THE ROLE OF VITAMIN D FOR PERSONS AFFECTED BY MULTIPLE SCLEROSIS

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Multiple sclerosis (MS) is an autoimmune disease that affects the central nervous system and is a major cause of disability in able-bodied young people. Recently, the question of the effect of vitamin D on the risk of occurrence and clinical course of MS has been widely discussed. The review presents pathogenesis of this disease and estimated mechanisms of the effect of cholecalciferol on it, current data on the effect of vitamin D levels on the risk of MS, the course and outcome of this disease. Vitamin D is a group of biological compounds that play a crucial role in calcium and phosphorus metabolism, as well as other metabolic processes, such as the regulation of the immune system. Approximately 80% of our vitamin D reserves are synthesized in the skin when it is exposed to ultraviolet light, where 7-dehydrocholesterol is converted into cholecalciferol. The remaining 20% is obtained from food, with cholecalciferols being found in animal-based products and ergocalciferols in plant-based ones. Ergocalciferol and cholecalcifol are biologically inactive and require two stages of activation. First, calcidiol is formed under the action of hepatic 25-hydroxylyase, which is an indicator of the body's vitamin D status. Then, calcitriol is produced through the action of 1α-hydroxylase in the kidneys or immune cells. Calcitriol is the active metabolite of vitamin D that binds to receptors and produces all the effects associated with this group of compounds. The presence of these receptors in immune system cells suggests that vitamin D plays a regulatory role in the body's immune response. Recent studies have also found a link between vitamin D levels and the risk of multiple sclerosis (MS). One such study conducted on US military personnel found that Caucasian individuals have higher levels of vitamin D on average, but also have a higher risk of developing MS. This may be due to genetic factors. Other studies support this finding, including a case-control study in Germany that found a gradual decrease in vitamin D levels before the onset of MS in people who later developed the disease. At the same time, two years prior to the onset of symptoms, serum levels of 25(OH)D were not significantly different from those of healthy volunteers. Therefore, this study suggests that a decrease in blood vitamin D is more likely associated with the development of MS rather than a risk factor for its occurrence. This decrease may be related to changes in metabolism, as patients with MS exhibit a phenomenon of "consumption" of vitamin D, meaning that their blood levels are significantly lower than those of healthy individuals with equal intake. Given this information, we conclude that high-dose intake is extremely risky.To date, there is not sufficient evidence to support the claim that vitamin D deficiency is linked to the risk of multiple sclerosis (MS). Low levels of vitamin D in people with MS may be associated with a more severe course of the disease, but there is no evidence that adding relatively high doses of vitamin D to standard interferon-β (IFN-β) therapy significantly improves the course of MS. Despite these conclusions, it is recommended that healthy individuals follow the recommendations of the United States Institute of Medicine (USIOM) and maintain blood levels of 25-hydroxyvitamin D (25(OH)D) between 50 and 125 nanomoles per liter (nmol/L), which typically requires an intake of 600-2000 international units (IU) per day. The recommended daily dose in Russia is 600 - 800 IU.