

THE EFFECTS OF SINGLE HIGH DOSE VERSUS DAILY LOW DOSE ORAL CHOLECALCIFEROL TREATMENT ON VITAMIN D LEVELS AND MUSCLE STRENGTH IN POSMENAUPOUSAL WOMEN

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Objectives:

Vitamin D deficiency is a common health problem. Vitamin D supplements are used to improve vitamin D status. However, there are few data about what doses to give and how often to give. The aim of this study is to determine the effects of single high dose or daily low dose oral cholecalciferol (vitamin D3) on vitamin D levels and muscle strength.

Methods:

60 healthy postmenopausal women who had serum vitamin D levels were less than 20 ng/ml were enrolled in the study in the winter and spring of 2013 to 2014. First group (n=32) was given daily oral doses of 800 IU vitamin D3, second group (n=28) was given single oral dose of 300.000 IU vitamin D3. Serum vitamin D levels and muscle strengths were measured at the beginning, 4th and 12th weeks. Muscle strength tests were performed at 60° \sec with Biodex system 3 isokinetic dynamometer.

Results:

The mean vitamin D levels of first and second group at the beginning were $10,2 \pm 4,4$ ng/ml; $9,7 \pm 4,4$ ng/ml ($p=0,637$), respectively. Significant increase in vitamin D levels was measured in both two groups at 4 and 12 weeks after vitamin D3 treatment. At 4th week the increase in single dose of vitamin D3 group ($35,9 \pm 9,6$ ng/ml) was significantly higher than the daily low dose oral vitamin D3 group ($16,9 \pm 5,8$ ng/ml) ($p=0,01$). At 12th week the increase in single dose of vitamin D3 group ($23,4 \pm 4,7$) was significantly higher than the daily low dose oral vitamin D3 group ($19,8 \pm 7,2$ ng/ml) ($p=0,049$). Quadriceps muscle strength score increased significantly in daily group at 4th week. Hamstring muscle strength score increase significantly in daily group at 12th week.

Conclusions:

Although daily administration routes are effective in muscle strength, single administration is more effective in increasing vitamin D levels.

References:

Mahmut Apaydin¹, Asli Gencay Can³, Selvihan Beysel¹, Seyfullah Kan¹, Taner Demirci¹, Mustafa Caliskan¹, Muhammed Kizilgul, Ozgur Ozcelik, Muyesser Sayki Arslan¹, Mustafa Ozbek¹, Erman Cakal¹, Tuncay Delibasi^{1,2}

