RELATIONSHIP BETWEEN VITAMIN D AND PHYSICAL PERFORMANCE IN COMMUNITY DWELLING ELDERLY MEN

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P02

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Strazdiene V.[2], Tamulaitiene M.[1,3], Mastaviciute A.[1,3], Alekna V.[1,2]

[1]Vilnius University, Faculty of Medicine, Vilnius, Lithuania

[2]State Research Institute Centre for Innovative Medicine, Vilnius, Lithuania

[3]National Osteoporosis Center, Vilnius, Lithuania

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Introduction. Vitamin D deficiency is common in the

elderly population and is associated with poor physical performance. Vitamin D may have attribute to muscle strength through a highly specific nuclear receptor in muscle tissue.

Aim: To investigate the association between vitamin D level and physical performance in older men.

Materials and methods. This was a pilot cross-sectional study on community dwelling men aged 60 years and more who visited National Osteoporosis Center in Vilnius, Lithuania. Serum vitamin D was measured by automated immunoassay (Cobas E411, Roche Diagnostic). The standard threshold was used for vitamin D levels of optimal (≥30 ng/ml), insufficient (20-29 ng/ml), deficient (<20 ng/ml), severe depletion (<10 ng/ml). Physical performance was assessed by the short physical performance battery (SPPB). The SPPB consists of standing balance tasks, five repeated chair stand test and the 4-m walk test. Each of the three performance components were measured in seconds and a score ranging from 0 to 4 was assigned. The sum of three scores composed the total SPPB score ranging from 0 to 12. Statistical analysis was carried out using SPSS version 18.0 for Windows. Pearson correlation coefficient was used to evaluate the relationship between variables. Significance level was defined as 0.05.

Results. A total of 115 men with a mean age 72.1 ± 6.8 years were investigated. Age was statistically significantly negatively associated with the total score of SPPB (Pearson correlation coefficient = -0.3; p = 0.02), and no association was observed between age and vitamin D level. Optimal level of serum 25(OH)D was found in 7 (6.1%) subjects. Thirty four men (29.5%) had vitamin D insufficiency, 47 subjects (40.9%) – deficiency and 27 men (23.5%) had vitamin D severe depletion. Highest SPPB score (10.3 ± 1.6) was in subjects with optimal vitamin D level, and lowest (9.3 ± 1.9) – in severe vitamin D depletion. There was no statistically significant correlation between vitamin D level and total SPPB score. Each of three short physical performance battery components was analyzed

separately. The vitamin D level showed an inverse association with time to complete five repeated chair stand test only in vitamin D deficient subjects ($r = -0.3$; $p = 0.05$).

Conclusions. The serum vitamin D was statistically significantly negatively associated with time to complete five repeated stand test in older men.