

Role of Lifestyle Modifications in Management of Polycystic Ovary Syndrome

Dr. Atul Gopal Agrawal¹, Dr. Kolan Ashwitha², Dr. Gantla Akhil³, Ritul Mondal⁴, Dr. Ankita Agrawal⁵

¹ Professor and Head, Department of Community Medicine, Prathima Institute of Medical Sciences, Karimnagar

² Final Year Obstetrics & Gynecology Post Graduate Student, Prathima Institute of Medical Sciences, Karimnagar³ Second Year Community Medicine Post Graduate Student, Prathima Institute of Medical Sciences, Karimnagar

⁴ MBBS Final Year Student, Prathima Institute of Medical Sciences, Karimnagar

⁵ Physiotherapist, Prathima Institute of Medical Sciences, Karimnagar

ABSTRACT

INTRODUCTION: Polycystic ovary syndrome (PCOS) is the most common cause of anovulatory infertility and endocrine disorders among women of reproductive age. It is characterised by various metabolic and reproductive dysfunctions.

OBJECTIVE: To study the role of lifestyle modifications in the management of polycystic ovarysyndrome.

METHODOLOGY: The study was done enrolling 50 women of age 20-30 years with PCOS selected by Simple Random sampling who received lifestyle modifications broadly comprising modifications of diet and/or physical activity. The study was conducted at RHTC, Vutoor.

RESULTS: In this study out of 50, 38 patients showed overall improvement with the advised lifestyle modifications. 56% of the patients achieved weight loss with the help of low-calorie diet and regular exercise. 18% of the patients showed psychological improvement with the help of various mood therapies. 16% of the patients have shown reduction in the symptoms of PCOS like acne and irregular menstrual cycle.

CONCLUSION: Due to sedentary lifestyle and stress incidence of metabolic disorders like PCOS are increasing tremendously day by day. Early diagnosis and treatment including lifestyle modifications may reduce the risk of long term complications such as metabolic disorders, obesity, diabetes, coronary diseases and malignancies such as breast and endometrial cancer.

KEYWORDS – PCOS, Lifestyle Modification, Obesity, Exercise, Diet.

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I. INTRODUCTION

Polycystic ovary syndrome (PCOS) is a common endocrine and metabolic disorder of reproductive-age females¹. It has an effect on approximately 10% of women of child bearing age². PCOS is a prevalent disorder with classic features of anovulatory infertility, menstrual dysfunction, and Hirsutism³. Other important manifestations include metabolic abnormalities, including insulin resistance and dyslipidemia, low-grade inflammation, an increased risk of type 2 diabetes, and cardio metabolic risk particularly in the presence of obesity⁴. Rotterdam criteria – It is an internationally recognised criteria for recognition of PCOS which requires two of the three following criteria- 1) Raised Androgens 2) Ovulatory dysfunction 3) Polycystic Ovarian morphology in radiological investigation.

The diagnosis and management of PCOS is a challenging endeavor because it is a mysterious condition with major symptoms that vary with age, and the treatment should be tailored to meet the specific requirements of each patient⁵.

Although the etiology of PCOS is still unclear, it certainly is a multifactorial disorder, and it appears to be associated with biochemical abnormalities and pro-inflammatory metabolic imbalance. Recent studies have demonstrated that obesity and PCOS are interrelated; obesity increases the prevalence of PCOS and PCOS results in weight gain and obesity⁶. Recently, lifestyle modification is widely considered to be the cornerstone of many endocrine and metabolic disorders⁷. An increasing number of studies investigated the effectiveness and

the frequency of lifestyle modification in the management of PCOS treatment⁸. Insulin resistance, hyperandrogenism, and the severity of PCOS can be improved through lifestyle modification, such as dietary modifications, physical exercises, or behavioural changes and medications such as Metformin . Weight loss has positive effects on the clinical improvement in menstrual function, fertility, pregnancy outcomes, and endocrine parameters⁶. Prevalence of PCOS is 4.3% among women with BMI less than or equal to 25kg/m² & 14% among women with BMI 30kg/m².

