

# Abstract

Arch Neurol. 2008 Oct;65(10):1348-52.

## Prevalence of vitamin D insufficiency in patients with Parkinson disease and Alzheimer disease.

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**BACKGROUND:** A role for vitamin D deficiency in Parkinson disease (PD) has recently been proposed.

**OBJECTIVE:** To compare the prevalence of vitamin D deficiency in a research database cohort of patients with PD with the prevalence in age-matched healthy controls and patients with Alzheimer disease (AD).

**DESIGN:** Survey study and blinded comparison of plasma 25-hydroxyvitamin D (25[OH]D) concentrations of stored samples in a clinical research database at Emory University School of Medicine.

**SETTING:** Referral center (PD and AD patients), primary care clinics, and community setting (controls).

**PARTICIPANTS:** Participants were recruited into the study between May 1992 and March 2007. Every fifth consecutively enrolled PD patient was selected from the clinical research database. Unrelated AD (n = 97) and control (n = 99) participants were randomly selected from the database after matching for age, sex, race, APOE genotype, and geographic location. MAIN

**OUTCOME MEASURES:** Prevalence of suboptimal vitamin D and mean 25(OH)D concentrations.

**RESULTS:** Significantly more patients with PD (55%) had insufficient vitamin D than did controls (36%) or patients with AD (41%; P = .02, chi(2)test). The mean (SD) 25(OH)D concentration in the PD cohort was significantly lower than in the AD and control cohorts (31.9 [13.6] ng/mL vs 34.8 [15.4] ng/mL and 37.0 [14.5] ng/mL, respectively; P = .03).

**CONCLUSIONS:** This report of 25(OH)D concentrations in a predominantly white PD cohort demonstrates a significantly higher prevalence of hypovitaminosis in PD vs both healthy controls and patients with AD. These data support a possible role of vitamin D insufficiency in PD. Further studies are needed to determine the factors contributing to these differences and elucidate the potential role of vitamin D in pathogenesis and clinical course of PD.

PMID: 18852350

