Q & A with American Brain Foundation Researcher:

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Q: Please describe your research.

A. Patients with frontotemporal lobar degeneration (FTLD) have problems with behavior, language skills or executive abilities (e.g. planning, organizing) which lead to dementia. As a result, they become alienated from loved ones, and are unable to plan daily activities, understand the meaning of words, or even express their thoughts, while their memory is relatively intact. Our work focuses on the unique brain activity signatures in FTLD that indicate a breakdown of communication between affected brain cells. To achieve this, we use magnetoencephalography (MEG), a simple, noninvasive and safe technique that captures brain activity at the millisecond level while patients lie on a bed for ten minutes with their head placed in what looks like a large helmet.

Q: Please explain how this research could benefit the public.

A. Our research is looking into identifying biomarkers in the brain which can help accurately diagnose FTLD, improve prognosis of what lies ahead, and eventually evaluate patients' response to treatment. As FTLD therapies start to emerge, early and accurate diagnosis will be extremely important in order to stop the degenerative process at its infancy. This is not an easy task clinically and we will have to rely on surrogate biomarkers (laboratory tests that correspond to the pathological and functional changes during disease progression). MEG has the potential to reveal those very first changes in brain activity and allow for accurate early diagnosis, prognosis, and treatment response with immense individual and social implications.