

The Effects of Cardiovascular Risk on Age-Related Cognitive Decline in Healthy Older Adults

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Abstract : Background: Common risk factors for cardiovascular disease are associated with age-related cognitive decline. There has been much interest in treating modifiable cardiovascular risk factors in the hope of reducing cognitive decline. However, there is currently no validated neuropsychological test to assess the subclinical cognitive effects of vascular risk. The Brief Memory and Executive Test (BMET) is a clinical screening tool, which was originally designed to be sensitive and specific to Vascular Cognitive Impairment (VCI), an impairment characterised by decline in frontally-mediated cognitive functions (e.g. Executive Function and Processing Speed). Objective: To cross-sectionally assess the validity of the BMET as a measure of the subclinical effects of vascular risk on cognition, in an otherwise healthy elderly cohort. Methods: Data from 346 participants (57 ± 10 years) without major neurological or psychiatric disorders were included in this study, gathered as part of a previous multicentre validation study for the BMET. Framingham Vascular Age was used as a surrogate measure of vascular risk, incorporating several established risk factors. Principal Components Analysis of the subtests was used to produce common constructs: an index for Memory and another for Executive Function/Processing Speed. Univariate General Linear models were used to relate Vascular Age to performance on Executive Function/Processing Speed and Memory subtests of the BMET, adjusting for Age, Premorbid Intelligence and Ethnicity. Results: Adverse vascular risk was associated with poorer performance on both the Memory and Executive Function/Processing Speed indices, adjusted for Age, Premorbid Intelligence and Ethnicity ($p=0.011$ and $p<0.001$, respectively). Conclusions: Performance on the BMET reflects the subclinical effects of vascular risk on cognition, in age-related cognitive decline. Vascular risk is associated with decline in both Executive Function/Processing Speed and Memory groups of subtests. Future studies are needed to explore whether treating vascular risk factors can effectively reduce age-related cognitive decline.

Keywords : age-related cognitive decline, vascular cognitive impairment, subclinical cerebrovascular disease, cognitive aging

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