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Review Article

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PCOS Management: Integrating Contemporary Medicine and Lifestyle Interventions

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Abstract

Polycystic ovary syndrome (PCOS) is a prevalent endocrine disorder in women of reproductive age, which is defined by anovulation and hyperandrogenism along with polycystic ovaries. Lifestyle changes are regarded as the first-line management for PCOS along with dietary modification, physical activity, behavioral interventions and utilization of integrating contemporary medicines. Dietary interventions like eating low-glycemic index diets, calorie restriction, using high-fiber and omega-3-rich diets, antioxidant and anti-inflammatory foods may increase insulin sensitivity and balance hormones. Physical exercise, aerobic and resistance training are beneficial for increased hormonal sensitivity which can decrease chances of PCOS. Behavior and educational programs also improve awareness, compliance with treatment, and psychological well-being in PCOS patients. These interventions not only improve biochemical, hormonal and physical health indicators but also reduce long-term metabolic risk in PCOS. This review emphasizes medical aspects of PCOS and management through integrating contemporary medicine and lifestyle interventions.

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1. Introduction

Polycystic ovary syndrome (PCOS) is a disease of women that exists in a large number of world population. Diagnosis of PCOS using the Rotterdam criteria includes two of the three of the signs which includes; hyperandrogenism, ovulation disorder and polycystic ovaries. According to these characteristics, PCOS is divided into four phenotypes as mentioned below:

1. Phenotype A (hyperandrogenism + ovulatory dysfunction + polycystic ovaries)
2. Phenotype B (hyperandrogenism + ovulatory dysfunction)
3. Phenotype C (hyperandrogenism + polycystic ovaries)
4. Phenotype D (ovulatory dysfunction + polycystic ovaries)

PCOS is a multifactorial disorder linked with several conditions such as obesity, dyslipidemia, cardiovascular disease and insulin resistance. (1-3) The pathophysiology of PCOS is influenced importantly by insulin resistance, which further enhances hyperandrogenism through

increased free androgen levels. The precise etiology of PCOS is not yet known, it is thought to be the result of an interaction between epigenetic, genetic, lifestyle, environmental and dietary factors. Hormonal dysregulation, such as increased androgen levels and disturbed secretion of gonadotropins such as luteinizing hormone and follicle-stimulating hormone, also contributes to the disorder. Hyperinsulinemia also stimulates the ovarian theca cells to secrete excess androgens, lowering sex hormone-binding globulin levels and raising free androgen levels.

Traditional treatments for PCOS involve weight loss exercise, hormonal therapy and uses of complementary alternative medicines. Therapies such as acupuncture, herbal medicine, *Yoga* and meditations alleviate PCOS symptoms. Exercise and diet are important aspects of managing PCOS. These practices can improve insulin sensitivity, suppress inflammation and stabilize blood sugar levels, etc. Dietary supplements such as vitamin D, antioxidants and omega-3 fatty acids, etc. help to enhance ovulatory function. Consumption of diet rich in Vitamin C and β -carotene could reduce the risk of PCOS. Psychological stress and environmental factors rising

prevalence of PCOS, thus avoidance of such factors can also help to prevent consequences of PCOS. Medical science also suggested various types of medicines and

approaches for managing hormonal imbalances and PCOS as depicted in **Figure 1.** (4-6)

