

**BASELINE CLINICAL, ENDOCRINE, AND METABOLIC PROFILE OF REPRODUCTIVE-AGED WOMEN WITH POLYCYSTIC OVARY SYNDROME****ABDURASULOVA NIGORA ALIAKBAROVNA**ENDOCRINOLOGIST, FERGANA MEDICAL INSTITUTE OF PUBLIC HEALTH  
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**Abstract****Background:**

Polycystic ovary syndrome (PCOS) represents a complex endocrine condition characterized by reproductive dysfunction and metabolic disturbances. Identification of baseline clinical and biochemical features prior to therapeutic intervention is essential for understanding disease heterogeneity and improving individualized treatment strategies.

**Objective:**

To characterize the clinical manifestations, hormonal profile, and metabolic status of women of reproductive age diagnosed with polycystic ovary syndrome before initiation of any therapeutic measures.

**Methods:**

A descriptive cross-sectional study was performed in women aged 18–40 years with PCOS diagnosed according to the Rotterdam criteria. Clinical evaluation included assessment of menstrual function, anthropometric parameters, and signs of androgen excess. Endocrine evaluation comprised serum levels of gonadotropins and androgens. Metabolic status was assessed through fasting glucose, insulin concentrations, lipid profile, and insulin resistance indices.

**Results:**

The majority of participants demonstrated menstrual dysfunction and varying degrees of clinical hyperandrogenism. Hormonal analysis revealed dysregulated gonadotropin secretion, manifested by elevated luteinizing hormone levels and increased LH/FSH ratios, along with elevated androgen concentrations. Metabolic assessment identified insulin resistance and lipid abnormalities in a substantial proportion of patients, including those with normal body mass index.

### **Conclusion:**

Women with PCOS exhibit significant clinical, endocrine, and metabolic abnormalities prior to treatment initiation. Early identification of these baseline features is critical for risk stratification and development of optimized therapeutic approaches.

### **Keywords**

Polycystic ovary syndrome; reproductive-age women; hormonal imbalance; insulin resistance; metabolic profile.

## **1. Introduction**

Polycystic ovary syndrome is among the most prevalent endocrine disorders affecting women of reproductive age, with a multifaceted pathophysiology involving reproductive, metabolic, and hormonal dysregulation. The syndrome is classically defined by ovulatory dysfunction, hyperandrogenism, and polycystic ovarian morphology; however, its clinical presentation is highly heterogeneous.

Beyond reproductive impairment, PCOS is increasingly recognized as a systemic metabolic disorder. Insulin resistance, compensatory hyperinsulinemia, and dyslipidemia frequently coexist with endocrine abnormalities and may appear early in the disease course. These disturbances significantly contribute to long-term risks, including type 2 diabetes mellitus and cardiovascular disease.

Assessment of untreated patients provides valuable insight into the natural phenotype of PCOS and allows for identification of key factors influencing disease severity. Comprehensive evaluation prior to therapy is therefore essential for developing personalized management strategies.

## **2. Aim of the Study**

To investigate the baseline clinical presentation, hormonal status, and metabolic characteristics of women of reproductive age with polycystic ovary syndrome before the initiation of treatment.

## **3. Materials and Methods**

### **3.1 Study Population**

The study enrolled women aged 18–40 years diagnosed with PCOS based on the Rotterdam diagnostic criteria. Participants were included prior to receiving any hormonal, metabolic, or lifestyle-related treatment.

Exclusion criteria comprised pregnancy, breastfeeding, previous diagnosis of thyroid or adrenal disorders, use of medications affecting endocrine or metabolic parameters, and chronic systemic illnesses.

### 3.2 Clinical Evaluation

Clinical assessment included detailed menstrual history, measurement of body mass index, and evaluation of clinical manifestations of androgen excess such as hirsutism and acne.

### 3.3 Hormonal Analysis

Venous blood samples were collected under standardized conditions. Serum concentrations of luteinizing hormone, follicle-stimulating hormone, total testosterone, and sex hormone-binding globulin were determined. The LH/FSH ratio was calculated as an indicator of gonadotropin imbalance.

### 3.4 Metabolic Assessment

Metabolic evaluation included fasting plasma glucose, fasting insulin, and lipid parameters. Insulin resistance was quantified using the Homeostatic Model Assessment for Insulin Resistance (HOMA-IR).

### 3.5 Statistical Methods

Data were processed using statistical analysis software. Continuous variables were expressed as mean  $\pm$  standard deviation. Correlations between endocrine and metabolic parameters were analyzed, with statistical significance set at  $p < 0.05$ .

## 4. Results

Menstrual irregularities were observed in the majority of women, with oligomenorrhea being the most common presentation. Clinical signs of androgen excess were prevalent across the study population.

Hormonal profiling demonstrated elevated luteinizing hormone levels and increased LH/FSH ratios, reflecting impaired hypothalamic–pituitary–ovarian axis regulation. Androgen levels were consistently elevated compared to physiological reference ranges.

Metabolic analysis revealed increased insulin resistance and unfavorable lipid profiles in a considerable number of patients. Notably, these metabolic alterations were also present in women without obesity, highlighting the intrinsic metabolic component of PCO

## 5. Discussion

The present study confirms that PCOS is associated with marked endocrine and metabolic derangements prior to any therapeutic intervention. Gonadotropin imbalance and hyperandrogenism

remain central features of the syndrome, while insulin resistance plays a critical role in modulating both reproductive and metabolic dysfunction.

The detection of metabolic abnormalities in lean women underscores the necessity of metabolic screening in all PCOS patients, regardless of body composition. These findings support a comprehensive diagnostic approach at the time of initial evaluation.

## 6. Conclusion

Prior to treatment, women of reproductive age with polycystic ovary syndrome demonstrate significant clinical symptoms, hormonal dysregulation, and metabolic disturbances. Early and comprehensive assessment of these parameters is essential for individualized treatment planning and prevention of long-term complications.

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