Modification of Lifestyle and Weight Loss in Curing PCOS

ABSTRACT

(PCOS) is hormonal imbalance endocrine condition whichharms femalesaged 17-40 years of age. Women suffering from PCOS are related to obesity in the abdomen and insulin resistance.Patients dodoes not have to be obese all the time.Womenwith PCOS suffer from fertility issues, hyperandrogenaemia, heavy menstrual flow, and anovulation, which is a sign of PCOS.It leads to insulin dysfunction, low metabolism, and chronic low-grade swelling. As per the Indian Council Of medical research (ICMR) data, 12.2% of adolescents in India are suffering from PCOS.Women with PCOS also suffer from anxiety, depression, lower self-esteem, and body dissatisfaction, leading to poor lifestyles. A systemic approach to a balanced diet with exercise helps in improving endocrine disorder, reproductive problems,and cardiovasculardisease even without shedding much weight. Fat intake should be limited to < orapproximately 30% of total calorie intake with less hydrogenated fat. Excessive carbohydrate intake having a low glycaemic index gives rise to dyslipidemia andhence leads to an increase in overall body weight with an increase in appetite,which provokes hunger and desire for carbohydrates.Energy consumption should be spread out among numerous meals each day, reducing mid-day beverages and snacks. It is advised to use drugs to regulate insulin sensitivity and elevate loss in body weightwhich can benefit only when used early with combined exercise and diet.

Keywords: Endocrine, Disorder, Hyperandrogenaemia, Exercise, Diet, Weight gain, Dyslipidaemia, insulin dysfunction.

INTRODUCTION:

PCOS is one of the most typical reasons for anovulatory infertility and affects 5% of children. PCOSis a hormonal imbalance endocrine problem seen in nearly15% of reproductive-agefemales. Unless appropriately consulted, it can lead to severe metabolic problems, including a high possibility of diabetes, primarily type-2 and cardiovascular disease. toAhigh number of patients with PCOS are obese and suffer from insulin resistance.It is a complex disorder that is most typically detected due to the presence of a minimum of two of the three requirements: hyperandrogenism (biological/clinical), chronic anovulation,and ovaries having poly-cysts.Early detection of PCOS amongteenage group is specificallytoughbecause of developmental complicationsin this age group. Signs like pimples, irregular menses, and high insulin levels are usually in normal puberty. Teenagers suffering from this disorder are at a highchance of acquiring health complications later on in life, like diabetes, heart disease, and sterility.(1).

Adapting to proper diet, physical activity helps in reducing weight plays essential part in curing PCOS. (PCOS) is generallyhormonalproblem between thefemalechildbearinggroup in metro cities worldwide, which affect 10-15%of this population. This diseaseshows various symptoms, including irregular periods, excessive hair growth, and weight gain, which need not be present in any specific women. Patients suffering from this disease may possibly complain of irregular menses, heavy bleeding during menses, sterility, excessive growth of coarse facial and body hair, obesity, oily skin texture, excess sebum production, and acne.Effect of these signs on a patient'swell-beingcan be extremethatperhaps lead to mental anguish that can risk patient's womanly character. This syndrome can hurta person's physical and mental attribute which lead to abnormal relationship at home and socially at work .(2).This syndrome has a high chance of developing type 2 diabetes, which causes increased levels in the body because of the high concentration of non-functional insulin deposition. Teenage group having type 1 diabetes have a high chance of developing hyperandrogenism. Treatment which can help are lifestyle modification, diet and exercise. Most of the time metformin is prescribed to the patients having PCOS alone as well as with drugs having anti androgen effect.(1).Balanced diet along with exercise can be opted as non -medicated treatment for women having high insulin and testosterone level in the body.(3).This study was done to rule out if decreasing carbs and fat amount in diet can improve beta cell respectively, serum testosterone level as well as insulin susceptibility.(3).Weight management through calorie restriction showsa positive impact on both metabolic and hormonal regulation in PCOS. (4). It is estimated that approximately40-88% patients having PCOS are overweight and obese.(4).Women suffering from PCOS have high rate of reproductive failure due to insulin resistance.Modern studies on insulin action on a large scale population (10-25%) shows less insulin regulated glucose uptake which is defined as insulin resistance. But this data can vary. Upto50% obese and lean women having PCOS tends to get insulin resistance. Data for presence of dysfunctional insulin differ according to the acuity and precision of the test done along with heterogeneity of PCOS. Hormones like LH, FSH, LH/FSH ratio are markedly elevated in women having PCOS as compared to standard level. The reason for this is high frequency as well as amplitude of pulse.Increased LH level (above the 95th percentile of normal)is seen in ~60% of PCOS, while 95% women have high

