ECRONICON OPEN ACCESS

EC GYNAECOLOGY
Mini Review

PCOS, Infertility and Lifestyle Modification

Mili Sarkar[123]*

[1]*Director, India IVF, Delhi, India*

[2]*OCM, Ghalib University, Kabul, Afghanistan*

[3]*Organising Committee Member of PCOS 2018, Abu Dhabi, United Arab Emirates*

***Corresponding Author:** Mili Sarkar, Director, India IVF, Delhi, India and OCM, Ghalib University, Kabul, Afghanistan and Organising Committee Member of PCOS 2018, Abu Dhabi, United Arab Emirates.

Received: November 02, 2018; **Published:** January 17, 2019

Abstract

Polycystic ovary syndrome (PCOS) is characterized by the presence of polycystic ovaries, menstrual dysfunction, infertility and biochemical and clinical hyperandrogenism and is associated with an increased prevalence of cardiometabolic risk factors and psychological problems. Reproductive failures in women with Polycistronic ovary syndrome (PCOS) are common due to endocrinal disorders. Despite the well-established benefits of exercise training and it recommendation as a cornerstone of PCOS management, few well-controlled randomized studies have been conducted evaluating the benefits of exercise training and specific exercise regimes in women with PCOS. From the limited studies there appears to be a beneficial effect of exercise either alone or in combination with energy restriction has shown to improve fitness, cardiovascular, hormonal, reproductive and psychological outcomes. While the addition of regular exercise to energy restriction appears to only have additional benefits for improving body composition, these greater improvements are likely to have long-term implications. While lifestyle modification including regular exercise appears to be an effective strategy for the management of overweight PCOS women, methodological limitations in the studies limits the generalisability of the 40 findings. Future research with rigorous study designs is needed to determine specific exercise guidelines that will provide the greatest benefit for these women.

Keywords: *Polycystic ovary syndrome (PCOS); Infertility*

Introduction

Polycystic Ovarian Syndrome (PCOS) is com Polycystic ovary syndrome (PCOS) affects 20% of reproductive-aged women and it is associated with reproductive, metabolic and psychological dysfunction mon condition in women that destructs hormones and causes physical and psychological damage. PCOS is a complex hormonal disturbance that affects entire body and has numerous implications in general health. Women with this syndrome have an increased risk of coronary disease, diabetes and endometrial cancer in any time of the life period.

However, the hormonal imbalance appears in the reproductive age group and it leads to infertility. Exploring affordable PCOS treatments in infertile population for hormone balance also improves the conceive rate. There are several medical treatment options for the numerous diverse abnormalities common in PCOS, with some of those (e.g. Metformin) capable of ameliorating more than one abnormality. Drugs like oral contraceptive pill and clomiphene citrate (CC) are well known drugs to treat PCOS, targeting the metabolic activity. Aromatase inhibitors, statins, and anti-inflammatory drugs show some promise as potential treatment options, but much more clinical research is needed in order to demonstrate efficacy and benefit over cost.

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder in women of reproductive age, presenting in ~7% of this population PCOS is characterized by the presence of polycystic ovaries, menstrual dysfunction, infertility, and biochemical (elevated androgens) and clinical (hirsutism and acne) hyperandrogenism. PCOS increases the risk of fetal deformity, miscarriages and complications during pregnancy including a higher risk of premature deliveries and neonatal complications. The pathogenesis of PCOS is complex and not entirely understood, but obesity and in particular abdominal obesity are common features that appear to play a central role in the syndrome's aetiology by contributing to the development of insulin resistance PCOS is also a major unrecognized cardiovascular disease risk factor because of the increased prevalence of subclinical atherosclerosis, type 2 diabetes, dyslipidemia and impaired glucose tolerance but whether PCOS women have an increased incidence of CVD requires confirmation. PCOS also promotes psychological morbidity including depression, poor body image and self-esteem, and reduced health-related quality of life.

