

Assessment of Vitamin D Deficiency in the Development of Hyperandrogenism in Women

Bobokulova Sarvara Bakhtiyorovna

Bukhara state Medical Institute named after Abu Ali ibn Sina, Bukhara, Uzbekistan

Abstract: In this study, we studied the concentration of vitamin D in the blood of 58 women of reproductive age with hyperandrogenism syndrome and 15 women without reproductive disorders (control group) in the Bukhara region. Based on the results obtained, it was found that 47% (35) of women with hyperandrogenism are overweight and varying degrees of obesity. Of these, 62% (22) women were noted to be deficient and deficient in vitamin D.

Keywords: Hyperandrogenism, vitamin D, infertility, menstrual cycle disorders.

Relevance. Hyperandrogenism is one of the most common endocrine diseases that cause dysfunction of the reproductive system and gynecological diseases in women. According to various authors, hyperandrogenism occurs in 5-20% of women of reproductive age [1,8].

Studies have shown that an increase in the concentration of testosterone in the blood of women leads to significant disorders in their reproductive system. Among reproductive disorders caused by hyperandrogenism, menstrual irregularities occur in 50-70% of cases, occurring in the form of opsomenorrhea, oligomenorrhea. In the structure of endocrine infertility, hyperandrogenism is 60-74%. Research results have shown that in 21-32% of cases, the development of miscarriage is associated with a violation of the exchange of male hormones [2,3,10].

In recent years, the role of vitamin D in the development of hyperandrogenism in women has been studied. The results of the study showed that in women with hyperandrogenism, the concentration of 25 (OH) D in the blood is lower than in healthy women. A decrease in the concentration of 25 (OH) D in the blood is directly related to insulin resistance. As a result of insulin resistance, hyperinsulinemia occurs in the body, which, in turn, insulin acts as a stimulant for luteinizing hormone. Under the action of luteinizing hormone theca, cells undergo hyperplasia and lead to an increase in androgens [4,7].

A low concentration of vitamin D leads to an increase in serum parathyroid hormone (PTH) levels, and it is assumed that PTH are involved in glucose metabolism and an increase in this hormone leads to a decrease in insulin sensitivity. Vitamin D can stimulate the expression of insulin receptors and thereby increase the sensitivity of insulin to glucose transport. In addition, vitamin D and its receptor complex regulate more than 300 genes, including genes associated with glucose metabolism [5,9,6].

Given the above association between vitamin D status and insulin or glucose metabolism, many studies are looking at vitamin D levels in women with hyperandrogenism.

Purpose of the study. Evaluation of the relationship between vitamin D status in women of reproductive age and the development of hyperandrogenism in them.

Materials and research methods. Our study included 73 women of reproductive age. The women were divided into 3 groups according to their etiopathogenetic origin. Group 1 consisted of 33 women with ovarian hyperandrogenism, the second group included 25 women with adrenal genesis. The third group of examined consisted of 15 women without reproductive disorders (control group). The study was carried out in the Bukhara regional center for reproductive health of the population. Anamnesis was studied in all women by questionnaire - survey method. The anthropometric method included the measurement of height and body weight with the calculation of body mass index (BMI) for all surveyed women using the Kettle formula (kg / m^2), where the standard values were adhered to from 19 to 25. Also, clinical and laboratory studies were carried out, with the determination of gonadotropic,

