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CLINICAL FEATURES AND TREATMENT METHODS OF POLYCYSTIC OVARY SYNDROME IN WOMEN OF REPRODUCTIVE AGE

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Abstract: Polycystic ovary syndrome (PCOS) is one of the most common endocrine disorders among women of reproductive age. It is characterized by menstrual irregularities, hyperandrogenism, and polycystic changes in the ovaries. This article reviews the clinical features, diagnostic criteria, and modern treatment methods of PCOS.

Keywords: polycystic ovary syndrome, hyperandrogenism, infertility, insulin resistance, hormonal therapy.

Polycystic ovary syndrome (PCOS) is a common endocrine and gynecological disease that affects 6–15% of women of reproductive age and is characterized by hormonal imbalance in the female body. In this syndrome, the hypothalamic-pituitary-ovarian system is disrupted, resulting in impaired or absent ovulation. This leads to menstrual irregularities, amenorrhea, or oligomenorrhea.

PCOS is closely associated not only with gynecological, but also with metabolic disorders. Many patients have insulin resistance, hyperinsulinemia, obesity, and lipid metabolism disorders. Increased insulin levels increase the production of androgen hormones in the ovaries, which causes symptoms of hyperandrogenism - hirsutism, acne, seborrhea, and alopecia. Long-term metabolic disorders also increase the risk of type 2 diabetes, arterial hypertension, and cardiovascular diseases.

This syndrome is one of the main causes of infertility, as irregular ovulation makes it difficult for the egg to mature and fertilize. According to statistics, the majority of cases of anovulatory infertility are associated with PCOS. Therefore, early detection of this syndrome and timely comprehensive treatment are important for maintaining women's reproductive health.

Research materials and methods

The study was conducted on 50 women of reproductive age (18–35 years). All participants were referred for a gynecological examination due to menstrual irregularities, infertility, or symptoms of hyperandrogenism. Written informed consent was obtained from the patients

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involved in the study, and the work was carried out in accordance with clinical and ethical standards.

Patients underwent a general and specific gynecological examination. Anthropometric parameters - height, body weight, body mass index (BMI), waist circumference - were measured. The degree of hirsutism was assessed using the Ferriman–Gallwey scale. Arterial blood pressure and signs of metabolic syndrome were also recorded.

Hormonal analyses were performed on days 3–5 of the menstrual cycle. The levels of luteinizing hormone (LH), follicle-stimulating hormone (FSH), total and free testosterone, prolactin, thyroid-stimulating hormone (TSH), as well as insulin and glucose were determined in the blood. The LH/FSH ratio was calculated, as this indicator is important in the diagnosis of PCOS. The HOMA-IR index was calculated to assess insulin resistance.

All patients underwent pelvic ultrasound (US) using a transvaginal probe. Ovarian volume, stromal thickness, and the number of follicles measuring 2–9 mm were assessed. Polycystic morphology was defined as increased ovarian volume and the presence of 12 or more small follicles per ovary.

The diagnosis was made based on the internationally accepted Rotterdam criteria. According to it, it was required that at least two of the following three characters be present:

1. oligo- or anovulation;
2. clinical or laboratory hyperandrogenism;
3. Morphology of polycystic ovary on USG.

Other endocrine diseases (thyroid pathology, hyperprolactinemia, congenital adrenal hyperplasia) were excluded for differential diagnosis. The obtained results were statistically analyzed and the average value and standard deviation were calculated.

Results

According to the results of the study, 72% of the participants had menstrual cycle disorders. Most of them had oligomenorrhea (longer than 35 days of the cycle) or secondary amenorrhea. In some patients, the cycle was delayed by up to 2-3 months. This was confirmed by hormonal analyzes that this condition is associated with irregular or absent ovulation. A relative increase in luteinizing hormone and a high LH/FSH ratio indicated a predominance of anovulatory cycles.

Signs of hyperandrogenism were detected in 64% of patients. Clinically, hirsutism (8 points and above on the Ferriman–Gallwey scale), excessive hair growth on various areas of the face and body, as well as moderate to severe acne were observed. Laboratory tests showed an increase in

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the level of total and free testosterone. Some patients also had seborrhea and hair loss (androgenic alopecia), which was considered a clinical manifestation of hyperandrogenemia.