Obesity and IR are closely linked to the development of PCOS and its clinical features, particularly menstrual irregularities and increased serum androgens. IR and compensatory hyperinsulinemia act on ovarian tissue, disturbing ovarian hormone regulation and the menstrual cycle, resulting in infertility and contribute directly to hyperandrogenemia by stimulating thecal cell androgen production Due to the potential significance of IR in the manifestation of PCOS, since obesity promotes IR. These clinical features include reproductive manifestations such as reduced frequency of ovulation and irregular menstrual cycles, reduced fertility, polycystic ovaries on ultrasound, and high male hormones such as testosterone which can cause excess facial or body hair growth and acne. PCOS is also associated with metabolic features and diabetes and cardiovascular disease risk factors including high levels of insulin or insulin resistance and abnormal cholesterol levels. PCOS affects quality of life and can lead depression, mood swing either due to the features of PCOS or due to the diagnosis of a chronic disease. Lifestyle modification focusing on dietary weight loss and increased physical activity is the preferred first-line treatment for PCOS.

Background

A healthy lifestyle consists of a healthy and balance diet, regular exercise and achieving with maintaining a healthy weight. Obesity worsens the presentation of PCOS and weight management (weight loss, maintenance or prevention of excess weight gain) is proposed as an initial treatment strategy, best achieved through lifestyle changes incorporating diet, exercise and behavioural interventions. This review identified six studies with participants that assessed the effects of a healthy lifestyle in women with PCOS. In this review, there were no studies reporting on fertility outcomes such as pregnancy, live birth and miscarriage. While some studies reported on menstrual regularity and ovulation, the findings were reported in a variety of ways and it was not possible to estimate the overall effects of lifestyle on these outcomes. Current evidence suggests that following a healthy lifestyle reduces body weight and abdominal fat, reduces testosterone and improves both unwanted hair growth, improves insulin resistance. There was no evidence that a healthy lifestyle improved cholesterol or glucose levels in women with PCOS.

Effect of exercise on reproductive function

Several studies have examined the health effects of exercise as part of general lifestyle modification programs however few studies have investigated specific effects of exercise training in PCOS on reproductive outcomes. A preliminary uncontrolled study by reported that 6 women became pregnant during the 14-week study or within 3 months of completion, which was 46% of women desiring pregnancy. There were no observed differences in body composition changes or eating behaviors between pregnancy occurrence, no other measures were showed in previously anovulatory women with PCOS that a 3-month aerobic training program restored normal menstrual cyclicity in 60% of women. Similarly, reported that 24 weeks of dieting or aerobic exercise improved menstrual cyclicity and ovulation in overweight women with PCOS, with no observed differences in quantity or cycle length between treatments.

However, menses frequency and ovulation rates were higher in the exercising group with a trend for higher pregnancy rates and greater improvements in hormonal profile. Body weight, BMI, fasting insulin, IR, testosterone, SHBG and FAI improved in those that ovulated, while no changes were observed in any parameters in women who remained anovulatory. The investigators hypothesized that improved insulin sensitivity was the primary factor involved in ovarian function restoration given that the exercise group, which experienced greater improvements in insulin sensitivity, experienced the greatest ovulation improvements. More recently, we reported that 49% of women with PCOS improved ovulation or menstrual cyclicity following 20-weeks of an energy restricted diet alone or combined with aerobic exercise or aerobic-resistance exercise, with no difference between treatments. Importantly, while there were no differences between treatments in the number of menstrual cycles during the 20 week intervention period, women in the combined diet and exercise groups experienced more ovulatory cycles than the diet only group. Overall, exercise studies have shown improvements in menstrual cyclicity or ovulation in ~50% of PCOS women; comparable to that observed with other weight loss interventions. Improvements in insulin and hormonal profile appear to play important mediating roles for improving reproductive function, although this is not exclusively the case. Further research is needed to explore the role of exercise and weight loss in improving reproductive function. Future research is also needed to investigate the effects of exercise during pregnancy as it may provide benefits such as limiting complications and preventing excess weight gain.

