

Abstract

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Homocysteine and B vitamins relate to brain volume and white-matter changes in geriatric patients with psychiatric disorders.

Scott TM, Tucker KL, Bhadelia A, Benjamin B, Patz S, Bhadelia R, Liebson E, Price LL, Griffith J, Rosenberg I, Folstein MF.

Department of Psychiatry, Tufts-New England Medical Center, and Tufts University School of Medicine, Boston, MA 02446, USA.

OBJECTIVE: There is a growing literature on the relationship between low serum B-vitamins, elevated homocysteine, and cognitive impairment; however, few studies have examined radiological markers of associated neuropathology in geropsychiatry inpatients. The authors examined the relationship of homocysteine, folate, and vitamin B12 with magnetic resonance imaging (MRI) markers of neuropathology.

METHODS: In this archival study, authors reviewed the MRIs and medical records of 34 inpatients in a geriatric psychiatry unit. Patients were selected if folate, B12, and/or homocysteine levels had been assessed and if the appropriate clinical MRIs were performed (19 men; mean age, 75 years). Patients with schizophrenia or current substance dependence were excluded. The relationships between MRI volume measures, white-matter hyperintensity (WMH) grade, and serum concentrations of folate, B12, and homocysteine were analyzed, using age-adjusted Pearson correlations.

RESULTS: Homocysteine was related to WMH grade, but not brain-volume measures. Folate was associated with hippocampus and amygdala, and negatively associated with WMH. B12 level was not statistically associated with any brain measure.

CONCLUSIONS: Elevated homocysteine and low folate were associated with radiological markers of neuropathology. Since no patient had clinically deficient folate, it may be important to rethink what defines functionally significant micronutrient deficiency and explore what this means in different age- and health-status groups. Larger samples will be needed to assess interactions between homocysteine, micronutrients, and other neuropathology risk factors.

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