LH/FSH ration excluding women who are recently ovulated. LH level is dependent with synchronicity to ovulation that will keep LH level under standard range. women having family history of insulin resistance and beta cell dysfunction are at higher risk (3-7 times) of acquiring type 2 diabetes and obesity. Past studies support the fact that there is higher risk of cardiovascular disk in PCOS women.Low-fibre, high-lipid diets have been identified as one of the nutritional factors that favour the establishment and progression of obesity in developed countries.(5).Women are at high risk of hyperlipidaemia , hypercholesterolemia, atherosclerosis along with coronary heart disease and insulin resistance due to PCOS and markers of peripheral artery disease. There is also high risk of stroke in PCOS patients, but still there need to be more evidence to prove increased coronary heart disease in middle aged women having PCOS history.Unopposed ESTROGEN subjection to endometrium along with anovulation can lead to endometrial cancer in women suffering from PCOS. But there is few study on this theory.(6).The risk factors in PCOS are type 2 diabetes, high blood pressure, coronary heart disease, endometrial cancer, dyslipidaemia and many more, hence PCOS can lead to many dangerous diseaseand disturb the quality of life. The number of women suffering from obesity is around 50-60 % in PCOS.

The exact cause of this disease is not known till now but hyperinsulinemia and insulin resistance are predominant reason for having PCOS. Around 80% , both obese and non-obese patients of PCOS are suffering from insulin resistance and hyperinsulinemia .In majority of case obesity plays crucial role in causing insulin resistance state. PCOS patients starts to gain weight rapidly before showing any other symptoms hence, it signifies that obesity may promote PCOS.Overweight women with PCOS are at higher risk of insulin resistance as compared to lean women with PCOS, although it is seen in both of the cases. By shedding weight PCOS patients observe lowering of fasting glucose and glucose stimulated insulin level. PCOS women suffering from acute insulin resistance and hyperinsulinemia show deposition of fat in abdominal area rather than peripheral body fat deposition.

Study approve weight reduction through low calorie intake and physical activity helps in betterment of medical condition of PCOS patients.PCOS patients who are obese suffering fromhyperandrogenism, anovulation can control their insulin sensitivity, androgen levels, and SHBG level, LH/FSH ratio through weight loss. Reducing weight in overweight patients of PCOS helps in balancing regular menstrual cycle and fertility issue.Low carb diet with less saturated carbohydrate intake is suggested for PCOS patients as it helps to produce 5%–10% of weight loss that leads to re-establish normal ovarian cycle and function. A study done in 2005 shows that taking low fat diet help to reduce hyperinsulinemia effect which boost metabolic function.(7). It is suggested to the patients to increase their physical activity by regular exercise to manage their metabolic function. But there is incomplete information regarding frequency,type and duration of physical activity. Adapting life style modification in a long run can improve clinical issues related with PCOS. (Menstrual irregularity, fertility.) patients should adapt to optimal diet which provide adequate nutrient and energy for proper growth and development as well as promote health and longevity and lowers risk of nutrition related chronic disease. Diet management helps in controlling weight, fertility issues and also

inhibit the risk of type 2 diabetes along with coronary heart disease in a long term but composition of optimal diet for PCOS patients is still in search.Although nutrition plays an important role in blood glucose and insulin regulation, there is a paucity of research on dietary treatment of PCOS, with most studies focusing on energy restriction rather than diet content by itself. It is advised for PCOS patients to take high fibre and low saturated fat diet mainly low glycaemic carbohydrate food .(8). PCOS alters both mental and physical quality of life in adolescent patients with PCOS.A higher risk of endometrial hyperplasia and cancer is linked to chronic anovulation. 51 Patients with PCOS who have not had menstrual bleeding for a year or more should seek an endometrial biopsy.According to several researchers, With the exception of bariatric surgery, most obesity treatments result in modest weight reduction and improvement in the PCOS profile, promoting weight loss in obese individuals remains one of the front-line therapy. When considering whether or not to do an endometrium biopsy, ultrasound is utilised to measure endometrial thickness. Endometrial proliferation can be slowed or stopped by using cyclic progestins. The latter approach, which also reduces ovarian androgen production, may be particularly beneficial in this setting.(7). Within the lean population, the presence of PCOS had an impact only on diastolic BP and HDL as compared to the controls.(9).Poor self-esteem, psychological anguish, and food disorders are more common among PCOS women. Low self-esteem and psychological distress are strongly linked, raising the likelihood of eating problems.(10).It's also linked to a weak response to infertility therapy and a higher risk of pregnancy difficulties in those who do get pregnant. Despite the fact that most obesity treatments, with the exception of bariatric surgery, only provide moderate weight loss and changes in the PCOS phenotype, encouraging weight loss in obese patients remains a front-line therapy. Infertility treatment response, as well as a higher chance of pregnancy difficulties in those who do conceive.(11).Despite the fact that most obesity treatments, with the exception of bariatric surgery, only provide moderate weight loss and changes in the PCOS phenotype, encouraging weight loss in obese patients remains a front-line therapy. (12). PCOS is often managed through lifestyle changes (exercise and food), with the goal of alleviating symptoms and lowering the risk of type 2 diabetes and cardiovascular disease.The purpose was to compare comparing the efficacy of exercise in the treatment of PCOS to standard care, (ii) diet by itself, (iii) exercise combined with diet, (iv) exercise combined with diet, as well as exercise linked with diet, to I control or standard care and (ii) diet in itself.(13). Obese women can lose weight by changing their lifestyles, which has been shown to boost their chances of pregnancy by restoring menstrual cyclicity and ovulation.(14). Although the exact origin of this condition is still not known, lifestyle componentswhich includes eating pattern take part as a crucial part in management along with cure, and lifestyle changes seem to be the most popular essential therapeutic treatments in the patients suffering from this disease.The strategy to diet therapy in such PCOS patients must be to achieve an objective such as improving insulin resistance, metabolic, and reproductive functions, which will be possible through the design of a low-calorie diet to achieve weight loss or maintenance of a healthy weight, limit the intake of simple sugars and refined carbohydrates and intake foods with a low sugar content, reduce concentrated and trans fats, and awareness to restore lack of vitamin b12, vitamin D, omega 3, chromium.Associated with a higher risk of overweight and obesity, as well as insulin resistance, a small weight loss of around 5% can help these women with issues including

