

Vitamin d and macular thickness in the elderly: an optical coherence tomography study

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PURPOSE: Vitamin D insufficiency is associated with age-related macular degeneration. Our objective was to determine whether low serum 25-hydroxyvitamin D (25OHD) concentration was associated with macular thickness among older adults with no signs of macular dysfunction.

METHODS: Sixty-two French older community-dwellers with no patent macular dysfunction (mean +/- SD, 71.2 +/- 5.0 years; 45.2% female) included in the Gait and Alzheimer Interaction Tracking (GAIT) study (ClinicalTrials.gov number, NCT01315717) were separated into two groups according to serum 25OHD level (i.e., insufficient < 50 nmol/L or sufficient >= 50 nmol/L). The macular thickness was measured on 1000 mum central macula with optical coherence tomography, and further binarized according to normal values of macular thickness (i.e., 267.74 mum for males, and 255.60 mum for females). Age, sex, number of comorbidities, cognitive disorders, body mass index, mean arterial pressure, visual acuity, intraocular pressure, serum calcium concentration and season of testing were considered as potential confounders.

RESULTS: The mean serum 25OHD concentration was 61.2 +/- 26.3 nmol/L. Patients with vitamin D insufficiency had a reduced macular thickness compared to those without (232.9 +/- 40.4 mum vs. 253.3 +/- 32.1 mum, P = 0.042). After adjustment for potential confounders, vitamin D insufficiency was associated with a decreased macular thickness (beta = -59.4 mum, P = 0.001). Consistently, the participants with vitamin D insufficiency had a 3.7-fold higher risk of having abnormally low macular thickness compared with those with sufficient 25OHD level (P = 0.042). **CONCLUSIONS:** Vitamin D insufficiency was associated with reduced macular thickness among older patients with no patent macular dysfunction. This implies that vitamin D insufficiency may be involved in macular thinning, and provides a scientific base for vitamin D replacement trials in age-related macular degeneration.

Résumé en anglais

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