

Hypovitaminosis D as a biomarker of cardiovascular risk in patients with rheumatoid arthritis

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Motivation and Aim: Hypovitaminosis of vitamin D (Vit. D) is currently a worldwide pandemic. Vit. D is a multifunctional biologically active agent in our body. Hypovitaminosis D associated with connective tissue disorders, autoimmune disorders, addictions to occurrence of a cancer etc. 52 % of patients with rheumatoid arthritis (RA) have Vit. D deficiency [1]. Cardiovascular events are the main cause of death of these patients. The risk of incident cardiovascular disease is increased by 48 % in patients with RA compared to the general population [2]. The aim – to investigate the lipid profile of blood serum in patients with RA with concomitant hypovitaminosis D and without it.

Material and methods: 11 patients with RA and hypovitaminosis D (main group) and 10 patients with RA and normal level of Vit. D (comparison group) were examined. All patients had 1–2 degree of inflammation. Hypovitaminosis D was diagnosed with a decrease in the serum level of Calcifediol below 20 ng/ml by ELISA test. The blood level of calcifediol is considered the best indicator of Vit. D status. Total cholesterol, high-density lipoprotein (HDL), low-density lipoprotein (LDL), triglycerides were determined in the blood serum by colorimetric analysis. Methods of descriptive statistics were used for processing of the results.

Results: The increase in total cholesterol was observed in both groups of patients (6.3 ± 0.32 mmol/l – in the main group, 6.1 ± 0.30 mmol/l – in the comparison group). Differences in the values of this parameters were unreliable ($p > 0.05$). Also, there were no significant differences in the level of HDL. At the same time, the level of LDL in patients of main group (3.9 ± 0.14 mmol/l) was significantly ($p = 0.03$) higher than in patients of comparison group (3.5 ± 0.11 mmol/l). Also, reliable differences ($p = 0.02$) were observed in triglyceride levels between groups of patients (2.5 ± 0.09 mmol/l and 2.2 ± 0.08 mmol/l, respectively). As an axiom taken the position that atherosclerosis of the vessels is the basis of most of cardiovascular events, including patients with RA. Atherogenesis in patients with RA is a multifactorial process, including autoimmune, genetic and metabolic mechanisms. Hypovitaminosis D is one of many pathogenetic mechanisms of atherogenesis in the patients. However, these changes (hypovitaminosis D) can be eliminated and this fact is an important component in managing the disease and reducing cardiovascular morbidity and mortality in patients with RA.

Conclusion: Changes in the serum lipid spectrum in RA patients with concomitant hypovitaminosis D have an atherogenic orientation. Elimination of vitamin D deficiency helps to reduce cardiovascular risk in these patients.

References

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