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DEFICIENCY OF VITAMIN D DURING MULTIPLE SCLEROSIS OR ITS INFLUENCE ON THE SYMPTOMS OF CLINICAL DISORDERS

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Introduction. Multiple sclerosis (MS) has been lately categorized as disorders, caused by the scarceness of Vitamin D [4]. Nowadays the connection between the patients with deficit of Vitamin D and depression, fatigue or cognitive disorders [1, 2, 3, 5], but issue data is controversial and requires determination, its effect on individual symptoms or after-effects of diseases are still being unknown.

The aim of this survey was evaluating the Vitamin D level of the patients with MS in Vinnitsa, analyzing the relationship between the raw material (25-hydroxycholecalciferol – 25(OH)D) level or clinical symptoms of MS, including depression, fatigue and excessive somnolence.

Material and methods. 77 patients (51 women, 26 men) with MS diagnosis, based on McDonald's (2010) criteria in clinical remission, were examined. The average age group was $36,3 \pm 8,4$ (18–57) years, the disorder duration was $8,44 \pm 5,35$ (1–27) years, the gravity of neurological insufficiency, based on the EDSS scale, was $3,78 \pm 8,5$ (1,5–5,5) points. The controlled group consisted of 18 healthy humans, distributed according to the gender and the age of the initial group. The definition of 25(OH)D concentration in serum was accomplished with liquid chromatography and with the reagent combination «25-OH-VITAMIN D» («Agilent Technologies», USA). The Hamilton scale was used for examination, for anxiety measurement (HARS) and

for depression measurement (HDRS), MFIS was used for fatigue measurement and Epworth Scale was deployed for daytime sleepiness diagnosing. The statistical analysis was made by SPSS 20 (©SPSS Inc.).

Results. The indicator of the average level of 25(OH)D elevated $54,98 \pm 15,38$ nmol/l, that was probably ($p < 0,001$) lower than for the controlled group. 27 patients (35,1%) were stated to have Vitamin D (< 50 nmol/l) scarcity.

According to data, 25(OH)D content in blood of the patients with MS does not influence on the current grade of the illness stage (which was based on EDSS scale), but by the evaluating belligerence consideration during MS, according to the index of progressiveness (EDSS/ the period of MS duration in years), it appeared that the connection was certain on the coefficient level of the lineal correlation 0,287 ($p = 0,010$). Therefore, the progressiveness index of the patients without Vitamin D scarcity was 37,6% lower compared to the sick ones with Vitamin D insufficiency ($1,41 \pm 0,76$ counter $0,88 \pm 0,98$ nmol/l respectively; $p = 0,032$).

The comparison of disorder level in all functional systems, that appertain EDSS scale, revealed high average marking figure of pyramidal signs ($p = 0,027$) or vision disorder ($p = 0,017$) than by the group of patients with Vitamin D deficiency, which correlated with serum and 25(OH)D on the highest degree ($R = -0,331$; $p = 0,003$ or $R = -0,31$; $p = 0,005$).

Depression, fatigue or daily sleepiness indicators of the patients with and without Vitamin D scarcity were different. Correlative analyses have confirmed the established accuracy. The indicators of organism protection with Vitamin B and vice versa were correlated with expressed physical and psychosocial disorders ($R = -0,383$ and $R = -0,268$), related to asthenia, daily sleepiness indicators ($R = -0,389$), depression disorders ($R = -0,438$), both by MS suffers and patients with Vitamin D deficit ($p < 0,05$).

Conclusion. The conducted survey has confirmed the moderate connection between Vitamin D deficiency and clinical symptoms of MS. Aforementioned data indicate that the efforts of Vitamin D degree regulation can potentially lead to soar of therapeutical potential for illness run relief by the patients of the aforementioned categories.

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