

Managing Reproductive Disorder in Polycystic Ovarian Disease: A Short Review

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Abstract:- Polycystic ovarian disease (PCOD) is women's most prevalent endocrine multifactorial condition. Menstrual irregularities, clinical or biochemical signs of hyperandrogenism, and an altered (luteinizing hormone) L.H. (Follicle stimulating hormone) FSH ratio is the hallmarks of the prevalent disorder PCOD. Around the world, 6–7% of people have PCOD. This issue is quite common in females between 18 and 25 years. PCOD in girls is a severe public health issue that needs to be thoroughly investigated, addressed correctly, and treated with the proper treatment or therapy. This review addresses the finding that women are unfamiliar with PCOD and different modalities of managing this disorder.

Keywords- Polycystic Ovarian Disease, PCOD, Management.

I. INTRODUCTION

Gynaecology OPDs commonly diagnose adolescent girls and young women with polycystic ovarian syndrome or polycystic ovary disease. PCOD is a female-specific endocrine, reproductive, and metabolic disorder. Its defining features include numerous clinical symptoms, such as irregular menstrual cycles, infertility, hyperandrogenism, hirsutism, insulin resistance (I.R.), acne, weight gain, and cystic ovaries. The most common reason for female infertility in the U.S. is PCOS. Between 2-18% of women in North America suffer from PCOD. Because so many of these women remain misdiagnosed, it is difficult to determine a more exact proportion.¹ Polycystic ovarian syndrome (PCOS) includes long-term risks like type 2 diabetes, cardiovascular disease, depression, low quality of life, and overall mortality in addition to short-term dangers like subfertility and pregnancy-related issues.² More than 116 million women globally (3.4%) are affected by PCOS/PCOD, according to the World Health Organisation (WHO).³ Potential PCOS symptoms include hyperandrogenism, prolonged anovulation, and sonographic polycystic ovarian morphology. Contrary to the 2003 Rotterdam criteria, which allows for any two of three factors (oligo- or anovulation, clinically or biochemically manifested hyperandrogenism, and polycystic appearing ovaries (PCO) on ultrasound), the 1990 National Institutes of Health criteria and

the 2006 Androgen Excess PCOS criteria both require hyperandrogenism, either clinically or biochemically.⁴

Patients with PCOS frequently have obesity, elevated levels of luteinizing hormone, and insulin resistance; however, these symptoms are not necessary for diagnosis.

II. SIGNS AND SYMPTOMS OF POLYCYSTIC OVARY DISEASE⁵

PCOD has a variety of effects on females. Females who are affected may display a range of signs and symptoms. Not every person will have every symptom. While some women experience minor symptoms, others do. Additionally, each person's level of symptom severity varies from mild to severe. The most typical PCOD symptoms and indicators are:

- Abnormal menstrual cycle (irregular periods, amenorrhoea, oligomenorrhoea)
- Hyperandrogenism and hirsutism (extra hairs on face and body parts)
- Acne; oily skin
- Weight gain and Central Obesity
- Androgenic alopecia (Hair loss and hair thinning)
- Acanthosis nigricans (patches of black skin on the back of the neck and other places)
- Obstacles to getting pregnant
- Insulin resistance
- Anxiety, Depression, Mood swings
- Sleep apnea
- Cystic Ovaries (not every PCOS patient has cystic ovaries.)⁹

PCOD symptoms can get worse due to weight gain or insulin resistance. Additionally, it may result in heart disease and diabetes.

III. CAUSE OF HORMONAL IMBALANCE IN PCOD WOMEN⁶

The exact etiology is still unclear. Many factors are considered to play a role in its circumstances.

- Genetics and heredity
- Unbalanced diet (processed foods with low fiber, high carb and fat content)
- Adulterated foods (presence of pesticides, chemicals, and hormones like oxytocin)
- Lack of physical activity
- Stress
- Obesity and insulin resistance
- Disturbed sleep

IV. DIFFERENT MODALITIES RELATED TO THE MANAGEMENT OF PCOD

PCOS involves numerous processes and abnormalities. The following management techniques for PCOS are provided with the goal they reduce symptoms and complications like infertility, diabetes, obesity, cardiovascular disease, and other problems.

- **Lifestyle changes**-Body mass index (BMI) and an increased rate of infertility in women are correlated⁷; weight loss in women with PCOS is linked to higher rates of spontaneous ovulation, based on observational studies.⁸
- **Dietary therapy** -Hyperinsulinemia and impaired insulin signalling impair energy efficiency because glucose is diverted to lipogenesis and, as a result, fat accumulation rather than being used as fuel. The symptoms of hyperandrogenism, hirsutism, infertility, and trouble getting pregnant are known to be made worse by extra body mass, which is present in about two-thirds of PCOS patients. Further, ensuring homeostasis and reducing insulin resistance can be done by balancing the proportions of dietary fat, protein, and carbohydrates. The foundation of a PCOS woman's diet should be eating habits that promote lower insulin levels.⁹ It has been proven that a woman with PCOS can drop just 5-10% of body mass and boost fertility, restore menstrual cycles, and begin to bring hormonal and metabolic processes into a more normal rhythm.¹⁰
- **Exercise** -Exercise is good for everyone, but people with PCOS and metabolic syndrome should exercise more frequently. These people must make better food choices and exercise more than average to maintain a healthy weight. Exercise helps lessen the severity of many PCOS symptoms, such as depression, inflammation, and extra weight.¹¹ Increase daily activity by climbing the stairs, taking quick walks, and frequently stretching in addition to exercising.

