Vascular Determinants of Cognitive Performance in Brain Aging.

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Background and objectives. Neuroimaging and neuropathological studies have provided strong evidence that small and microscopic hemorrhagic or ischemic vascular pathology is a lot more common than previously thought. Clinicopathological correlations have shown that ischemic lesions are important determinants of cognitive function in aging individuals but less is known about microbleeds (MB) and their clinical implications.

Methods. MB were identified in the frontal, parietal, occipital cortex and adjacent white matter and basal ganglia in over 100 consecutive autopsies of older people.

Results. MB were present in 93% of the cases. They were more frequent in parietal and frontal lobes followed by the occipital region and basal ganglia. Lobar MB were nearly twice as common as MB in the basal ganglia. Cerebral amyloid angiopathy was present in 44% of the cases and only 2 cases were found with macroscopic intracerebral haemorrhage. Cerebral amyloid angiopathy was not significantly related to lobar MB.

Conclusions. Microbleeds appear to be extremely frequent in older brains even in the absence of cerebral amyloid angiopathy. Since they can be found in nearly all cases, regardless of the presence of dementia, it is unlikely that they have as strong an effect on cognition as microinfarcts. Further studies are needed to explore the various underlying pathophysiological mechanisms that may lead to MB and better assess their clinical effect.