"VITAMIN D BASAL LEVELS AND AFTER REPLACEMENT, COGNITIVE DISORDERS, MUSCULAR STRENGTH AND FALLS IN ADULTS AND ELDERLY PEOPLE ATTENDED OR NOT AT UNIVERSITY HOSPITAL-PRELIMINARY RESULTS"

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Abstract

Determination of serum levels of vitamin D baseline and after replacement, and relate them to cognitive function, muscular strength and falls. The occurrence of inadequate levels of vitamin D is frequent among adults and elderly people. Oral supplementation of vitamin D in this phase of the project was accomplished, however, participants did not achieve adequate serum levels.

Key words:

Vitamin D, elderly people, cognitive disorders.

Introduction

Reduced serum levels of 25 OH vitamin D (25OHD3) are associated with increased risk of cognitive disorders¹. Risk factors for falls: cognitive disorders, muscular weakness², among others. Controlled studies suggest that vitamin D supplementation reduces the risk of falls³. The objective of this study was the baseline determination of serum levels of vitamin D and after replacement and relate them to cognitive function, muscular strength and falls.

Results and Discussion

Two groups were established, G1, composed of 28 elderly patients attended at the University Hospital and G2 with 14 community individuals. All participated in a previous project and had inadequate serum levels of vitamin D (<30 ng / mL or 75 nmol / L). Methods: Oral supplementation of vitamin D3, under medical supervision for six months, prescribed doses, depending on the vitamin D levels: > 20 to 30 ng / mL-1000 IU / day; 10 to 20- 2000IU / day; <10 ng / mL- 3000IU / day. Cognitive functions evaluation - Mini Mental State Examination (MMSE), Geriatric Depression Scale (GDS), basic activities (BADL), instrumental (IADL) of daily living and subclasses (I-independent A-aid, D-dependent); sociodemographic data- age, sex, number of diseases, scholarship; waist-hip ratio (WHR), occurrence of falls; consumption of milk and derivatives; grip strength test right and left hand (GS R, GS L), vitamin D serum levels (25OHD total) by two methods: radioimmunoassay (RIA) and Chemiluminescence (Chemo).

Chart 1: Characterization of the groups G1 and G2

Group	Age (years)	Sex	Number of diseases	BADL committed	IADL committed	MMSE	Scholarship (years)
G1	79,8±10,5*	21 F 7 M	2,8±1,2*	1,0±1,2*	2,6±3,5*	21,3±5,5*	3,6±3,2*
G2	64,5±6,9	13 F 1 M	1,5±2,0	0,4±0,5	0,3±1,1	25,3±4,6	10,3±7,8
	*p<0.0001		*p=0.0189	*p=0.0003	*p<0.0001	*p=0.0018	*p<0.0001

Graphic 1: Vitamin D: RIA and Chemo basal vs after replacement

Chemiluminescence Method (ng / ml): G1-23.58±17.83X 22.37±8,01(29.11%). G2-18.6±6.24X21.62±5.18.(27.7%). Concordance test between the two methods showed correlation coefficient 0.704 vs 0.936 (kit). This difference may be related to the n, 73 vs 587, but allowed the comparison between the two determinations.

The vitamin D levels were significantly higher in G1 that showed falls vs without falls (26.17 ± 9.66 ng / ml X 19.91 ± 5.79 ng / ml).

It is likely that G1 participants which showed falls acted more consciously to the adherence to the replacement of vitamin D.

Statistically significant differences in the comparisons of the two ratings: G1- waist, WHR, BADL; G2-consumption of milk, GDS and between groups: Group G1> G2- number of diseases, age, IADL, BADL; Group G1 <G2- MMSE, scholarship. There were no significant statistical differences between the comparisons of the two evaluation for G1 and G2: MMSE, GS R, GS L. There is evidence that modifications of these variables would require more time standardization of the vitamin D^{1,2,3}.

Significant differences in both G1 assessments as to BADL and BADL A, waist measurements and WHR may be related to the aging process. There is evidence that increased consumption of milk and derivatives observed in G2 is related to the following guidelines awareness, attributed in part to the higher level of education of these participants.

Conclusions

The occurrence of inadequate levels of vitamin D was found to be frequent among adults and elderly people. Oral supplementation of vitamin D in this phase of the project was conducted, however, the participants have not achieved adequate levels.

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