

# Abstract

Neurology. 2010 Jan 5;74(1):27-32.

## Association of vitamin D deficiency with cognitive impairment in older women: cross-sectional study.

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**OBJECTIVE:** The association between low serum 25-hydroxyvitamin D [25(OH)D] concentration and cognitive decline has been investigated by only a few studies, with mixed results. The objective of this cross-sectional population-based study was to examine the association between serum 25(OH)D deficiency and cognitive impairment while taking confounders into account.

**METHODS:** The subjects, 752 women aged  $>$  or  $=$ 75 years from the Epidémiologie de l'Ostéoporose (EPIDOS) cohort, were divided into 2 groups according to serum 25(OH)D concentrations (either deficient,  $<$ 10 ng/mL, or nondeficient,  $>$  or  $=$ 10 ng/mL). Cognitive impairment was defined as a Pfeiffer Short Portable Mental State Questionnaire (SPMSQ) score  $<$ 8. Age, body mass index, number of chronic diseases, hypertension, depression, use of psychoactive drugs, education level, regular physical activity, and serum intact parathyroid hormone and calcium were used as potential confounders.

**RESULTS:** Compared with women with serum 25(OH)D concentrations  $>$  or  $=$ 10 ng/mL ( $n = 623$ ), the women with 25(OH)D deficiency ( $n = 129$ ) had a lower mean SPMSQ score ( $p < 0.001$ ) and more often had an SPMSQ score  $<$ 8 ( $p = 0.006$ ). There was no significant linear association between serum 25(OH)D concentration and SPMSQ score ( $\beta = -0.003$ , 95% confidence interval  $-0.012$  to  $0.006$ ,  $p = 0.512$ ). However, serum 25(OH)D deficiency was associated with cognitive impairment (crude odds ratio [OR] = 2.08 with  $p = 0.007$ ; adjusted OR = 1.99 with  $p = 0.017$  for full model; and adjusted OR = 2.03 with  $p = 0.012$  for stepwise backward model).

**CONCLUSIONS:** 25-Hydroxyvitamin D deficiency was associated with cognitive impairment in this cohort of community-dwelling older women.

PMID: 19794127