Cerebral Microbleed Etiology

Microhemorrhages are typically associated with conditions that affect the blood vessels in the brain. Common causes include:

Cerebral Amyloid Angiopathy (CAA): A condition characterized by the accumulation of amyloid protein in the blood vessels of the brain, which can weaken vessel walls and lead to microhemorrhages.

Hypertension: Chronic high blood pressure can damage blood vessels over time, making them more prone to leakage.

Traumatic Brain Injury (TBI): Microhemorrhages can occur as a result of head injuries.

Ischemic Stroke: In some cases, microhemorrhages can be associated with ischemic strokes (strokes caused by a blockage of blood flow).

Aging: Microhemorrhages can become more common as people age.

It's important to note that while these microhemorrhages are generally small, their cumulative effect over time may contribute to cognitive decline or other neurological issues. Monitoring and managing the underlying causes, such as controlling blood pressure or addressing amyloid deposition, are crucial aspects of the management of cerebral microhemorrhages. If you or someone you know is experiencing symptoms or has concerns about microhemorrhages, it's essential to consult with a healthcare professional for a thorough evaluation and appropriate management.

Data support the hypothesis that strictly lobar microbleeds are related to cerebral amyloid angiopathy, whereas microbleeds in a deep or infratentorial location result from hypertensive or atherosclerotic microangiopathy [1].

In patients with Cerebral large artery disease (CLAD), elevated plasma VEGF might be associated with Cerebral Microbleeds (CMBs), especially those located in the cortex and/or at the gray-white junction [2].

Cerebral microbleeds are common in older persons. The association with homozygote Apo E epsilon4 genotype and finding a relative predominance in the parietal lobes might indicate an association with amyloid angiopathy [3].

Cerebral microbleeds (cMBs) have previously been linked with especially high incidence in Asian patients with moyamoya disease together with high tendency to bleed. This, presumably, is characteristic of patients with moyamoya.

Wenz et al., included all patients with moyamoya who underwent standard magnetic resonance imaging, including T2*-weighted images, in the Department of Neurosurgery, University of Heidelberg, Mannheim, Germany. between 1998 and 2015. Two independent readers evaluated magnetic resonance imaging scans to determine the occurrence of cMBs according to the Brain Observer Microbleed Scale. Demographics, initial symptoms leading to hospitalization, and associated

diseases were obtained by chart review.

Overall, there was a total of 242 T2* studies of 101 included moyamoya patients available with a strong female predominance (69.3%). Eight patients (7.9%) were ≤18 years of age.

They detected 25 cMBs within 13 patients (12.9%). One patient <18 of age was presented with a cMB; 2 of 3 patients with an intracranial hemorrhage as initial event demonstrated cMB(s). In 72 of 101 cases, there were 1719 person months of follow-up, with 3 adult patients showing 3 de novo cMBs in the course. The majority of cMBs (64.0%) were located at the cortex/gray-white junction.

Although the frequency of cMBs herein is much higher than the expected age-specific incidence, it is still much lower compared with previous reports on cMBs in moyamoya patients of Asian descent. These results might reflect another ethnic-specific difference in patients diagnosed with moyamoya [4].

1)
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