THE ASSOCIATION OF METABOLIC SYNDROME WITH COGNITIVE IMPAIRMENT INDEPENDENT OF SILENT ISCHEMIC BRAIN LESIONS

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Introduction: Metabolic syndrome (MetS) has been recognized as a risk factor not only for symptomatic stroke but also for the development of subclinical ischemic brain lesions, which can affect cognitive functions.

Aims: The aim of this study is to examine whether MetS is directly associated with cognitive impairment independent of subclinical ischemic brain lesions.

Methods: We examined 1,543 neurologically normal subjects (44 - 86 years). MetS, brain MRI, and cognitive functions including general cognition and executive function were assessed. Univariate and multivariate ordered logistic regression models were used to determine the association between cognitive function and MetS with MRI changes and demographic risk factors as independent variables.

Results: Metabolic syndrome was observed in 12.1% of this study population. After adjusting for demographic risk factors and silent brain lesions, which include silent brain infarction, periventricular hyperintensity and subcortical white matter lesion, MetS was an independent risk factor for impairment of executive function (OR: 1.41, 95% CI: 1.17-1.25 for Kohs’ block design test; OR: 2.25, 95% CI: 1.64-3.07 for frontal assessment battery), but not for general cognitive impairment. Among the components of MetS, elevated fasting glucose was the only independent risk factor for impairment of executive function.

Conclusions: MetS is associated with impairment of executive function independent of silent brain lesions in Japanese population. Factors other than vascular pathology may contribute to the association between MetS and cognitive decline in the middle-aged and elderly.