Traumatic brain injury-induced cerebral microbleeds

Traumatic brain injury (TBI) was shown to lead to the development of cerebral microbleeds (CMBs), which are associated with long term cognitive decline and gait disturbances in patients. The elderly is one of the most vulnerable parts of the population to suffer TBI. Importantly, ageing is known to exacerbate microvascular fragility and to promote the formation of CMBs. In this overview, the effect of ageing is discussed on the development and characteristics of TBI-related CMBs, with special emphasis on CMBs associated with mild TBI. Four cases of TBI-related CMBs are described to illustrate the concept that ageing exacerbates the deleterious microvascular effects of TBI and that similar brain trauma may induce more CMBs in old patients than in young ones. Recommendations are made for future prospective studies to establish the mechanistic effects of ageing on the formation of CMBs after TBI, and to determine long-term consequences of CMBs on clinically relevant outcome measures including cognitive performance, gait and balance function.

Cerebral Microbleeds at the junction of gray-white matter and bilateral frontal deep white matter and in the left thalamus, suggestive of diffuse axonal injury. Loss of cortico-subcortical differentiation, without sulcal effacement, suggesting some component of diffuse cerebral edema.