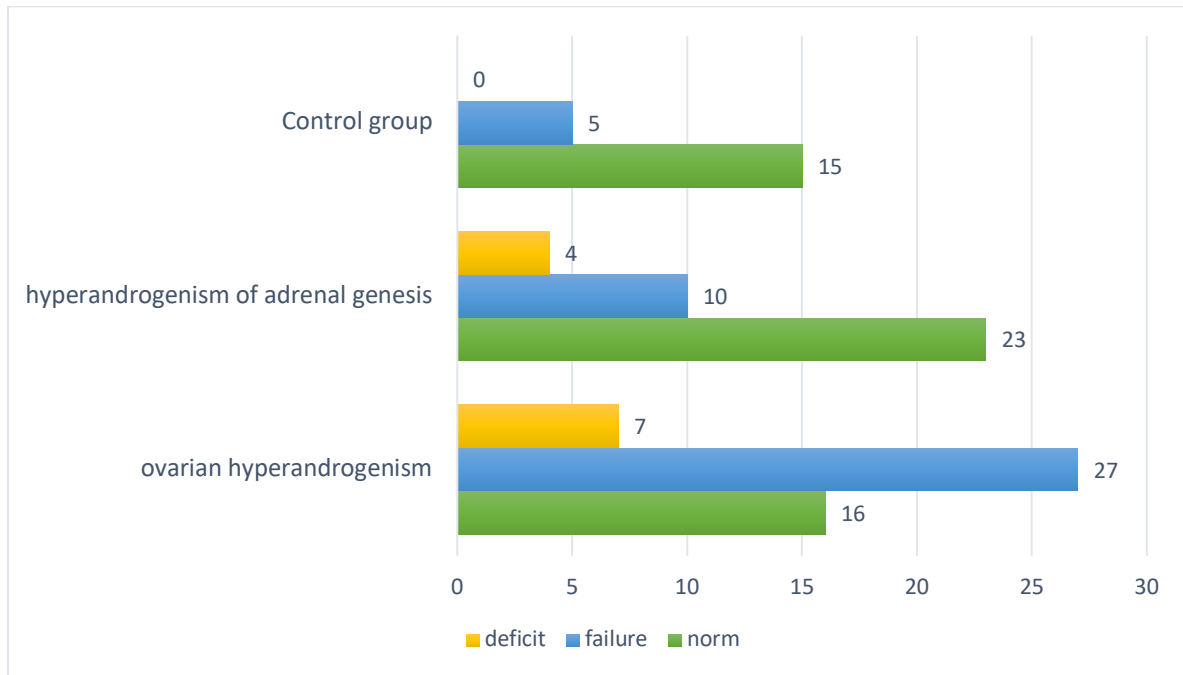
thyroid-stimulating hormones and the fraction of testosterone in the blood. The concentration of vitamin D was determined by enzyme immunoassay taking into account the detection of 25 (OH) D content in the blood serum.

Results and their discussion. The surveyed women were divided by age into the following categories: from 18 to 25 years old - 38% of women (28), from 26 to 35 years old - 42% (31) women and 36 and over 14 women, which amounted to 19%. By place of residence - 65% (48) women lived in rural areas, and 34% (25 women) were urban dwellers. And also those surveyed were studied by profession, where the intelligentsia was 31% (23 women), office workers were 23% (17 women), students were 8% (6 women), and 36% (27 women) were housewives. Anamnestic data revealed somatic pathology, transferred in childhood and as an adult. The most common extragenital diseases in the surveyed category of women were as follows: anemia occurred in 39 women, which amounted to 53%, diffuse goiter was diagnosed in 23% of cases (17 women). 17 (23%) women suffered from diseases of the gastrointestinal tract. Among gynecological diseases in women with hyperandrogenism, menstrual irregularities are in the lead, accounting for 45%. 19 (26%) women have been treated for infertility for several years. Inflammatory diseases of the pelvic organs were found in 9 women, which was 12%. In 16% of women with a history of hyperandrogenism, pregnancy was complicated by miscarriage at different times of gestation. Moreover, 33% of them experienced repeated reproductive losses. Table 1 shows the BMI indicators in the surveyed women.

Table № 1. BMI indicators in the surveyed women

BMI indicator	1 group n = 33		2 group n=25		3 control group n=15	
	aбс	%	aбс	%	aбс	%
Women with normative values (BMI = >18,5- <25)	9	12	14	19	11	15
Overweight women (BMI => 25 - <30)	16	21	7	9	3	4
Women with grade I obesity (BMI = >30 - <35)	5	7	3	4	1	1
Women with grade II obesity (BMI = >35 - <40)	2	2	1	1		
Women with grade III obesity (BMI = >40)	1	1	-		-	

As can be seen from the table, overweight is most common in women with ovarian hyperandrogenism, which amounted to 21% (16 women). A woman with hyperandrogenism of adrenal genesis I, degree of obesity was observed in 4% of cases. In the group of women with ovarian hyperandrogenism, this indicator was found in 7% of cases. Perhaps this is due to the effect of vitamin D deficiency or insufficiency with an increase in insulin resistance, with which the results of studies by many authors are in agreement. Obesity III degree was diagnosed in only one woman with ovarian hyperandrogenism. As reflected in the table, overweight and obesity are often found in women with ovarian hyperandrogenism. This indicates the relationship of vitamin D deficiency with insulin resistance and hyperandrogenism.

