

Yogarathnam L.

LEVELS OF PLASMA 25-HYDROXYVITAMIN D IN TYPE 2 DIABETES MELLITUS PATIENTS

Scientific supervisor: PhD, Associate Professor Kezhun L.V.

*Department of General Medical Practice and Outpatient Therapy
Grodno State Medical University, Grodno*

Relevance. Vitamin D insufficiency and inadequacy are common public health problems that are directly associated with the rising incidence of diabetes mellitus worldwide. Due to its high mortality and disability rates from macro- and microvascular consequences, type 2 diabetes is a major medical and societal issue. Type 2 diabetes is becoming more common. According to research, vitamin D insufficiency is highly associated with type 1 and type 2 diabetes and is far more common in these individuals. Insulin resistance, innate immunological dysfunction, and systemic inflammation are all common in diabetes mellitus and can be made worse by low vitamin D levels. According to research, vitamin D has pleiotropic effects, regulates insulin secretion in pancreatic B-cells, and when it is lacking, insulin resistance, prediabetes, and diabetes mellitus develop as well as a decrease in the number of insulin receptors, glucose transport protein, and PPAR-receptor activity.

Aim: to determine the vitamin D status of individuals with type 2 diabetes by measuring the amount of 25-hydroxyvitamin D, or 25(OH)D, in their blood plasma.

Materials and methods. Of the 36 patients in the trial with DM was taken from the eDoctor software at the State Healthcare Institution "Grodno City Polyclinic No. 6". Body mass index (BMI), blood pressure (BP), glycated haemoglobin (HbA1c), vitamin D level 25(OH)D, creatinine, triglycerides (TG), and cholesterol (CH) were all examined. The amount of 25(OH)D in blood plasma was used to determine the vitamin D status. The optimal level of vitamin D is 25(OH)D > 30 ng/ml, whereas insufficiency is 29–20 ng/ml and deficiency is <20 ng/ml. We performed statistical analysis by using program "STATISTICA 10.0".

Results and their discussion. 11,1% (n=4) and 88,9% (n=32) of the patients had vitamin D insufficiency and deficiency, respectively, with a 25(OH)D level of 13,9 (11,4; 16,7) ng/ml. We discovered that 25(OH)D levels were negatively correlated with HbA1c ($R=-0,36$, $p=0,03$), with CH ($R=-0,34$, $p=0,04$), with BMI ($R=-0,38$, $p=0,02$), and we observed a positive correlation between HbA1c levels and TG ($R=0,61$, $p=0,01$) and between CH level and TG ($R=0,53$, $p=0,03$).

Vitamin D deficiency is therefore more common in individuals with uncontrolled diabetes, and low 25(OH)D readings have been associated with an increase in diabetes indicators such as HbA1c, HOMA-IR, and a decrease in insulin sensitivity.

The level of 25(OH)D and HbA1c were inversely correlated in people with type 2 diabetes. These results imply that improving glycaemic control and controlling the metabolic syndrome in this population can be achieved by normalising and correcting vitamin D levels. Fortified diets, safe sun exposure, and weight loss are examples of lifestyle practices that have synergistic advantages and may increase 25(OH)D more successfully than pills alone.

Patients with diabetes mellitus frequently have vitamin D shortage and insufficiency due to shared epidemiological and mechanistic variables that raise metabolic risk. By addressing this through focused screening, supplementation in cases of deficiency, and complete obesity/DM therapy, it may be able to improve glycaemic control and reduce consequences. Incorporating vitamin D testing into these people's routine care could lead to major benefits in public health as science develops.

Conclusion. Thus, in DM2 patients under investigation, hypovitaminosis D (25(OH)D < 30 ng/ml) was linked to vitamin D status. 25(OH)D levels were inversely correlated with HbA1c, BMI, and CH in people with type 2 diabetes, highlighting the importance of correcting it to improve the lipid and carbohydrate profile in this patient population.