Abstract

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Vitamin D status and measures of cognitive function in healthy older European adults.

Seamans KM, Hill TR, Scully L, Meunier N, Andrillo-Sanchez M, Polito A, Hininger-Favier I, Ciarapica D, Simpson EE, Stewart-Knox BJ, O'Connor JM, Coudray C, Cashman KD.

School of Food and Nutritional Sciences, University College Cork, Cork, Ireland.

BACKGROUND/OBJECTIVES: Data from human studies that have investigated the association between vitamin D status and cognitive function in elderly adults are conflicting. The objective of this study was to assess vitamin D status (reflected by serum 25-hydroxyvitamin D (25(OH)D)) in older European subjects (n=387; aged 55-87 years) and examine its association with measures of cognitive function.

SUBJECTS/METHODS: Serum 25(OH)D was assessed using enzyme-linked immunosorbent assay, whereas measures of cognitive function were assessed using a comprehensive Cambridge Neuropsychological Testing Automated Battery (CANTAB).

RESULTS: In all, 12, 36 and 64% of subjects had serum 25(OH)D concentrations <30, <50 and <80 nmol/l, respectively, throughout the year. Serum 25(OH)D was significantly and inversely correlated with four assessments within the spatial working memory (SWM) test parameter (SWM between errors (r=-0.166; P=0.003); SWM between errors 8 boxes (r=-0.134; P=0.038); SWM strategy (r=-0.246; P<0.0001); and SWM total errors (r=-0.174; P<0.003)). When subjects were stratified on the basis of tertiles (T) of serum 25(OH)D (<47.6 (T(1)); 47.6-85.8 (T(2)); and >85.8 (T(3)) nmol/l), fewer errors in SWM test scores occurred in subjects in the third T when compared with the first T (P<0.05-0.084). Stratification by sex showed that these differences between tertiles strengthened (P<0.001-0.043) in the females, but the differences were not significant (P>0.6) in males.

CONCLUSIONS: Vitamin D insufficiency, but not deficiency, is widespread in the older population of several European countries. Low vitamin D status was associated with a reduced capacity for SWM, particularly in women.

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