

Title of Study: Cerebrovascular reactivity in patients with cerebral amyloid angiopathy

Location: Calgary, Alberta

Study Description:

Our study is investigating whether reduced cerebrovascular reactivity (the brain's ability to increase blood flow when needed) is associated with greater brain shrinkage, cognitive decline and stroke in patients with cerebral amyloid angiopathy (CAA), Alzheimer's disease and mild cognitive impairment (MCI). CAA is a condition that can lead to leakiness of blood vessels in the brain, causing bleeding problems including strokes. Our hypothesis is that CAA patients have reduced cerebrovascular reactivity. We can measure cerebrovascular reactivity using MRI, which might help us better diagnose patients with CAA and determine how badly the blood vessels in their brain are affected by this condition.

What will happen during the study?

We will need you to visit us 3 times. At visit 1, we will take a medical history, a family history and do a neurological examination similar to what would be performed in a routine doctor's visit. We will also do pen-and-paper tests of your memory and thinking, and take a blood sample similar to what would happen if your doctor ordered a routine blood test. Visit 1 will finish with a walking assessment on a specialized mat. Overall, Visit 1 will be approximately 3 hours long. At Visit 2, you will have a brain MRI scan for 1 ½ hours (90 minutes). For 2 minutes of this MRI scan you will breathe a small amount of carbon dioxide gas through a mask. Visit 3 will be about 1 hour. At this visit, a neurologist will take some cerebrospinal fluid via a lumbar puncture. Visit 3 is optional and you can still participate in the study if you do not want to have this test.

Eligibility: Who Can Participate?

Women & men who can participate are:

1. Patients

- Between 60-90 years of age
- Have memory concerns or have been diagnosed with:
 - Cerebral amyloid angiopathy (CAA)
 - Alzheimer's disease (AD)
 - Mild cognitive impairment (MCI)
- Have a study partner (family member or close friend) who can participate in the study with you.

2. Healthy Control Participants

- Between 60-90 years of age
- Have a study partner (family member or close friend) who can participate in the study with you.

EXCLUSION Criteria.

- Individuals who will not be able to participate are those who: Do not have a study partner who can participate in the study with you.
- Are living in a long-term facility.
- Cannot travel to Foothills Hospital (Calgary, Alberta) or the University of Alberta Hospital (Edmonton, Alberta).
- Have been diagnosed with other chronic brain illness (e.g., multiple sclerosis, cerebral palsy, Parkinson's, brain tumour).
- Know they are unable to have an MRI.

Recruitment Start Date: January 2017

Recruitment End Date: May 29, 2018

Contact Information:

Eric E. Smith, MD
University of Calgary,
Cumming School of Medicine, Department of Clinical Neurosciences

Tel: 403-944-1594

Email: Lindsay.Litowsky@albertahealthservices.ca (Administrative Assistant)