Ankle-Brachial Index, Cognitive Impairment and Cerebrovascular Disease in a Chinese Population

Saima Hilal, Monica Saini, Chuen Seng Tan, Josereee Ann Catindig, Yan Hong Dong, Lim Ben Swie Leon, Wiro J. Niessen, Henri Vrooman, Tien Yin Wong, Christopher Chen, Narayanaswamy Venketasubramanian, Mohammad Kamran Ikram

Departments of Pharmacology and Ophthalmology and Saw Swee Hock School of Public Health, National University of Singapore, and Memory Aging and Cognition Centre, National University Health System, Singapore Eye Research Institute, Singapore National Eye Center, and Neuroscience Clinic, Raffles Hospital, Singapore; Departments of Radiology and Medical Informatics and Ophthalmology, Erasmus Medical Center, Rotterdam, and Faculty of Applied Sciences, Delft University of Technology, Delft, The Netherlands

Key Words
Ankle-brachial index · Peripheral arterial disease · Neuroimaging · Cognitive impairment

Abstract
Background: Previous studies have assessed the association between ankle-brachial index (ABI) and cognition, mainly using brief cognitive tests. We investigated whether ABI was associated with cognition independent of neuroimaging markers of cerebrovascular disease.

Methods: Chinese subjects (n = 278, aged ≥60 years) were recruited from the ongoing Epidemiology of Dementia in Singapore (EDIS) Study. Ankle and brachial blood pressures were measured, and low ABI was defined as ≤0.9. A neuropsychological battery was utilized to determine cognition. Cognitive impairment no dementia (CIND) and dementia were diagnosed according to standard diagnostic criteria. Magnetic resonance imaging (MRI) was used to obtain semiquantitative and quantitative markers of cerebrovascular disease and atrophy.

Results: A low ABI was related to the presence of intracranial stenosis (odds ratio, OR = 1.71; 95% confidence interval, CI: 1.13–2.59), but not with the presence of infarcts, microbleeds or grey matter, white matter and white matter lesion volumes. Furthermore, a low ABI was associated with poorer overall cognitive function and CIND-moderate/dementia (OR = 2.26; 95% CI: 1.11–4.59), independent of cardiovascular risk factors, and the MRI markers related to cerebrovascular disease and atrophy.

Conclusion: We found an association between a low ABI and cognitive impairment, independent of any MRI marker of cerebral small vessel disease or large artery atherosclerotic disease.

N.V. and M.K.I. contributed equally to this work.

© 2014 S. Karger AG, Basel

KARGER
E-Mail karger@karger.com
www.karger.com/ned