Exercise and psychological well-being

In PCOS Currently, only two studies have investigated the effect of exercise on psychological outcomes in PCOS. A small, nonrandomized study in overweight and obese women with PCOS reported that a 6-month self-directed brisk walking program improved body image distress scores. Recently, observed similar improvements In life style depression in overweight women with PCOS after 20-weeks following an energy-restricted diet with and without exercise (aerobic only or combined aerobic, resistance exercise). Separate studies also show improvements in self-esteem, depression and anxiety following lifestyle modification programs aimed at improving fertility in obese infertile women that include information about increasing exercise. While these studies show promising results, further research is needed to evaluate the effects of exercise on numerous psychological outcomes in overweight women with PCOS [1-6].

Conclusions

Women with PCOS recognize the importance of diet, but few received dietary advice. The dietary information women with PCOS received was often from an unregulated source. A consensus statement of evidence based dietary advice for women with PCOS.

The multifaceted health implications of PCOS and its potential to increase in prevalence in the future have underscored the importance of identifying effective therapies for prevention and treatment of PCOS and its associated consequences. The women need to take precautions in their lifestyle adaption. Diet alone cannot be effective without exercise PCOS women with Infertility or Obesity need to go set like exercise along hypo-diet in their life for reproductive improvement and good health.

Reproductive failures in women with Polycistronic ovary syndrome (PCOS) are common due to endocrinal disorders. The clinical expression of PCOS varies. They are oligo-ovulation, anovulation, and hyperandro-genism with polycystic ovaries. The conventional medicines (e.g. Metformin) are usually not recommendable for routine use for improvement in reproductive health due to side effect.

First line treatment of lifestyle management, physical exercise with diet is recommended in current treatment. Lifestyle modification, for improvement of reproductive hormones, here we reviewed by a study of meta-analysis, before and after hormones level changes by lifestyle modification with exercise, in infertile PCOS women. It is well documented that modest weight loss via energy restriction improves an array of deranged factors in PCOS women. However, despite the well-established benefits of exercise training for the general population.

Based on the limited data available, exercise appears to have beneficial effects, with reports of improvements in fitness, body composition, fasting insulin, IR, menstrual cyclicity, ovulation, self-esteem, quality of life scores and depression. However, the majority of studies are limited by small samples sizes, lack appropriate control groups and assessments of habitual physical activity, non-randomization to treatments or short study durations that limit the generalisability of the findings, making it difficult to draw definitive

conclusions. Future research should endeavor to establish the necessary exercise dose, type, intensity and frequency required for treating and managing PCOS, with specific consideration of differing phenotypes. Additional research is also needed to further examine the health benefits of undertaking exercise in conjunction with energy restricted weight loss for women with PCOS.

Bibliography

1. Acien P., *et al*. "Insulin, androgens, obesity in women with without polycystic ovary syndrome: a heterogeneous group of disorders". *Fertility and Sterility* 72.1 (1999): 32-40.

2. Altuntas Y., *et al*. "Reactive hypoglycemia in lean young women with PCOS and correlations with insulin sensitivity with beta cell function". *European Journal of Obstetrics Gynecology and Reproductive Biology* 119.2 (2005): 198-205.

3. Andersen RE., *et al*. "Effects of lifestyle activity vs structured aerobic exercise in obese women: a randomized trial". *Journal of the American Medical Association* 281.4 (1999): 335-340.

4. Anderson JW., *et al*. "Long-term weight-loss maintenance: a meta-analysis of US studies". *American Journal of Clinical Nutrition* 74.5 (2001): 579-584.

5. Barbieri RL., *et al*. "Insulin stimulates androgen accumulation in incubations of ovarian stroma obtained from women with hyperandrogenism". *Journal of Clinical Endocrinology and Metabolism* 62.5 (1986): 904-910.

6. Clark AM., *et al*. "Weight loss in obese infertile women results in improvement in reproductive outcome for all forms of fertility treatment". *Human Reproduction* 13.6 (1998): 1502-1505.

Volume 8 Issue 2 February 2019