Ultrasound examination revealed polycystic morphological changes in the ovaries in 80% of cases. This included an increase in ovarian volume, stromal hyperplasia, and the presence of 12 or more small (2–9 mm) follicles located along the periphery. In some patients, symmetrical changes were observed in both ovaries. These indicators, in agreement with clinical and laboratory data, confirmed the diagnosis of PCOS.

Metabolic analyses revealed insulin resistance in 48% of patients. Most patients with high HOMA-IR were overweight or obese. They also had increased triglycerides and decreased high-density lipoprotein (HDL) levels. These findings suggest that PCOS is not only a reproductive disease but also a systemic disease associated with metabolic syndrome.

The obtained results confirm that the clinical manifestations of PCOS are diverse and an individual approach is required for each patient.

Discussion

Genetic predisposition and environmental factors play an important role in the development of PCOS. Scientific studies show that this syndrome is more common in families, which confirms the presence of hereditary factors. The predisposition to insulin resistance, changes in the metabolism of androgen hormones, and disorders in the functioning of the hypothalamic-pituitary-ovarian system may have a genetic basis. At the same time, environmental factors such as malnutrition, physical inactivity, chronic stress, and obesity exacerbate the clinical manifestations of the disease and complicate its course.

Treatment of PCOS requires a comprehensive and step-by-step approach. Treatment tactics are selected depending on the patient's age, complaints, reproductive plans and metabolic status.

Weight control. Overweight and obesity increase the clinical symptoms of PCOS. Even losing 5–10% of your body weight can help restore your menstrual cycle and improve ovulation. For this purpose, a rational diet, calorie restriction, increased physical activity and lifestyle changes are recommended. These measures are also effective in reducing insulin resistance.

Hormonal contraceptives. Combined oral contraceptives are used to regulate the menstrual cycle, reduce symptoms of hyperandrogenism, and prevent endometrial hyperplasia. They reduce androgen production in the ovaries and relieve the symptoms of hirsutism and acne. The duration of treatment is determined by the condition of the patient.

Drugs that increase insulin sensitivity. In patients with insulin resistance, drugs such as metformin can be used. They improve glucose metabolism, reduce hyperinsulinemia, and in some

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cases help restore ovulation. This is especially important in PCOS, which is accompanied by metabolic disorders.

Ways to stimulate ovulation. In patients with infertility, clomiphene citrate, letrozole, or gonadotropins may be used to induce ovulation. In cases where medications are ineffective, laparoscopic ovarian drilling may be considered. The treatment should be performed under ultrasound and hormonal monitoring.

PCOS is also a condition that requires long-term monitoring, as it increases the risk of type 2 diabetes, cardiovascular disease, and endometrial hyperplasia.

It is necessary to develop an individual treatment plan for each patient, which is made taking into account clinical symptoms, laboratory indicators and reproductive goals. A comprehensive and personalized approach is a key factor in effective control of PCOS and improving a woman's quality of life and reproductive health.

Conclusion

Polycystic ovary syndrome (PCOS) is a common and multifactorial endocrine-gynecological disease among women of reproductive age, which negatively affects not only reproductive function, but also general somatic health. This syndrome is characterized by ovulatory disorders, hyperandrogenism, and metabolic changes, which can lead to infertility, menstrual irregularities, and long-term complications.

The results of the study showed that PCOS has a diverse clinical presentation and is closely associated with hormonal and metabolic disorders. In particular, insulin resistance and overweight were found to aggravate the course of the disease and increase the risk of cardiovascular disease and type 2 diabetes.

Early diagnosis, carrying out differential diagnosis and prescribing comprehensive treatment measures based on an individual approach are crucial in preventing complications. Lifestyle changes, hormonal balance, and metabolic control are the mainstays of PCOS management.

Such patients should also be under long-term dispensary supervision. A systematic and scientifically based approach allows women to preserve their reproductive potential, improve their quality of life, and reduce future health risks.

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