

POLYCYSTIC OVARIAN SYNDROME: PATHOPHYSIOLOGY, DIAGNOSIS AND TREATMENT

Easha Vipin

Tashkent Medical Academy

Internal Disease No2 and Endocrinology Department of Tashkent Medical Academy

Scientific advisor: PhD Yuldaseva N.Kh.

Abstract. Polycystic Ovary Syndrome (PCOS) is an endocrinopathy of 5% to 10% of women of reproductive age with manifestations of polycystic ovaries, irregular menstrual cycles, and hyperandrogenism. PCOS is a syndrome of multifactorial pathogenesis that includes genetic, environmental, and endocrine factors, and insulin resistance plays a significant role in the pathogenesis of PCOS. Interdisciplinary management and ongoing education are required to improve the PCOS women's quality of life, and further research is needed to establish improved diagnosis and management strategies.

Introduction. Polycystic Ovary Syndrome (PCOS) is a prevalent endocrine disorder that affects about 5% to 10% of women in their reproductive years. Defined by the presence of a constellation of symptoms such as irregular menstrual cycles, hyperandrogenism, and polycystic ovaries, PCOS has important consequences for women's health. As medical educators and researchers, it is essential to understand PCOS to be able to effectively manage this condition

Pathophysiology. The cause of PCOS is multifactorial and is still not fully understood. Research has indicated that the disorder is brought about by genetic, endocrine, and environmental factors.

Most women with PCOS are insulin resistant, research indicates, which can lead to elevated levels of insulin and thus hyperandrogenism. The endocrine abnormality is manifested in the form of symptoms such as hirsutism, acne, and scalp hair thinning.

Moreover, a meta-analysis in *Obstetrics & Gynecology* identified a clear association of PCOS with metabolic disorders like type 2 diabetes, hypertension, and dyslipidemia.

PCOS is characterized by a triad of symptoms: irregular menstrual bleeding, hyperandrogenism, and polycystic ovaries.

Insulin resistance has become a leading factor in the pathogenesis of PCOS, which results in ovarian dysfunction, dysregulation and aggravation of hyperandrogenism. The final outcome is a hormonal imbalance that often leads to hirsutism, acne, and alopecia symptoms, as well as infertility complications.

Clinical Presentation. PCOS patients may have a broad range of symptoms. On specific mention are menstrual irregularities—typically oligomenorrhea or amenorrhea—which are common and often one of the first signs of the syndrome. Patients may also experience symptoms of hyperandrogenism. Apart from these classic signs, PCOS women are at risk of various medical conditions such as type 2 diabetes mellitus, cardiovascular disease, and endometrial hyperplasia. Thus, a good history and physical examination, along with laboratory tests, are the instruments required for accurate diagnosis

Diagnosis. Diagnosis of PCOS is mostly clinical and tends to apply the Rotterdam criteria, which require the finding of at least two of the following three:

- Clinical or biochemical hyperandrogenism.
- Ovulatory dysfunction.
- Polycystic ovaries diagnosed on ultrasonography.

Management

1. PCOS treatment options are directed at both symptom and metabolic underlying management. A diet, exercise, and weight management have been shown to improve insulin sensitivity and restore ovulatory function. Pharmacologic agents such as Metformin and hormonal contraceptives are also used both to manage symptoms of hyperandrogenism as well as to regulate menstruation.
2. The study showed that women with PCOS who included omega-3 supplements in their diets had a decrease in markers of inflammation and an increase in insulin sensitivity. Additionally, other supplements such as myo-inositol have also been popular, with proven potential in improving ovulation rates and metabolic profiles in PCOS women.
3. In infertile women, initial therapies are typically ovulation induction with clomiphene citrate or letrozole.
4. Hormonal contraceptives are an appropriate first-line choice in patients with severe hyperandrogenic signs because they reduce circulating androgens and also enhance related signs like hirsutism. In addition, anti-androgens like spironolactone may be employed as second-line therapy, particularly in refractory hirsutism patients.

Follow-Up and Screening

Regular follow-up is essential for the effective treatment of PCOS. The doctor should monitor for the onset of metabolic syndrome and glucose intolerance because these patients are at increased risk of developing type 2 diabetes. Despite advances in PCOS knowledge and treatment, there still remain challenges in patient experience. Women with PCOS often have emotional and psychological disturbances, including depression and anxiety related to symptomatology and sociocultural expectations regarding physical appearance. Educational activities aimed at patients and clinicians alike are necessary to promote awareness and build supportive communities for those with PCOS