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 ≥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, ≥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 ≥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.

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