

The Correlation between 25(OH) D Vitamin D levels and Anxiety; A Cohort Study in Elderly People in North Greece

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Keywords

Vitamin D, Anxiety, Depression, Mental disorder, Lifestyle, Institutionalization.

Introduction

Initial aim of this study was the correlation of vitamin D levels with Depression and Anxiety. Due to the geographical location of our country, we expected the assessment of high levels vitamin D to the greatest percent of people. Despite the sunlight exposure, insufficient levels of vitamin D were found to a great number of participants. This significant finding led us to a secondary study in order to investigate the other factors (mental disorder, lifestyle, institutionalization, sunblockers etc) that play crucial role to the escalation of vitamin D levels.

Objective

Low serum 25-hydroxyvitamin D levels (25(OH) D < 50 nmol/L) are common in older persons and associated with depressive symptoms. Depression and anxiety are highly interrelated, but only very few studies examined the association between 25(OH) D and anxiety. Several studies observed that reduced serum 25(OH)D levels are associated with more depressive symptoms. However, a very limited amount of studies examined the relationship between 25(OH) D levels and anxiety. This study investigated whether 25(OH) D levels are related to anxiety symptoms in older persons, both cross-sectionally and over time.

Lower 25 (OH) D levels were linked with greater depression severity, and with the association remaining significant after controlling for age, gender, body mass index (BMI), smoking

status and a number of medical conditions.

Methology

As it is not clear whether reduced serum 25(OH) D levels are associated with anxiety, independently from depression, the present study examined both the cross-sectional and longitudinal relationship between serum 25(OH) D and anxiety symptoms in two large population-based samples of older persons, with the second sample as a replication sample.

Data from two samples of a large population-based cohort study were used (sample 1: N = 1259, 64–88 years; sample 2: N= 892, 60-98 years). Anxiety symptoms were measured with the Hospital Anxiety and Depression Scale - Anxiety subscale at baseline and after one year; serum 25(OH) D was measured at baseline. Cross-sectional and longitudinal relationships between 25(OH) D and anxiety were examined using logistic regression analysis, taking into account relevant confounding variables.

Results

Of the participants, 48.0% (sample 1) and 26.4% (sample 2) had 25(OH) D levels < 50 nmol/L, whereas 8.1% (sample 1) and 6.5% (sample 2) had clinically relevant anxiety symptoms. Cross-sectionally, persons with 25(OH) D < 50 nmol/L experienced more anxiety symptoms than persons with 25(OH)D ≥ 50 nmol/L (sample 1: OR = 1.55; 95% CI: 1.03–2.32, p = 0.035; sample 2: OR = 1.74; 95% CI: 1.03–2.96, p = 0.040). However, after adjustment for demographic and lifestyle variables and depressive symptoms, significant associations were no longer observed (p = 0.25–0.72). Similarly, 25(OH) D levels were not significantly related to anxiety

symptoms after three years in both samples.

From both the cross-sectional and longitudinal studies, that there is increasing evidence of an increased risk of depression in those who are vitamin D deficient and that vitamin D supplementation is of benefit for depressed individuals who are vitamin D deficient.

Conclusion

After adjustment for confounding, there was no cross-sectional or longitudinal association between 25(OH) D levels and anxiety symptoms, independently from depression, in two large samples of older persons.

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