REVIEW

Hyperhomocysteinemia: a New Risk Factor for Degenerative Diseases

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SUMMARY

Hyperhomocysteinemia (HHCY) is a consequence of disturbed methionine metabolism. It results from enzyme and/or vitamin deficiency. Epidemiological and clinical studies have proven HHCY to be an independent risk factor for atherosclerotic cardiovascular diseases, stroke, peripheral arterial occlusive disease and venous thrombosis. Trials in progress may clarify the "causality" of high homocysteine (HCY) concentrations and will assess the value of HCY lowering therapy. HHCY is also seen as a risk factor for neurodegenerative diseases such as cognitive impairment, dementia, Alzheimer's disease, and also for depression. There is a high prevalence of HHCY as a syndrome of vitamin shortage in elderly subjects, which strongly increases with advancing age. Elderly people have a high frequency of vitamin B_{12} deficiency which is more reliably diagnosed by measurement of serum methylmalonic acid and holotranscobalamin II, the metabolically active B_{12} fraction, than by total serum vitamin B_{12}. Subjects who follow a strict vegetarian diet also have a high prevalence of HHCY caused by vitamin B_{12} deficiency. For prevention of neurological damages an early diagnosis of vitamin B_{12} deficiency is important. Furthermore, HHCY is a factor in the pathogenesis of neural tube defects and preeclampsia. HCY should be measured in patients with a history of atherothrombotic vessel diseases, in patients with diabetes or hyperlipidemia, in renal patients, in adipose subjects, in elderly people, in vegetarians, in postmenopausal women, and in early pregnancy. (Clin. Lab. 2002;48:471-481)