

### **Original Research Paper**

Gynecology

## A Study on Role of weight Reduction in Obese PCOS Patients

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**Introduction-** Polycystic Ovarian Syndrome is the most common endocrine disorder of reproductive age.It has an unknown etiology and is related to overproduction of androgens and insulin resistance. **Material & Methods-** This study was conducted in Sir Sunderlal hospital Banaras Hindu University over the period of 6 months.Total 100 PCOS patients were selected for study.Lifestyle modification, Yoga &Exercise was advised and changes noted after study. **Results-** Out of 100 PCOS cases 65 patients were obese having high BMI.60% patients show menstrual cycle improvement. LH/FSH ratio improved in 35% cases. And improved ovulatory cycles after physiotherapy in 50% cases.**Conclusion-**We can see from this study that just lifestyle modification make a huge change in pathophysiology and symptoms of pcos. So our first line therapy should be weight reduction and lifestyle modification rather than prescribing medicines.

#### **KEYWORDS**

PCOS, obesity, lifestyle modification

#### INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) is recognized as the most common endocrine disorder of reproductive aged women.It has an unknown etiology and is recognized as a heterogenous disorder that results in overproduction of androgens, primarily from the ovary, and is associated with insulin resistance (IR). Prevalence of PCOS in India is 3-20%, with 9-36% in adolescent only. The Rotterdam 2003 criteria defines PCOS as incidence of any two of the three criteria,(i) oligoovulation and/ or anovulation,(ii) excess androgen activity and (iii)polycystic ovaries(PCO).

Obesity is a common finding in women with PCOS and between 40–80% of women with this conditions are reported to be overweight or obese. Obesity plays a significant role in determining the severity of clinical manifestations and metabolic disorder. The presence of obesity is associated with a number of disturbances in hormones and metabolism. The hormone leptin (produced in and secreted by adipose tissue) affects the neuroendocrine reproductive axis, both centrally and peripherally. These alterations play a role in the genesis of obesity related ovulatory dysfunction. If waist circumference and waist-to-hip ratio of women with PCOS increase, reproductive function and metabolic state of a woman is altered more than in cases when there are no changes in these parameters.

PCOS also promotes psychological effect including depression, poor body image and self-esteem and reduced health related quality of life. Hence it is important in identifying effective therapies for the prevention and treatment of the syndrome to reduce its health and economic burdens.

Lifestyle modification have been proposed to improve not only metabolic and reproductive manifestation of PCOS but also having benefits like improvements in mood, self-esteem, anxiety, depression and psychological well-being. Lifestyle modification is the preferred first-line treatment for PCOS. Lifestyle modification, focus on dietary modification and increased physical activity and behavioural therapy. Physical exercises have been widely known to induce oxidative metabolism in tissues and the oxidative metabolism of the ovary is a stimulant for follicular development.

#### MATERIALS AND METHODS

This study was conducted in university health care complex, Sir Sunderlal hospital Banaras Hindu University over the period of 6 months. Total 100 PCOS patients were selected for study. Out of 100 PCOS patients 65 patients were obese.Detailed history was taken regarding age, weight, height, BMI and other symptoms before and after study. Consent was taken after counselling of patients and following advised given. Pelvic floor exercises, Aerobic exercises(brisk walking, rinning, Jogging, cycling, swimming), Deep breathing, meditation for concentration and dhyana were advised. Lifestyle modification like routine time adjustment like early get up before sunrise and timed food intake were advised. Some special food substance like methi and linseed included in their diet. By improving emotional behaviour they were encouraged to take tasty food not only to fill the stomach but feeling satiety with satisfaction.

#### RESULTS

100 patients were covered under study. 65 cases were overweight or obese.

In table 1 of our study demographic data with BMI

Age & Parameters	Overweight/ obese(n=65)	Normal range(n=35)	P value
Age(years)	28.31±4.49	24.85±3.56	<0.001
Weight(kgs)	67.66±10.79	59.31±5.4	<0.001
Height(m)	1.54±0.12	1.62±0.22	<0.001
BMI(kg/m <sup>2</sup> )	28.19±4.30	22.61±4.31	<0.001
Waist-Hip ratio	0.86±0.05	0.82±0.05	<0.001

Correlation of age with PCOS symptoms. This is the problem of reproductive age group and study is conducted in an university so maximum number of cases belong to age group 20-33 years. Overweight and obese patients having high waisthip ratio and BMI.

Symptoms/Bio- chemical Markers	Before Study	After study
Menstrual History	Oligomenorrhea/ Hypomenorrhea	Regular cycles in 60% cases with better flow during menses.
Hyperandrogenic symptoms	Acne,hirsutism	Acne improved in 35% cases.
Ovulatory dysfunction	Anovulation diag- nosed by usg	Ovulation improved in 50% cases.
LH/FSH Ratio	>1 in 70% cases	>1 in 30% cases.

Physiotherapy and weight loss via energy restriction reinforce in the reductions in abdominal fat, blood glucose, blood lipids, and insulin resistance, improvements in menstrual cyclicity, ovulation and fertility, reductions in testosterone levels and free androgen index.

# Table 3 of study shows advice given by physiotherapist to PCOS patients.

Life modification & Exercise	Advice	
Diet	Calorie restricted diet 5-6 small meals to spread the calories through out the day Sufficient intake of calcium and vit D	
Exercise	Aerobic exercises (brisk walking, rinning, Jogging, cycling, swimming) 150 minutes/week moderate exercise	
Yoga & Meditation	Deep breathing Pranayam Kapalabhati Pelvic floor exercise	

Kapalabhati pranayama tones the abdominal muscles and reduces abdominal fat in obese individuals.

#### DISCUSSION

Our study shows correlation of age and BMI with PCOS in table 1. Maximum patients of age group 20-33 years.High BMI,Waist-hip ratio is also contributing menstrual irregularities and other PCOS symptoms. Kavita Mandrelle et al <sup>1</sup> has shown correlation of demographic data with pcos symptoms.

Table 2 of our study is about symptoms before and after study.Asa Nybacka et al<sup>2</sup> in their study have shown the effect of exercise on pcos., dietary management and exercise alone or in combination is effective in reproductive function improvement in obese patients.

Carlo vigorita et al<sup>3</sup> has shown effect of exercise on cardiopulmonary function of pcos patients . PCOS women represent an intriguing biological model illustrating the relationship between hormonal profile and cardiovascular disease. That supports role of physiotherapy on pcos.

Mohammad Reza Kordi et al<sup>4</sup> has studied role of aerobic exercise on pcos symptoms. And concluded that 3 months of aerobic exercise reduces ovarian volume in pcos paients.

Volkan Turan, Ebru kaya Matlu<sup>5</sup> had studied benefit of exercise in non-obese pcos patients and concluded that Shortterm regular exercise programs can lead to improvements in anthropometric, cardiovascular, and metabolic parameters of non-overweight women with polycystic ovary syndrome.

#### CONCLUSION:-

PCOS is an important emergent public health problem in India. Efforts need to intensify in creating awareness on the general public about PCOS and its relation with obesity and sedentary life style. We can see from this study that just lifestyle modification make a huge change in pathophysiology and symptoms of pcos. So our first line therapy should be weight reduction and lifestyle modification rather than prescribing medicines.

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