

The Impact of Polycystic Ovary Syndrome (PCOS) on Metabolic and Cardiovascular Health

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Abstract

Polycystic ovary syndrome (PCOS) is a common endocrine disorder affecting women of reproductive age. Characterized by hormonal imbalances, irregular ovulation, and metabolic disturbances, PCOS is not only a reproductive disorder but also a significant risk factor for cardiovascular disease (CVD) and type 2 diabetes. This article examines the metabolic consequences of PCOS, including insulin resistance, dyslipidemia, obesity, and hypertension, and discusses current and emerging therapeutic strategies.

Keywords PCOS, insulin resistance, cardiovascular risk, metabolic syndrome, hyperandrogenism, ovulatory dysfunction, obesity.

INTRODUCTION

PCOS affects approximately 10–15% of women of reproductive age and is a leading cause of infertility. However, its impact extends beyond reproduction, significantly increasing the risk of metabolic and cardiovascular diseases.

Pathophysiology of PCOS and Its Metabolic Impact

1. Insulin Resistance and Hyperinsulinemia

- Up to 70% of women with PCOS exhibit insulin resistance, leading to hyperinsulinemia, which stimulates excess androgen production and worsens ovulatory dysfunction.
- Increased insulin levels also contribute to fat accumulation and inflammation, exacerbating metabolic risks.

2. Dyslipidemia and Cardiovascular Risk

- PCOS patients frequently exhibit high LDL cholesterol and low HDL cholesterol, increasing atherosclerosis risk.
- Hypertension and endothelial dysfunction further elevate cardiovascular risks.

3. Obesity and Chronic Inflammation

- Many women with PCOS experience central obesity, which fuels systemic inflammation, increasing the risk of type 2 diabetes and CVD.

Treatment Strategies for PCOS and Metabolic Health

- Lifestyle Modifications – Weight loss, dietary changes, and exercise significantly improve insulin sensitivity and cardiovascular health.
- Pharmacologic Therapies – Metformin, statins, and anti-androgen medications help manage symptoms and metabolic risks.
- Novel Treatments – Emerging research focuses on GLP-1 receptor agonists and targeted hormonal therapies.

Conclusion

PCOS is a lifelong disorder that extends beyond reproductive health, affecting metabolic and cardiovascular systems. Early intervention is crucial for reducing long-term health risks.

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