Brain Microbleeds and Cognitive Function

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Brain microbleeds are small hemorrhages within the brain, often identified on magnetic resonance imaging (MRI) as small dark spots. They are associated with various conditions, including cerebrovascular disease, amyloid angiopathy, and Alzheimer disease. Microbleeds can lead to hemorrhage or infarction, contributing to cognitive impairment. In subcortical vascular dementia, microbleeds are seen at autopsy in up to 85% of patients. Microbleeds may be associated with amyloid angiopathy, which can lead to hemorrhage and infarction, contributing to cognitive impairment. However, the relationship between microbleeds and cognitive function is complex and may vary depending on the location, size, and number of microbleeds. Further research is needed to better understand the role of microbleeds in cognitive impairment and dementia.
An association of microbleeds with cognitive impairment may provide a mechanism by which vascular risk factors, such as hypertension, could impair cognition separate from infarcts and white matter changes. In addition, microbleeds could account, in part, for the variability of cognitive impairment from both subcortical infarcts and Alzheimer disease pathology. Microbleeds are common in persons with cerebrovascular disease and with Alzheimer disease, and these are the most common age-related pathologies in the brain. Indeed, because microbleeds are small, require gradient-echo T2* sequences, or a careful pathological survey, their importance in cognitive impairment in older persons could be significantly underrecognized.

The main strengths of this study are analyses that controlled for potential confounders including age, infarcts, and white matter changes, and the large number of scan images. Limitations include possible selection bias through a memory disorder clinic and the retrospective study design. Future studies that prospectively investigate the effect of microbleeds on the cognitive impairment of vascular, Alzheimer, and mixed dementias in diverse cohorts will be important.

Disclosures
None.

References