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THENEED FOR VITAMIN D FOR FERTILITY IN WOMEN OF REPRODUCTIVE AGE

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Annotation: *Vitamin D deficiency is very common in women of reproductive age. Vitamin D deficiency is very common in women of reproductive age. The physiological role of vitamin D in reproduction remains controversial. In humans, low maternal vitamin D levels have been associated with adverse maternal and fetal outcomes, including preeclampsia gestational diabetes mellitus, low for gestational age, and low birth weight. Several studies have reported that vitamin D deficiency affects both insulin secretion and insulin resistance. Insulin resistance is a hallmark of obesity, one of the most common endocrine diseases affecting women of reproductive age.*

Keywords: *vitamin D deficiency, obesity, infertility, reproduction, hormone*

Purpose ofresearch: to assess the correlation of metabolites 25 (OH) D with endocrinological parameters associated with reproduction, including follicle-stimulating hormone (FSH), luteinizing hormone (LH), thyroid hormones, anti-Müllerian hormone (AMH), sex steroid hormones, as well as hematological and biochemical parameters.

Materials and methods: This research was conducted with the participation of 51 healthy women of reproductive age (mean age 28.0 years). We measured serum levels of both total and free 25 (OH) D, endocrinological, hematological and biochemical parameters. Spearman rank correlations were performed to assess the correlation between the 25 (OH) D metabolites and the selected parameters.

Blood was taken between 3 and 6 days of the menstrual cycle. All studies were carried out on the basis of the Department of Obstetrics and Gynecology No. 1 of the Bukhara State Medical Institute. Written agreements were taken from all patients for examination.

Results. The results of the study showed that 34 women had abdominal obesity (OT≥80 cm), which was 75.2%, while normal OT values were determined in 17 (24.8%) women. Serum 25 (OH) D level varied from 8.2 to 49.0 ng / ml (mean value 46.75 ± 7.61 ng / ml).It turned out that all surveyed women with overweight and obesity had 25 (OH) D values below the control values. At the same time, 48 (56.4%) women were found to be deficient or deficient in vitamin D (43.6% - 37 women). It was found that in women with normal body weight, the level of 25 (OH) D in the blood was higher than in women with overweight and obesity (42.87 ± 4.32 ng / ml; $p < 0.05$), with 8 women (26.6%) had a deficiency, the remaining 22 (73.4%) had 25 (OH) D within the normal range. At the same time, women with vitamin D deficiency had the greatest body weight (Table 1).

Table 1.Characteristics of the surveyed women depending on the supply of vitamin D and the correlation of biochemical markers

Parameters	Control n-30	Serum level 25 (OH)D ng/ml		P
		Deficit <20 n=30	Flaw 20–30 n=21	
Age, years	32,5±0,9	31,5±1,4	35,8±0,1	p<0,05
Body weight, kg	91,4±0,5	92,8±0,9*	87,9±1,0	p<0,05
Height, cm	165,7±0,8	164,5±0,2	166,9±2,8	p<0,05
BMI, kg / m2	34,0±1,7	33,9±2,7*	34,1±7,1	p<0,05
WS, sm	88,2±3,8	93,6±5,8*	90,4±3,1	p<0,05
VitaminD, ng / ml	46,9±9,6	23,4±5,6*	17,9±3,5*	p<0,05
Blood glucose, fasting, mmol/l	4,0±0,5	4,2±0,3	5,2±0,7	p<0,05
Insulin in the blood, IU/l	7,7±4,0*	12,5±3,7	19,5±7,3*	p<0,05

Note: * p<0.05 - reliable in relation to the studied group

As can be seen from Table 1, the lack and deficiency of 25 (OH) D in the blood serum is reflected in the increase in body weight and BMI. So, if in the group with a normal vitamin D content, the body weight is 91.4 ± 0.5 kg, then in the group with a deficiency of this vitamin, the weight was significantly higher than 92.8 ± 0.9 kg (p<0.05). The same changes in BMI and WC are observed with increasing vitamin D deficiency.

There is evidence that vitamin D deficiency may be involved in the pathogenesis of insulin resistance and metabolic syndrome [8–9], while the role of vitamin D in relation to endocrine parameters and fertility in MS is less clear. Our study showed comparable correlations of total and free 25 (OH) D with endocrinological parameters.

Discussion. This study compared total 25 (OH) D and directly measured free 25 (OH) D in healthy women of reproductive age. The measurements of total vitamin D and free vitamin D correlated well. Both showed comparable correlations with reproductive endocrinological, hematological parameters, liver function parameters, thrombophilia parameters, and parameters associated with anemia.A growing body of evidence suggests that vitamin D may play an important role in the regulation of female fertility. Low vitamin D levels are associated with poor maternal and fetal outcomes and are involved in certain gynecological conditions that affect fertility, such as endometriosis and polycystic ovary syndrome (PCOS).

The strength of the correlation between free and total 25 (OH) D and endocrinological, hematological and biochemical parameters was similar in healthy women of reproductive age. Thus, both methods of analyzing vitamin D status in healthy women of reproductive age in terms of assessing endocrine fertility parameters are suitable tools.

Conclusion. The relationship between obesity and reproductive disorders has long been proven. At the same time, it is known that weight loss improves this function in overweight and obese women. It is especially important that women with this pathology, who visit specialized specialists, receive the necessary advice and support aimed at reducing body weight.Weight loss is most often achieved by changing the diet and increasing the level of physical activity and taking vitamin D in the recommended doses contributes to the rapid restoration of these functions.

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