Mechanism of lifestyle modification in PCOS

Lifestyle modifications (including diet, exercise, sleep, and so on) plays a vital role in the development of PCOS by regulating insulin sensitivity and keeping the weight balanced as well as governing normal androgen production. It was reported that lifestyle changes also appear to influence the restoration of ovulation and regular menstrual cycles and increased the pregnancy rates in overweight or obese anovulatory patients with PCOS. It is widely acknowledged that obesity is a vital mediator in the development of PCOS. The level of sex hormone-binding globulin is decreased in obese females⁹, resulting in elevated androgen levels in the circulation and then in the target tissue, which disrupts normal ovulatory function¹⁰. Additionally, obesity is associated with an elevated risk of metabolic syndrome, diabetes mellitus (Type 2), and insulin resistance in females.

OBJECTIVE:

To study the role of lifestyle modifications in the management of polycystic ovary syndrome.

II. METHODOLOGY:

STUDY DESIGN:

The study was done enrolling 50 women of age 20-30 years with PCOS who received lifestyle modifications broadly comprising modifications of diet and/or physical activity. The study was conducted at RHTC ,Vutoor.

STUDY POPULATION:

50 women of age 20-30 years with PCOS.

INCLUSION CRITERIA :

Women of age 20-30 years with PCOS.

EXCLUSION CRITERIA:

Women below 20 years and above 30 years of age and those who are not willing to participate in the study.

DURATION OF STUDY:

The study was conducted for a period of 4 months from 1st September 2022 to 31st December 2022

SAMPLING METHOD:

Simple Random Sampling

DIET MODIFICATIONS

Research has found that what people eat has a significant effect on PCOS. It is recommended to reduce the calorie intake and induce weight loss among PCOS women with obesity. The body digests foods with a low Glycemic Index (GI) more slowly, that means they do not cause insulin levels to rise as much or as quickly as other foods, such as carbohydrates. Foods low in GI diet include whole grains, legumes, nuts, seeds, fruits, starchy vegetables and other unprocessed, low carbohydrate foods. Small frequent meals at regular intervals, Carbohydrates distributed equally throughout the day can be helpful. Anti-inflammatory foods such as berries, fatty fish, leafy greens and olive oil may reduce inflammation related symptoms such as fatigue. A DASH (Dietary Approaches to Stop Hypertension) diet helps to reduce the risk of heart diseases. It may also help to manage PCOS symptoms. A DASH diet is rich in fish, poultry, fruits, vegetables, whole grains and low-fat dairy products. The diet discourages foods that are high in saturated fat and sugar¹¹. Diet rich in dietary fibre will help to combat Insulin Resistance.

WEIGHT MODIFICATIONS

It is widely accepted that obesity would increase insulin resistance and Hyperandrogenism. It was reported that just a minor weight loss of 5–10% could play a role in significantly alleviating reproductive disorders¹², metabolic dysfunction, and even the psychological symptoms of PCOS patients¹³. Thus, weight modification is recommended as a first step in the management in PCOS patients who are overweight or obese¹⁴. It can be achieved by both calorie management & exercise together. If the PCOS patient is disturbed by infertility, it is recommended that women with PCOS and obesity should delay therapy against infertility and achieve the weight modifications first because obesity is linked to a higher risk of increased rates of miscarriage and preeclampsia in perinatal PCOS women. Thus, it is recommended that females with PCOS pursue weight

modifications and prevent excessive weight gain by weight monitoring and maintaining appropriate BMI and waist circumference¹⁵.

EXERCISE MODIFICATIONS

As increasing studies focus on the roles of physical activities in human health, evidence showed that in the management of PCOS, exercise activities would help female patients gain benefits. PCOS patients are found to be more likely to stay sedentary rather than perform vigorous exercises. Moderate aerobic exercise could also improve the insulin sensitivity of PCOS in the short term¹⁵. Aerobic exercises include brisk walking (for 30 min, 5 days in a week), swimming, cycling. These aerobic exercises increases body sensitivity to insulin combating the insulin resistance & inturn cardio vascular disease.

