

Brachial-ankle Arterial Stiffness is Associated with Cerebral Small Vessel Disease in Patients with Acute Ischemic Stroke

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Background: Increased arterial stiffness develops alterations of the cerebral vasculature and is known predictor of cerebrovascular diseases. Vessel wall damage in relation to arterial stiffness develops more frequently in the small vessels of brain. The objective of this study was determined the association between arterial stiffness, as measured by brachial-ankle pulse wave velocity (baPWV) and MRI markers of cerebral small vessel disease (SVD) in acute ischemic stroke. **Methods:** We studied 88 subjects with acute cerebral infarction. All patients underwent baPWV and brain MRI. The number of microbleeds and lacunar infarcts were rated. The locations of microbleeds and lacunar infarcts were divided into infratentorial, lobar, and deep regions. The WMH were separated in deep and periventricular regions and the severity of WMH were assessed. **Results:** Increased baPWV was associated with lacunar infarcts and WMH ($p < 0.05$). There was no association between microbleeds and baPWV. On multivariable analysis, the association of baPWV and lacunar infarcts in the deep regions was stronger than other imaging markers of SVD ($p < 0.01$). **Conclusions:** Increased arterial stiffness was associated with the severity of cerebral SVD in acute ischemic stroke. Lacunar infarcts in deep regions are more related to arterial stiffness. These findings show that baPWV is a reliable surrogate marker of SVD.