

HOW MAY THOUSANDS

BE PREVENTED FROM DEVELOPING ALZHEIMER DISEASE?

Disability from vitamin B12 deficiency may now virtually be eliminated in senior populations by routine urinary methylmalonic acid screening.

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Dear Reader:

I read with interest the article by Clarke et al (1) that noted high methylmalonic acid (MMA), indicating vitamin B12 deficiency, was associated with more rapid mental decline in older adults.

Our research team also found cognitive impairment in some patients with high methylmalonic acid (MMA). In a prospective clinical evaluation, 54 consecutive hospital patients with elevated urinary MMA (uMMA) were determined by other clinical tests to be vitamin B12 deficient (2, 3). At diagnosis, 28% had significant mental changes, many with dementia.

Subsequently, the uMMA test was validated as a screening tool in senior populations, age 65 and over (4). This work also determined that vitamin B12 deficient non-anemic seniors with high uMMA were at an average of 2.6 -fold increased risk for Alzheimer Disease (AD) (4, 5).

Japan has raised their lowest acceptable serum B12 level to 500 pg/l (6). Interestingly, in Japan the overall prevalence of dementia is similar to that seen in other countries, however AD is relatively rare and vascular dementia is relatively common (7).

Flour products in the United States have been fortified with folic acid since 1998 to reduce the number of infants born with neural tube defect. However, high folate levels and vitamin B12 deficiency have been linked with faster mental decline in senior adults. Thus it is estimated 1.8 million elderly may be at increased risk of cognitive impairment (8). This number is in addition to other vitamin B12 deficient seniors with normal folate status.

Screening annually for B12 deficiency using the uMMA test may prevent seniors from needlessly developing AD and/or other neurologic disabilities. The uMMA has been shown to be more sensitive and/or specific than the serum B12 or homocysteine assays (5). The

uMMA test has greater specificity than the serum MMA or homocysteine tests since these assays can yield falsely high values in individuals with renal insufficiency, dehydration and/or other conditions (5). The holotranscobalamin assay does not appear to have been adequately tested clinically, is not a functional assay and has not been validated as a screening tool.

The uMMA test is normalized to urine creatinine and does not have problems with false positives. The uMMA test is a non-invasive, functional assay which requires only a random spot 1 ml urine specimen for analysis and specimens can be sent by mail without refrigeration. The test is extremely sensitive. In a survey of asymptomatic vegetarians, 83% of individuals found B12 deficient with high uMMA levels had a normal serum B12 level (9).

Investigators in numerous studies have reported from 3-42 percent of seniors with undetected vitamin B12 deficiency (6, 10). Screening seniors for elevated uMMA could save adults from needlessly suffering disability such as AD from undetected and untreated vitamin B12 deficiency (6, 10). Vitamin B12 deficiency in seniors may now safely be eliminated by uMMA screening thereby preventing permanent disability through early detection and treatment.

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