➤ **Allopathic-**

- **Insulin Sensitizing Drugs** -The 2008 ASRM committee recommended that patients with PCOS and impaired glucose tolerance endeavour insulin-sensitizing drugs¹². Some of the most frequently given medications for PCOS-affected women who have some degree of insulin resistance and/or diabetes are insulin-sensitizing drugs. These medications, the majority of which are biguanides, have historically been used to treat type 2 diabetes because they increase the sensitivity of cells to insulin and the efficiency with which cells metabolize glucose. Since 1995, Metformin has been used to treat diabetes. It has also demonstrated significant promise in lowering insulin resistance, promoting weight loss, and restoring a regular menstrual cycle in PCOS patients.¹³

➤ **Fertility Treatment-**

- **Clomiphene Citrate** -Selected oestrogen receptor modulator (SERM) clomiphene citrate (CC) is still the go-to medication for anovulatory PCOS women who want to induce ovulation. Women are typically administered Clomiphene Citrate (Clomid) to trigger ovulation. Since its introduction in 1967, Clomid has been used to induce ovulation in 80% of women who take it; however, only approximately half of these women really become pregnant.¹⁴ Due to its reasonable cost and effectiveness, Clomid is an excellent first option.
- **Gonadotropins**- FSH and L.H. are two gonadotropins involved in the menstrual cycle. There are various injectable ovulation-inducing drugs available on the market, most of which are made from synthetic FSH and L.H. With this technique, you inject the follicle to make it mature, and when it does, then inject again to make the egg pop off. You engage in sexual activity now in the hopes of becoming pregnant. The potential for multiple births (twins, triplets, etc.) is an issue associated with this procedure.¹⁵
- **In-vitro fertilization (IVF)**- Although it is the most expensive and invasive method of managing infertility, in-vitro fertilization is the most effective fertility treatment method currently available. In-vitro fertilization is the process by which an egg is taken out of the ovary, fertilized in a petri dish, and then the embryo is put back inside the uterus. This approach can cost up to \$20k and has a 35% success rate. Given that many embryos are frequently implanted to boost the likelihood of conception, multiple births are also very typical in this situation.¹⁶
- **Hormonal Treatment** -The primary PCOS treatment is hormonal therapy. Certain treatments restrict ovarian function to inhibit the synthesis of testosterone by the ovaries. Conversely, other drugs block the action of testosterone. OCPs and antiandrogens are the two different categories of hormonal therapy drugs.
- **Oral contraceptive Pills**-OCPs are excellent at controlling periods, reducing hirsutism, and clearing up acne. The ovaries secrete less testosterone due to their suppression of FSH and L.H. levels. OCPs are not appropriate for many

women and can have substantial negative consequences. Increased risks of blood clots, pancreatitis, and liver tumours are the most significant side effects.

- **Antiandrogen-** Drugs called antiandrogens prevent testosterone from functioning. The antiandrogen of choice for PCOS treatment is spiro lactone. Spiro lactone, a diuretic, conserves potassium. It is well-established and has a track record of being safe and effective in treating PCOS symptoms. OCPs and spiro lactone function well together; therefore, combining the two is commonly advised. Cyproterone acetate, drospirenone, desogestrel, spiro lactone, ketoconazole, flutamide, and finasteride are a few antiandrogens. Flutamide is a potent antiandrogen that significantly reduces hirsutism.¹⁷
- **Body image issues-** Among PCOS sufferers, negative body image perceptions include dissatisfaction with looks, a sense of femininity loss, feeling less sexually desirable, and self-consciousness about appearance.¹⁸ This negative image develops many critical issues in a female's life like Hirsutism, Acne etc.
- **Hirsutism-** The excessive growth of terminal hair in a masculine pattern on females is known as hirsutism. The Ferriman Gallwey scale is used to quantify the degree of hirsutism. The severity of each instance determines how hirsutism should be treated. Mechanical procedures like shaving, electrolysis, bleaching, and laser therapy are frequently used to treat mild hirsutism. Both systemic and mechanical approaches are necessary for moderate to severe hirsutism. OCPs and antiandrogens are examples of systemic interventions. These prevent terminal hair growth from progressing but do not lower current levels; thus, they should be used in conjunction with aesthetic approaches.
- **Acne-** Birth control pills can help acne therapy by balancing hormone levels. Additional drugs are used to treat acne, including tetracycline and other antibiotics. The Accutane reduces the sebaceous glands' capacity to create oil.¹⁹

V. CONCLUSION

The most common factor causing hyperandrogenic anovulation is PCOS. Early detection allows for prompt treatment, which reduces long-term morbidity in this population of girls who develop PCOS frequently after puberty. Most ladies were unaware of the condition's signs or available remedies. Understanding PCOS is essential for controlling the infection and minimizing potential long-term adverse effects, such as endometrial cancer, insulin resistance, glucose intolerance, diabetes, and cardiovascular disease. It affects women of all ages.

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