

## **Lay Summary**

**BRAIN UK Ref: 21/023**

**To understand the pathophysiology of Amyloid-Related Imaging Abnormalities (ARIA)**

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A new treatment for Alzheimer's disease has recently been approved in the United States (Aduhelm). However, there is a problem with a side effect called Amyloid-Related Imaging Abnormalities (ARIA), mostly identified with brain scans. In ARIA there is excessive accumulation of water in the brain. Water can get into the brain through the walls of blood vessels and its flow is normally very carefully controlled. Based on animal experiments, there seems to be a problem with this control of water. Human brain tissue from patients with ARIA due to this new treatment for Alzheimer's disease is not available for study. However, there is a naturally-occurring disease known as "cerebral amyloid angiopathy-related inflammation" (CAA-ri) which seems to be very similar. In this study, we want to optimise new 3D electron microscopy methods in order to closely examine part of the blood vessel wall that is involved in controlling entry of water into the brain. This will help to understand the side effect occurring in people having this new treatment for Alzheimer's disease.