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# POLYCYSTIC OVARY SYNDROME IN WOMEN

Maripjonov Jasurbek Ma'mirjon o'g'li [1],
Anvarova Mubinabonu Azizbek qizi [2],
Mavlonova Surayyo Malikjon qizi [3]
[1]Kokand University Andijan Branch, Teacher;
jasurbekmaripjonov122@gmail.com; ORCID
[2]Kokand University Andijan Branch, 1st Year Medical Student;
anvarovamubinabonu@gmail.com
[3]Kokand University Andijan Branch, 1st Year Medical Student

**Abstract**
This article discusses the causes of polycystic ovary syndrome (PCOS) in women and the methods of treatment for this condition. PCOS is an endocrine disorder characterized by menstrual cycle irregularities, hyperandrogenemia, and metabolic changes due to ovarian dysfunction. It is prevalent among women of reproductive age and significantly impacts reproductive health and metabolic status. PCOS is a complex endocrine-metabolic syndrome requiring long-term monitoring and comprehensive treatment. Timely diagnosis and treatment based on an individualized approach can help improve reproductive health and reduce metabolic risks.

**Keywords**: Hormonal changes, hormonal disorders, polycystic ovary syndrome, ovaries, menstrual cycle irregularities, infertility.

## Introduction

Polycystic ovary syndrome (PCOS) is one of the most common hormonal disorders among women, affecting approximately 5-15% of women of reproductive age. This syndrome is characterized by menstrual cycle irregularities, anovulation, hyperandrogenemia, and metabolic changes. Although the mechanisms underlying PCOS development are not fully understood, genetic predisposition, insulin resistance, and hormonal imbalance are considered key factors. The condition not only increases the risk of infertility but can also lead to severe complications such as metabolic syndrome, type 2 diabetes, cardiovascular diseases, and endometrial hyperplasia. Therefore, PCOS requires early diagnosis and comprehensive treatment. This work discusses the etiology, pathogenesis, clinical features, diagnostics, and treatment methods for PCOS, reviewing effective management strategies based on modern scientific research and clinical experience.

PCOS is one of the most common endocrine disorders in women of reproductive age. It increases the risk of infertility, androgen-related dermatopathies (acne, hirsutism, alopecia), carbohydrate metabolism disorders (impaired glucose tolerance, type 2

diabetes), dyslipidemias, cardiovascular diseases, endometrial hyperplastic processes, psychological disorders (e.g., depression, anxiety disorders, mood swings), and certain cancers (endometrial cancer, some forms of breast cancer). Notably, 40-85% of women with PCOS are significantly affected by overweight or obesity.

Despite numerous studies, a unified concept of the pathogenesis and etiology of PCOS has not yet been developed. The pathogenesis of the disease involves disturbances at four levels of the neuroendocrine system, each of which can be considered a primary cause: the hypothalamic-pituitary system, ovaries, adrenal glands, and peripheral insulin-sensitive tissues.

**Causes**

1. **Genetic Predisposition:** Women with a family history of PCOS are more likely to experience this condition, indicating that genetic factors play a role in its development.
2. **Insulin Resistance:** Insulin is a hormone that regulates blood sugar levels. Insulin resistance is a decreased sensitivity of the body to insulin, leading to irregularities in blood sugar levels and increased insulin production. High insulin levels can stimulate androgen (male hormone) production, contributing to PCOS symptoms.
3. **Hormonal Imbalances:** Women with PCOS experience imbalances between female hormones such as estrogen and androgens (male hormones), leading to menstrual irregularities and ovulatory issues.
4. **Low-grade Inflammation:** Women with PCOS often have low-grade inflammation, which can increase insulin resistance and androgen levels.
5. **Obesity:** Overweight and obesity can exacerbate PCOS symptoms by increasing insulin resistance. However, not all women with PCOS are obese; thin women can also experience this condition.

The exact mechanism of plasma formation is not fully understood, although the combination of these factors and the onset of symptoms may contribute to the development of PCOS.

**Treatment Methods and Goals.**The goals of treatment include addressing androgen-related dermatopathy manifestations, normalizing body mass, correcting metabolic disorders, regulating the menstrual cycle to prevent endometrial hyperplasia, restoring ovulatory cycles, and preventing delayed complications of PCOS. An individual management plan is developed based on the patient's main complaints, reproductive goals, cardiovascular disease risk, and other factors.

Combined oral contraceptives (COCs), metformin, and other pharmacological agents are used off-label in the treatment of PCOS. However, numerous studies confirm their efficacy. Physicians should inform patients about the effectiveness, possible side effects, and treatment outcomes of these medications and consult with patients to develop an individualized approach.

**Surgical Treatment.** Laparoscopy is recommended for women with PCOS and infertility in the following cases:

- Resistance to clomiphene citrate (CC)
- Elevated levels of luteinizing hormone (LH)
- Other indications for laparoscopic surgery, such as endometriosis or tuboperitoneal infertility factors
- Lack of monitoring during treatment with gonadotropins

**Recommendation reliability level:** B (evidence reliability level – 1).

**Note:** The efficacy of laparoscopic drilling and gonadotropin use is similar. Monopolar electrocautery and laser have equal efficacy. To achieve optimal results in PCOS, four punctures of the ovaries are sufficient; excessive puncturing increases the risk of early ovarian insufficiency. After laparoscopy, 50% of patients require ovulation induction. If ovulation is not observed 12 weeks after laparoscopy, stimulation with clomiphene citrate (CC) is recommended.

Women with PCOS are at risk for adverse pregnancy outcomes: the incidence of gestational diabetes mellitus (GDM), arterial hypertension, and preeclampsia increases 3-4 times, according to meta-analysis results. The risk of pregnancy complications is higher in women with the "classic" phenotype of PCOS. Preparations before conception should include quitting smoking, lifestyle changes, and folic acid supplementation. In women with PCOS, the frequency of abortion does not increase when pregnancy occurs, depending on the presence or absence of obesity. The rate of miscarriage after pregnancy: ovulation induction can be compared with other forms of infertility. Continuous monitoring of women with PCOS during pregnancy is recommended due to the increased risk of gestational diabetes, hypertension, preeclampsia, and related complications, particularly the risk of disease in newborns.

## References

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