HOMOCYSTEINE, HOLO-TRANS CobALAMIN AND COGNITION IN THE ELDERLY: A LONGITUDINAL POPULATION-BASED STUDY

B. Hooshmand¹, A. Solomon¹, I. Kåreholt¹, M. Rusanen², T. Hänninen², J. Sundvall³, B. Winblad¹, H. Soininen², M. Kivipelto¹

¹Aging Research Center, Department of Neurobiology, Care Sciences and Society (NVS), Karolinska Institutet, Stockholm, Stockholm, Sweden, ²Department of Neurology, Institute of Clinical Medicine, University of Eastern Finland, Kuopio, ³Department of Chronic Disease Prevention, National Institute for Health and Welfare, Helsinki, Finland

Introduction: The association between serum total homocysteine (tHcy) and cognition in the elderly is currently controversial. Holo-transcobalamin (holoTC) represents the biologically active fraction of vitamin B12, but prospective studies on the impact of holoTC on cognition are limited.

Aims: To investigate the relationship between serum tHcy, holoTC, and cognitive functions in several domains in a longitudinal population-based study.

Methods: A dementia-free sample of 274 subjects aged 65-79 derived from the Cardiovascular Risk Factors, Aging and Dementia (CAIDE) study was followed-up for 7-years, when they were reexamined. A battery of cognitive tests was administered both at baseline and at follow-up. Multiple linear regression and linear mixed models were used to investigate associations of baseline serum concentrations with cognition.

Results: In cross-sectional analyses, elevated tHcy was associated with lower performance in episodic memory, executive function, and psychomotor speed, while holoTC was related to better performance in speed. High baseline tHcy was associated with lower scores on cognitive testings at follow-up, but adjusting for holoTC weakened the association in some domains. holoTC was related to better performance in all domains except for episodic memory, but adjusting for tHcy attenuated the associations. In longitudinal analyses, higher tHcy and lower holoTC were associated with increased rate of decline in executive function and semantic memory.

Conclusion: tHcy and holoTC may be related to cognitive performance in the elderly. Semantic memory and executive function appeared to be more affected in this population based study of aging people. The role of holoTC on cognition should be further investigated.