Homocysteine and Cognitive Function in Geriatric Depression

Background/Objectives: Cognitive dysfunction is a common aspect of the spectrum of symptoms of geriatric depression. High homocysteine levels have been linked to cognitive decline in neuropsychiatric disorders. The present study investigated possible associations between cognitive impairment observed in geriatric depression and homocysteine levels.

Methods: The performance of 25 mentally healthy individuals and 40 patients with geriatric depression in terms of language processing, processing speed, concentration and attention was assessed with the Stroop Test and the d2 Test of Attention. Serum homocysteine was determined with an enzyme immunoassay.

Results: The performance of depressed patients was significantly worse in language processing ($p = 0.001$) and processing speed ($p < 0.0001$). Depressed patients with high levels of homocysteine performed better than patients with homocysteine concentrations ≤11.7 µmol/l in both cognitive domains ($p = 0.006$ and 0.009, respectively). Moreover, homocysteine level was positively associated with language processing ($p = 0.002$) and processing speed ($p = 0.002$).

Conclusions: These findings indicate that under the special circumstances of geriatric depression (perturbation of glutamatergic transmission and glutamate metabolism), homocysteine is positively associated with the performance in language processing and processing speed.