Polycystic Ovarian Syndrome (PCOS): Causes, Treatment and its Impact on Life

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Key points:

- Introduction to Polycystic Ovarian Syndrome (PCOS)
- Causes of PCOS
- Treatment Options
- Management and Cure
- Impact of PCOS on life

Introduction to Polycystic Ovarian Syndrome (PCOS)

Polycystic Ovarian Syndrome (PCOS) is a hormonal condition that disrupts normal reproductive functions in individuals with ovaries, often beginning around puberty. Common symptoms include irregular menstrual cycles, excessive androgen levels, and the presence of cyst-like follicles in the ovaries. It is a leading cause of infertility and has far-reaching involvement in metabolic and psychological health. Although widely studied, the condition often goes undiagnosed due to its complex and diversified presentations.[1]

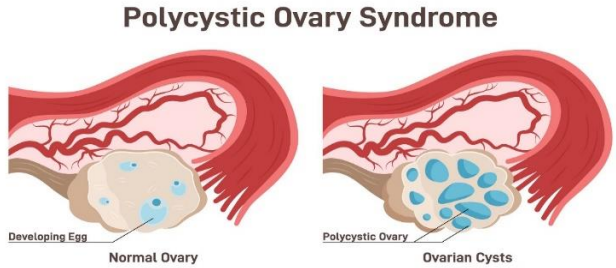

Figure 1: *Difference between normal and PCOS ovary.*[11]

Causes of PCOS

PCOS is believed to have a genetic foundation, with familial gathering observed in many cases. Research has identified genes linked to hormone synthesis and insulin regulation as possible contributors to PCOS vulnerability.[5]

Excess production of androgens can inhibit ovulation and cause symptoms such as acne, hirsutism, and menstrual irregularity. Hormonal signals, particularly higher luteinizing hormone (LH) and a disturbed LH to follicle-stimulating hormone (FSH) ratio, play a vital role in this imbalance. A significant percentage of individuals with PCOS experience insulin resistance. This leads to compensatory hyperinsulinemia, which in turn stimulates the ovaries to produce more androgens, intensifying hormonal issues.[2] Emerging studies highlight the role of low-grade inflammation and improved gut microbiota in PCOS development. These changes may affect both immune responses and hormonal signaling, contributing to symptoms. [3, 4]

Treatment Options

Adopting healthier dietary habits and increasing physical activity are effective first-line treatments. Weight loss, even by a small percentage, can lead to

improved insulin sensitivity and the continuation of normal ovulatory cycles.[6]

Metformin, a diabetes drug, is commonly prescribed to improve insulin sensitivity and restore menstrual regularity. Hormonal contraceptives help manage menstrual cycles and reduce acne and hirsutism. Ovulation-inducing agents such as Letrozole and clomiphene citrate are used in fertility management.[7]

Herbal remedies, including the Yulinzhu botanical formula, have shown potential in renovating hormonal balance and modifying gut health. These therapies may balance treatments in symptom control[9].

Psychological effects such as anxiety, depression, and reduced self-esteem are common in PCOS. Incorporating counseling and support groups into treatment can greatly improve emotional well-being.[10]

Management and Cure

Although PCOS cannot currently be cured, it can be successfully managed over the long term. Customized treatment plans combining lifestyle changes, medication, and psychological support can considerably reduce the liability of symptoms. Current research is discovering potential curative plans including micro biome therapy, gene regulation, and advanced endocrine therapies.[6,9]

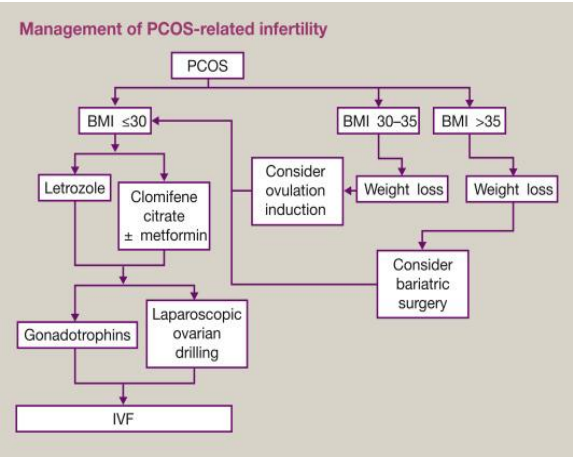

Figure 2: *Management of infertility in PCOS .*[12]

Impact of PCOS on Life

PCOS can lead to difficulties such as infertility, type 2 diabetes, and cardiovascular disease. It is also associated with a higher risk of endometrial cancer due to chronic anovulation and unrestrained estrogen exposure.

The psychosocial effects of PCOS are often underestimated. Symptoms like undesirable facial hair, obesity, and infertility can lead to depression and anxiety. These challenges highlight the need for complete care that includes mental health support.[10]

PCOS is a cause of infertility. However, with proper treatment, many individuals are able to conceive naturally or with the help of aided reproductive technologies. The condition also increases the risk of diabetes and hypertensive conditions during pregnancy.[8]

References

1. Moore AM. Neuroendocrine mechanisms responsible for elevated gonadotrophin-releasing hormone and luteinizing hormone pulses in polycystic ovary syndrome. *J Neuroendocrinol*. 2025.
2. Lan Y, Zhong C, Li D, Chen H, Dai X, et al. Association between waist-to-height ratio and insulin resistance in patients with polycystic ovary syndrome: a meta-analysis. *Front Endocrinol (Lausanne)*. 2025 Apr 3; 16:1567787**.**
3. (Senthilkumar H, Arumugam M – 2025 – Gut microbiota in PCOS – *J Transl Med*.
4. (Liu C, et al. – 2025 – ZQLHR herbal regulation of gut microbiota in PCOS – Elsevier).
5. (Ran B, et al. – 2025 – AMH and PCOS: A bibliometric analysis – *Front Reprod Health*).
6. (Adam LN – 2025 – Comprehensive overview of PCOS – *Obesity Medicine*).
7. (Qi YB, et al. – 2025 – Insulin resistance in PCOS – *Reprod Dev Med*).
8. (Gupte S, et al. – 2025 – Role of microbiomes in reproductive health – IJGO).
9. (Hao J, et al. – 2025 – Yulinzhu botanical therapy in PCOS – *Front Pharmacol*).
10. (Vyas SD, Thakur R – 2025 – Nursing care in PCOS – BIJNR).

11. https://www.myendometrialcancerteam.com/resources/pcos-and-endometrial-cancer-how-are-they-related
12. Kathiuska J. Kriedt, Ali Alchami, Melanie C. Davies,PCOS: diagnosis and management of related infertility,Obstetrics, Gynaecology & Reproductive Medicine,Volume 29, Issue 1,2019