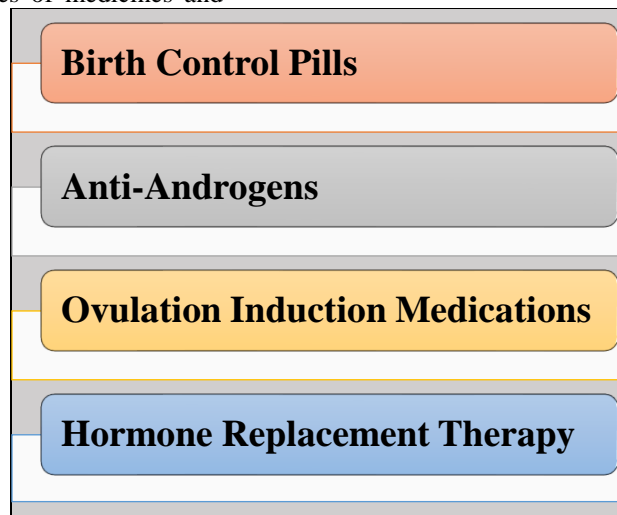


Figure 1. Types of medications suggested for PCOS and Hormonal Imbalances

2. Role of Lifestyle Interventions:

Aerobic exercise includes regular, rhythmic exercise helps in controlling the symptoms of PCOS, enhancing insulin sensitivity, hormone balance and cardiovascular function, etc. Running, swimming and cycling stabilizes menstrual cycles by lowering insulin and enhance ovarian function. Intermittent aerobic training, continuous aerobic training and resistance training, etc. are considered useful for strengthening hormonal health. Resistance training along with aerobic exercise reduces symptoms of PCOS. Physical exercise improves reproductive function, maintain regularity of menstrual cycles and control hormonal balance, etc.

Behavioral and educational intervention are usually associated with mental health issues like anxiety, depression, low self-esteem and stress that directly affect hormonal health leading to the condition like PCOS. The behavioral and educational intervention for PCOS may include awareness programme and educational seminar on hormonal and reproductive health. Methods such as relaxation therapy and cognitive therapy also reduce stress and other symptoms of PCOS. (6-8)

3. Dietary Modifications:

Vitamin A and its metabolites possess antioxidant properties, facilitate steroid metabolism, induce oocyte maturation and inhibit cell apoptosis. It is evident that diet rich in Vitamin A correct hormonal imbalance and metabolic derangement. Vitamin B Complex are considered important to maintaining normal levels of homocysteine, which tends to be raised in PCOS and linked to reproductive and cardiovascular complications. Inositol, an aqueous B vitamin, is important in PCOS treatment. Uses of inositol in addition to oral contraceptives increase endocrine and metabolic function by lowering insulin resistance and correcting hormonal balance. Dietary and herbal therapy enhances insulin sensitivity, correct ovarian dysfunction and facilitates normal follicular development. (3, 5-7)

4. Contemporary Medicine and Other Approaches:

The medical science suggested various types of medicines and approaches for managing hormonal imbalances and PCOS as depicted in **Table 1.** (7-10)

Table 1. Approaches to manage PCOS

Medication Type	Advantages/Benefits
Birth Control Pills (Oral Contraceptives)	<ul style="list-style-type: none"> ✓ Regulates menstrual cycles ✓ Lowers androgen levels ✓ Reduces hirsutism and acne ✓ Prevents endometrial cancer
Anti-Diabetic Drugs	<ul style="list-style-type: none"> ✓ Improves insulin sensitivity ✓ Lowers blood sugar levels ✓ May promote weight loss ✓ Can enhance fertility
Anti-Androgens	<ul style="list-style-type: none"> ✓ Decreases hirsutism ✓ Improves acne ✓ May improve lipid profiles
Ovulation Induction Medications	<ul style="list-style-type: none"> ✓ Helps women ovulate and increase chances of pregnancy.

5. Conclusion

Lifestyle changes, such as regular exercise, diet and behavioral therapy, are important in the management of

PCOS through enhancement of hormonal, reproductive, metabolic and psychological well-being. A balanced diet with high fiber, antioxidant, and anti-inflammatory

content, and organized exercise regimens such as aerobic and resistance training, increases insulin sensitivity, facilitates weight control and stabilizes menstrual cycles. Behavioral therapies, such as stress management, education and cognitive therapy also enhance mental well-being which is very important for hormonal regulations. Further, complementary and alternative therapies like acupuncture, use of dietary supplements (inositol, vitamins) and herbal preparations are promising interventions in the management of insulin resistance, hormonal imbalance, and oxidative stress. Controlling these factors helps to suppress symptoms of PCOS and maintain hormonal balances. Oral contraceptives, such as birth control pills, manage hirsutism and acne, lower testosterone levels, regulate menstrual cycles, and lower the risk of endometrial cancer. Anti-diabetic drugs lower blood glucose, encourages weight control, boost insulin sensitivity, and may even increase fertility. Anti-androgens can improve acne, lessen hirsutism, and potentially improve lipid profiles. These all health benefits of medicines provide symptomatic and pathological relief in hormonal disorders and PCOS.

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Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

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