

Abstract

Arch Intern Med. 2010 Jul 12;170(13):1135-41.

Vitamin D and risk of cognitive decline in elderly persons.

Llewellyn DJ, Lang IA, Langa KM, Muniz-Terrera G, Phillips C, Cherubini A, Ferrucci L, Melzer D

Public Health and Epidemiology Group, Peninsula Medical School, University of Exeter, Royal Devon and Exeter Hospital, Exeter EX2 5DW, England.

BACKGROUND: To our knowledge, no prospective study has examined the association between vitamin D and cognitive decline or dementia.

METHODS: We determined whether low levels of serum 25-hydroxyvitamin D (25[OH]D) were associated with an increased risk of substantial cognitive decline in the InCHIANTI population-based study conducted in Italy between 1998 and 2006 with follow-up assessments every 3 years. A total of 858 adults 65 years or older completed interviews, cognitive assessments, and medical examinations and provided blood samples. Cognitive decline was assessed using the Mini-Mental State Examination (MMSE), and substantial decline was defined as 3 or more points. The Trail-Making Tests A and B were also used, and substantial decline was defined as the worst 10% of the distribution of decline or as discontinued testing.

RESULTS: The multivariate adjusted relative risk (95% confidence interval [CI]) of substantial cognitive decline on the MMSE in participants who were severely serum 25(OH)D deficient (levels <25 nmol/L) in comparison with those with sufficient levels of 25(OH)D (≥ 75 nmol/L) was 1.60 (95% CI, 1.19-2.00). Multivariate adjusted random-effects models demonstrated that the scores of participants who were severely 25(OH)D deficient declined by an additional 0.3 MMSE points per year more than those with sufficient levels of 25(OH)D. The relative risk for substantial decline on Trail-Making Test B was 1.31 (95% CI, 1.03-1.51) among those who were severely 25(OH)D deficient compared with those with sufficient levels of 25(OH)D. No significant association was observed for Trail-Making Test A.

CONCLUSION: Low levels of vitamin D were associated with substantial cognitive decline in the elderly population studied over a 6-year period, which raises important new possibilities for treatment and prevention.

PMID: 20625021