Abstract

OBJECTIVE: To examine the relation between serum levels of homocysteine (tHcy) and holotranscobalamin (holoTC), the active fraction of vitamin B12, and risk of incident Alzheimer disease (AD) in a sample of Finnish community-dwelling elderly.

METHODS: A dementia-free sample of 271 subjects aged 65-79 years derived from the Cardiovascular Risk Factors, Aging, and Dementia (CAIDE) study was followed up for 7 years to detect incident AD. The association between serum tHcy and holoTC with AD was analyzed with multiple logistic regression after adjusting for several potential confounders, including common vascular risk factors.

RESULTS: The odds ratios (ORs) (95% confidence interval [CI]) for AD were 1.16 (1.04-1.31) per increase of 1 µmol/L of tHcy at baseline and 0.980 (0.965-0.995) for each increase of 1 pmol/L baseline holoTC. Adjustment for several potential confounders including age, sex, education, APOE ε4 allele, body mass index, Mini-Mental State Examination, smoking, stroke, and blood pressure did not alter the associations: ORs (95% CI) for AD became 1.19 (1.01-1.39) for tHcy and 0.977 (0.958-0.997) for holoTC. Adjusting for holoTC attenuated the tHcy-AD link (OR changed from 1.16 to 1.10, 95% CI 0.96-1.25). The holoTC-AD relationship was less influenced by controlling for tHcy (OR changed from 0.980 to 0.984, 95% CI 0.968-1.000). Addition of folate did not change any of the results.

CONCLUSIONS: This study suggests that both tHcy and holoTC may be involved in the development of AD. The tHcy-AD link may be partly explained by serum holoTC. The role of holoTC in AD should be further investigated.

Comment in