insulin resistance, high levels of androgens, reproductive system dysfunctions, and fertility.(15). To establish the success of these techniques in modifying the natural history of reproductive and metabolic outcomes without causing undue harm, long-term follow-up is required.(16).Calorie restriction, regardless of body composition changes, may lower fat availability and enhance sensitivity.(17). Substantial variations in insulin sensitivity and ISI can be caused in a subset of women who have unimpressive weight loss but have metabolic alterations sufficient to alter reproductive function due to increased exercise and reasonable eating behaviours. (17). Endometrial cancer is approximately 2.8 times more likely foe patients who have (PCOS). Anovulation results in extended exposure of the endometrium to unopposed oestrogen, which increases the risk of cancer. Weight gain as a co-morbid hazard component for endometrial disease can be treated with a healthy lifestyle that includes calorie control and exercise.Ovarian cancer may be even more prevalent among women with PCOS.(18)

OBJECTIVE:

To judge how improving standard of living and changing diet and nutrition can help in preventing PCOS.

Low carbohydrate, fat and intake of protein and certain lifestyle adaptation in polycystic ovary syndrome**(4)**

To access if life style modification , adapting healthy diet , reducing overall calorie intake without affecting the nutritional value , increasing physical activity which can help in reducing weight can help in improving the condition of PCOS patients.**(19)**.

METHODOLOGY:

Various articles about diet and adapting healthy lifestyle modification in patients of poly cystic ovarian syndrome(PCOS) were referred during the review of this article from websites like - Pubmed.GOV and Googlescholar for the collection of database information about this topic.

RESULT:

It is seen that weight loss can decrease PCOS symptoms regardless of the method taken for reducing weight. It can be done in obese PCOS women by adapting methods which include reducing overall calorie intake without compromising on nutrition by -cutting sugar rich food, glycaemic carb rich food should be avoided,avoiding packaged and fried food, consumption of gluten free food, switching to high fibre food, eating healthy fats and protein rich food, increasing the intake of water, adapting to daily physical exercise of 30-45 minutes. overall body composition is improved along with hyperandrogenism that is high male hormone level in PCOS patients, serum insulin level is lowered, and reproductive abnormality and fertility issue is also cured by life style modification. **(20)**.Hormonal imbalance and reproductive abnormality can be improved by life style modification,

increasing physical activity which will help in weight loss and changing behavioural habits. Hence, it can be concluded that first line management for treating PCOS is life style modification and reducing weight. Weight loss should be a goal for all overweight PCOS women, regardless of diet composition, by reducing caloric consumption while maintaining adequate nutrient intake and making sensible food choices.**(21-23)**

CONCLUSION

For long term treatment of PCOS lifestyle modification take role and avoiding alcohol intake and smoking as well as reducing stress. (Norman et al., 2002).by cutting significant amount of carbohydrate from the diet fasting insulin level was decreased; hence patient should avoid diet containing high MUFA and adapt to low carb diet which will help in acute insulin response to glucose. But there is no significant report that will show a decrease in fasting glucose, serum insulin and level of reproductive hormone. But it is seen that the level of fasting and post meal insulin concentration decreases with the intake of low dietary carb, but after some time may improvise reproductive / endocrine hormone level.(Douglas et al., 2006).PCOS is a condition which is related to disturbance in hormone level due to decrease in metabolism as well as certain environmental factors which disturbs the reproductive hormones.(O'Connor, Gibney and Roche, 2010). Circulating testosterone level can be lowered by adapting diet which will help in weight management in PCOS women.(Gower et al., 2013) .Weight loss around 5-10% by adapting lifestyle change is seen in improving hormonal imbalance and rejuvenating fertility.(Hoeger, 2006) Weight loss improved the presentation of PCOS regardless of dietary composition in the majority of study. All obese women having PCOS should focus on reducing weight by cutting calorie intake but must not compromise with essential nutrition and healthy foods.(Moran et al., 2013)

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