The issue of optimal and efficient dosage of cholecalciferol, which is necessary during pregnancy for the prevention or treatment of vitamin D deficiency is discussed in recent studies. Some medical organizations recommend taking extra vitamin D during pregnancy and lactation in order to ensure its normal level in the blood serum.

The purpose of this study was to examine the organism saturability by vitamin D in pregnant women, depending on the initial concentration of 25-(OH)-D in serum.

We examined 120 pregnant women aged 18 to 35 years, by measuring initial concentration of 25-(OH)-D before treatment and the concentration of 25-(OH)-D after application of 1,200 IU of cholecalciferol for 4 weeks.

The selection of dosage is based on randomized controlled trials on the use of cholecalciferol during pregnancy: 200 IU, 400 IU, 1000 IU, 1600 IU, 2000 IU, 4000 IU per day or 5000 IU (125 mcg/week) to maintain blood levels of vitamin D more than 50 nmol/l (20 ng/ml). Diet, rich in calcium and vitamin D (sea fish, egg yolk, milk, animal liver), was advised to all women.

Determination of the concentration of 25-(OH)-D in serum and in follicular fluid was carried by immunoelectrochemiluminescent (CMIA) analyzer Abott «Architect 2000».

Results: after 4 weeks of cholecalciferol therapy (1200 IU) it was revealed the change in the concentration 25-(OH)-D in the serum: 25% of pregnant women demonstrated the presence of vitamin D deficiency, compared with 63.1% before treatment. Normal level of 25-(OH)-D was achieved in 33.3% of patients. With the general increase in the level of concentration of 25-(OH)-D in a group of pregnant women who took 1,200 IU of cholecalciferol, less than 50% (41.7%) patients improved their regulatory class of vitamin D and only three of them have reached a normal level. We found no significant results in terms of normalization of 25-OH-D in serum: there was a "shift" of the 25-(OH)-D index from "deficiency" to the "insufficiency".

The mean level 25-OH-D in serum was (16.1 ± 0.5) ng/ml before treatment, and (22.9 ± 0.4) ng/ml after treatment. Standard deviation was (6.8 ± 0.5) ng/ml. The findings suggest that prescribed dose of vitamin D (1200 IU) failed to achieve its normal concentration in pregnant women with baseline levels below 20 ng/ml.
Thus, we have shown that the usage of 1200 IU of Vitamin D for one month increased the concentration of 25-OH-D in serum by only (6.8 ± 0.5) ng/ml and 25% of pregnant women, even receiving vitamin D, retained its deficit. In addition, the study demonstrated the safety of a dose 1200 IU of cholecalciferol, so it and can be recommended for supplementation during pregnancy.