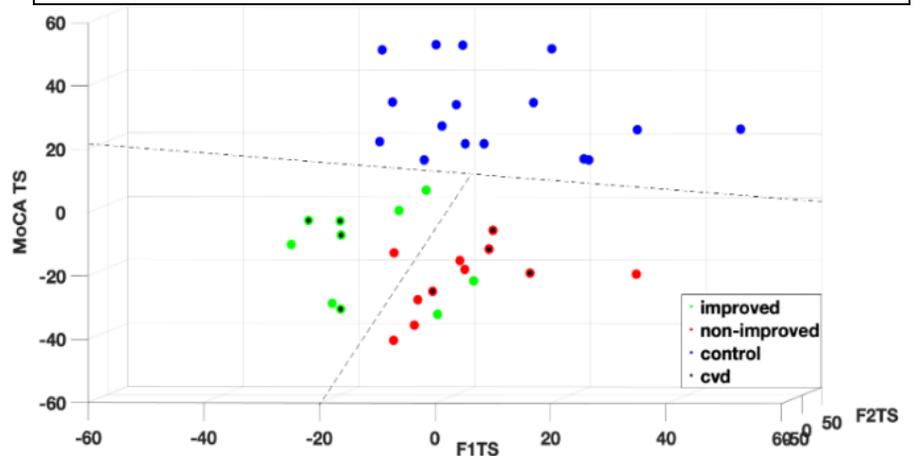
research, their research shows each electromagnetic therapy that was applied (repetitive transcranial magnetic stimulation (rTMS) or transcranial alternating current stimulation (TACS)) appeared to help improve the cognition (memory) of some dementia patients. So far in their research they show only about half of the rTMS patients improve with therapy and Prof Lithgow says "we are beginning to understand why".

"We have shown like other researchers that severity is a determining factor in how well the electromagnetic therapy works. The earlier we treat the better."

Electromagnetic therapies like rTMS are commonplace to treat depression so application of a similar treatment to dementia patients is also expected to improve any depressive symptoms that may be present.

Anxiety is commonplace in dementia patients. Some research suggests there is a reciprocal relationship between the vestibular system (where Electrovestibulography measures) and hippocampus (crucial in memory formation and anxiety). Prof Lithgow

The separation of Healthy Controls from improved non-improved using Electrovestibulography measures and a severity measure



says "So far, our research supports there being anxiety level changes after rTMS." This is being explored in this project.

The level of cerebrovascular symptomatology (the ratio of vascular symptoms to Alzheimer symptoms) is currently being explored in their study as a factor in determining the effectiveness of electromagnetic therapies.

By being able to predict which dementia patients will benefit from electromagnetic therapies each patient can be placed in a personalized treatment best suited to improve their cognition (memory) early in their disease when the therapy is most likely to be effective. This will reduce lengthy delays for treatment and make electromagnetic therapies more effective.

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