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Multimodal Neuroimaging of Apathy in Amnestic Mild Cognitive Impairment
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Mild cognitive impairment (MCI) is a clinical condition that sometimes precedes a diagnosis of Alzheimer’s disease. One type of MCI, in which memory problems are the predominant symptom, is known as amnestic MCI. Some patients with amnestic MCI also exhibit apathy, and this sign is associated with an increased risk of progression to Alzheimer’s disease.

Current evidence suggests that apathy associated with amnestic MCI arises from abnormalities in a part of the brain called the medial frontal cortex. Michele Lynn Ries, Ph.D. and colleagues plan to use magnetic resonance imaging (MRI) and positron emission tomography (PET) to analyze the structure and function of the medial frontal cortex in people with amnestic MCI and apathy. The researchers will use PET imaging to measure levels of metabolic sugars (glucose), and MRI to measure blood oxygen levels in the brain. The results of these imaging studies will reveal if apathy is associated with low blood flow or low brain activity in the medial frontal cortex.

Dr. Ries and colleagues are also interested in determining if abnormal function of the medial frontal cortex in people with MCI is able to predict subsequent development of Alzheimer’s disease. To address this question, the researchers will follow individuals for several years after brain imaging. These studies will provide important clues about the causes of apathy in people with amnestic MCI, and whether the brain mechanisms associated with apathy are predictors of Alzheimer’s disease.