MOOD MODIFICATIONS

An increasing volume of evidence shows that both adolescent and adult females with PCOS are disturbed by mood swings, including depression and anxiety. PCOS is associated with hormonal fluctuation which results in emotional instability . It was reported that females with PCOS underwent a higher risk of depression, anxiety, and perceived stress when compared with women without PCOS. Since PCOS is linked to an increased risk of depression, anxiety, and some other mood disorders, screening and effective mood modifications for these disorders might be warranted¹⁵. Patients were advised to create a schedule for a day to day activity & follow their hobbies, talk with their families, listen good music, etc.

SLEEP MODIFICATIONS

As per the in-depth investigation and data analysis, a large proportion of psychological disorders with PCOS are sleep disorders. Since sleep disorders impact the development of PCOS, management relative to sleep modifications is considered an integral part of lifestyle modifications on females with PCOS. Therefore, it is plausible that sleep modifications are of great significance among PCOS patients. Some studies reported that women are more likely to be disturbed by type 2 diabetes if the length of sleep is not more than 5 hours per night when compared with women whose length of sleep ranges from 7 to 8 hours per night. Ensuring adequate sleep with high quality would lead to a decreased risk of disturbance not only in obesity and insulin resistance but also in cardiovascular risk¹⁵.

III. RESULTS:

In this study out of 50, 38 patients showed overall improvement with the advised lifestyle modifications.56 % of the patients achieved weight loss with the help of low-calorie diet and regular exercise. 18 % of the patients showed psychological improvement with the help of various mood therapies. 16% of the patients have shown reduction in the symptoms of PCOS like acne and irregular menstrual cycle.

EFFECT OF LIFESTYLE MODIFICATIONS	NUMBER OF WOMEN WHO SHOWED IMPROVEMENT	TOTAL NUMBER OF WOMEN
WEIGHT REDUCTION	28	50
MOOD ELEVATION(PSYCHOLOGICAL IMPROVEMENT)	9	50
REDUCTION IN ACNE AND IRREGULAR MENSTRUAL CYCLE	8	50

IV. DISCUSSION

PCOS is a endocrine and metabolic disorder of reproductive age group females. Since increasing evidence indicates that PCOS is frequently linked to abdominal adiposity, insulin resistance, obesity, metabolic disorders, and cardiovascular risk factors and becomes a complex disorder with environmental effects, such as diet and other lifestyle factors, lifestyle modification is therefore regarded as the first line of management for PCOS patients.

Healthy lifestyle including nutritious and balanced diet and exercise are found effective in the management of polycystic ovary syndrome. Weight loss programs are effective and beneficial in terms of alleviation of symptoms. PCOS women who are overweight or obese not only exposed to metabolic and cardiovascular risk but also suffer from potential mental problems and adverse obstetric and perinatal outcomes, such as gestational diabetes and preterm birth.

I have studied about the lifestyle modifications in PCOS, including diet modifications, exercise modifications, sleep modifications, mood modifications, and weight modifications. While physical modification, appropriate dietary modification, and maintaining healthy sleep modification and mood modification are recommended for the management of various PCOS conditions, more perspective studies are needed on the

effects of lifestyle modifications on PCOS to figure out and develop accurate and individualized guidelines.

V. CONCLUSION & RECOMMENDATIONS:

Due to sedentary lifestyle and stress incidence of metabolic disorders like PCOS are increasing tremendously day by day. Early diagnosis and treatment including lifestyle modifications may reduce the risk of long term complications such as metabolic disorders, obesity, diabetes, coronary diseases and malignancies such as breast and endometrial cancer. Dietary modifications, appropriate healthy sleep, mood modifications, exercise modifications, physical activity, weight modifications, having regular health checkups and keeping stress in check by doing meditation and yoga regularly are strongly recommended.

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