



Application number/Title: 37489 - Risk and protective factors for MRI markers of cerebral small vessel disease

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Keywords provided by the Applicant PI to describe the research project:

asians, dementia, infarcts, mri, small-vessel-disease, stroke

Application Lay Summary:

MRI markers of cerebral small vessel disease (SVD) are prevalent in the general population, especially the elderly, and associated with future risk of dementia and stroke. There is poor understanding of the risk factors (vascular, genetic and socio-demographic) for SVD. Disparity in the prevalence of SVD markers in different populations is known but the underlining mechanisms and differential risk factors is not clear, neither their link to various health related outcomes. Using the well phenotyped samples of UK Biobank we want to determine the risk factors, contrast the same between Asians and Caucasians and develop new measures of SVD.

MRI markers of cerebral small vessel disease pose a substantial health burden as they are associated with future risk of dementia and stroke. Understanding the protective and risk factors may help in establishing therapeutic and intervention measures. This is in accordance with UK Biobank's objective to improve public health. MRI markers of cerebral small vessel disease (SVD) like brain infarcts will be correlated with various anthropometric, blood biochemistry, immediate environment, genetic markers, etc to get a list of associated risk factors. The same analysis will be repeated in different ethnic groups to find differential risk factors specific to the ethnic group. The brain MRI data will also be subjected to new automated methods to improve detection of current MRI markers of SVD and also hunt for new markers of SVD. Access to the full cohort is required. Individuals with MRI measures is a must. However, access to individuals without MRI measures is also required to check the extent of bias in terms of various measurements. Entire cohort is also required to build genetic risk scores for other measures (example lipid measures in the blood) with enough power.