Diagram №1. Indicators of vitamin D in the surveyed women in the blood

As evidenced by the results of our studies, deficiency and deficiency of vitamin D occurs in almost every second woman with hyperandrogenism, accounting for 48.8% of cases. This was especially evident in the group of women with ovarian hyperandrogenism. At the same time, vitamin D deficiency was diagnosed in 27% of cases, and this vitamin deficiency was observed in 7% of cases. In women with adrenal HA, these indicators are as follows: vitamin D deficiency was found in 10% of cases, a deficiency state was found in 4% of cases. In women entering the control group, a deficiency was diagnosed, which occurred in 5% of women.

Conclusion: Thus, the syndrome of hyperandrogenism is a common disease of women of reproductive age, which occupies more than 20% of women. On the basis of the data obtained, the interrelation of deficiency or deficiency of vitamin D in women with overweight and obesity was revealed. Overweight and varying degrees of obesity were found in 47% (35) of women with hyperandrogenism. Of these, 22 (62%) of the examined had vitamin D deficiency and deficiency. In women with hyperandrogenism, low 25OHD concentrations are associated with obesity and insulin resistance. It has also been shown that in many women with ovarian hyperandrogenism, 25OHD is insufficient, and that 25OHD replacement therapy may have a positive effect on insulin resistance in obese women with hyperandrogenism.

Bibliography:

1. Azimova E.I. Clinical features of the syndrome of hyperandrogenism in obstetric practice \\
News of Dermatovenereology and Reproductive Health. 2014. P.- 26-28
2. Akhundova N.E., Alieva E.M., Mamedgasanov R.M. Pathogenesis, clinical manifestations,
diagnosis of hypergonadotropic hypogonadism in women with hyperandrogenism in the
reproductive period \\
Clinical medicine. 2017; 95 (12) .P.-1101-1105
3. Ashurova N.G., Bobokulova S.B. The prevalence of clinical manifestations of hyperandrogenism
in women of reproductive age. \\
New day in medicine 2 (34/3) 2021.P.-105-108
4. Bobokulova S.B, Ashurova N.G, Ibodov B.A. The importance of genetic markers in the diagnosis
of hyperandrogeny syndrome in women of reproductive age// British Medical Journal, 2023, Vol.3,
№2 P. 15-21
5. Bobokulova S.B. The course of hypomenstrual syndrome in adolescent girls \\
New day in
medicine. -4 (34) - 2020 P.-118-121.

6. Bobokulova SB The incidence of hyperandrogenism in the structure of reproductive disorders in women \ Collection of materials of the V international youth scientific and practical forum. April 22, 2021 Orenburg, P.-203
7. Li Wang., Shulan Lv., Fen Li., Xuwen Yu., E. Bai. Vitamin D deficiency is associated with metabolic risk factors in women with polycystic ovary syndrome: cross-over study in Shaanxi Province, China \ Front Endocrinol (Lausanne) 2020; 11:171. Published online 2020 Mar 31. doi: 10.3389 / fendo.2020.00171
8. Jin Ju Kim., Young Min Choi., Soo Jin Chae. Vitamin D deficiency in women with polycystic ovary syndrome \ Clin Exp Reprod Med. 2014 Jun; 41 (2): 80–85. Published online 2014 Jun 30. doi: 10.5653 / cerm.2014.41.2.80
9. Christine M., Burt Solorzano., Kristin D. Increased adrenal androgen levels in overweight peripubertal girls \ J Endocr Soc. 2017 May 1; 1 (5): 538–552. Published online 2017 Apr 12. doi: 10.1210 / js.2017-00013
10. Zaripova D.Ya., Tuksanova D.I., Negmatullaeva M.N. Osobennosti techeniya perimenopauzal'nogo perekhoda zhenshchin s ozhireniem. Novosti dermatovenerologii i reproduktivnogo zdorov'ya. № 1-2.2020 Str.39-42.