



**REVIEW ARTICLE**

**Overview Of Polycystic Ovary Syndrome**

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Manuscript No: IJPRS/V9/I4/00001, Received On: 14/11/2020, Accepted On: 24/11/2020, Publish On: 08/12/2020

**ABSTRACT**

Polycystic ovary syndrome is complex metabolic, endocrine & reproductive disorder that effecting 5-10 % of women of age in reproductive. The common symptoms of PCOS are acne, irregular periods, and excessive hair growths. The prevalence of PCOS varies that depending on diagnostic criteria used. Some common predisposing factor associated with PCOS are insulin resistance, hormonal metabolic disorder, genetic factors. The main risk factor of PCOS that including obesity, infertility of family history, diabetes & other psychological factors. Some complication & infertility of PCOS can be managed through exercise therapy, life style, diet & modification. The various treatment used for PCOS are Ayurveda, Siddha, Allopathy, Homeopathy and Acupuncture. It is not cure by PCOS but helps in managing and controlling the effects while Homeopathy & Ayurveda can be considered the best cure & promising treatment with no side effects of PCOS. The most prevalent disorder is among women of reproductive with long life complications. In the future research area of genetics & pathophysiology of PCOS is needed to determine the risk preventive factors as well as successful treatment modalities for this syndrome.

**KEYWORDS**

polycystic ovary, Insulin, Diabetes, Allopathy, Ayurveda, Homeopathy, Acupuncture.

**INTRODUCTION**

Polycystic ovary syndrome is complex metabolic, reproductive & endocrine disorder that effecting 5-10 % of women of age of reproductive [1]. PCOS is also known as polycystic ovary disease, sclerocystic ovary syndrome, ovarian hyperthecosis.

The PCOS means the ovaries that containing a large number of small cysts that are not bigger than 8 mn and develop to 12mn or more follicles. Increased ovarian volume (>10 ml) [2]. The cyst are egg that containing follicles that do not develop properly because of hormonal imbalance [3]. It is also consider as a lifestyle disorder that effecting 22-20 % of young girls in their reproductive age in India [4]. Some characteristics of PCOS include hyperandrogenism, polycystic ovaries, irregular menstrual cycles, The adverse effect of PCOS include health related quality of life & increased risk of anxiety & depression. [5,6].

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## SIGNS AND SYMPTOMS

Some symptoms like irregularity in period, weight gain, excessive growth of hair in face, chest and lower abdominal, abdominal discomfort during periods, acne, and excessive skin growth, bone pain, constipation, indigestion, skin dryness, increased an hydrogen level, infertility, imbalance of lipids, improper cholesterol level, excessive weight gain around hip and stomach, pregnancy problem are very common symptoms of PCOS<sup>[5]</sup>. Some other symptoms like depression and anxiety.

## PREVALENCE

Depending on the diagnostic criteria the prevalence of PCOS varies. The estimation of prevalence by using Rotterdam criteria of two to three times greater than those obtained by using the NIH/NICHD. In type1 diabetes group the prevalence of PCOS was 40.5 % and in type2 diabetes PCOS was extremely common and occurring 82 % in women. In type 2 diabetes the prevalence of PCOS by using NIH//NICHD criteria has been estimated about 26.7%<sup>[7]</sup>. The common metabolic disorder is through to be extremely prevalent in polycystic ovary syndrome (PCOS). This metabolic syndrome is substantially higher in women with PCOS than in general population. And prevalence is higher is higher in women who diagnosed by the classical criteria. The metabolic syndrome prevalence in women with PCOS has wide variation and it ranges from 16.6% to 47.7% depending upon the studies of population and the criteria that are used for diagnosis of metabolic syndrome<sup>[8]</sup>.

## PREDISPOSING FACTORS

### Insulin resistance

PCOS is a multifaceted metabolic disorder that shows a high dissociation of insulin resistance that leading to hyperinsulinemia, where as 10 % shows type2 diabetes, 30-35% may impaired a glucose tolerance such as the condition that

leading to increase the production of testosterone and leading to abnormal ovulation. The women with a endocrine syndrome like hyperandrogenism and chronic anovulation that appear to be insulin resistance and high risk of glucose intolerance<sup>[9]</sup>. Insulin has also a direct gonotropic action ovarian steroidogenesis. The resistance of insulin promotes a high hepatic secretion of low density of lipoprotein.

### Genetic factors

Genetically PCOS is determined as ovarian disorder and heterogeneity that can be explained on the basis of interaction and the disorder of other genes with the environment. The implied gene in the development of obesity is linked to susceptibility to PCOS. The inheritance mode remain unclear and the autosomal dominant disorder has been proposed and that suggesting a single gene effect. PCOS is a complex endocrine disorder that involving more than one and several gene<sup>[8,9]</sup>.

### Hormonal imbalance

The certain hormone imbalance is common in suffering in women with PCOS. High level of testosterone that leading to signs of hyperandrogenism. The exact reason for imbalance of hormone is unknown. Hyperinsulinemia may directly or indirectly that result in LH secretion that leads to hyperandrogenemia<sup>[10]</sup>.

### High maternal androgen

The women with maternal androgen with PCOS those are able to cross the placenta in significant amounts in human during pregnancy. The excess androgen in PCOS that originated from foetal ovary and adrenal plays a role. Foetal ovary has inactive steroidogenically; the ovary has a capacity to synthesize androgen in parental life.

## RISK FACTORS

The risk factor mainly for PCOS that include are obesity, family history of infertility & diabetes, stress, high calorie food, stress and other psychological factors. The first degree

relative with diabetes was associated with an risk of increased of glucose intolerance in PCOS women [10, 11,12].The frequent more consumption of fast food has 1.7 times greater risk of development of PCOS.The irregular diet, pickled food, coarse food, drinks and salty food leads to PCOS.The risk factor for centripetal obesity are lack of physical exercise that leading to uneven distribution of fat in body. The obese women are 1.74 times more risk for development of PCOS as compared to women with normal BMI..The probable causes of PCOS are the industrial compounds that are used in dentistry, plastic consumer products and package. The majority of women were suffering from PCOS were residing near mobile tower or sewage<sup>[12]</sup>.The increased in stress can disturb the normal menstrual cycle and it may cause hormonal changes such as raised in level of cortisol and prolactin.

## COMPLICATIONS

The patient with PCOS present not only in higher prevalence of cardiovascular risk factors such as dyslipidemia, hypertension and type-2 diabetes mellitus and non- classic cardiovascular risk factors such as mood disorders, such as depression and anxiety. The women with PCOS may shows increased risk of endometrial cancer as compared to non-PCOS healthy women, particularly during premenopausal period.

### Metabolic syndrome

The common disorder of women with PCOS is childbearing age and it is associated with metabolic syndrome. The non- alcoholic fatty liver disease is considered as hepatic manifestation of metabolic syndrome. PCOS is considered as ovarian manifestation of metabolic syndrome both this condition can co –exist and may be respond to similar therapeutic strategies <sup>[13]</sup>.

## Cardiovascular complications

At any age PCOS is characterized by elevated CVD risk markers and this elevated marker can occur without obesity but are magnified with obesity. The risk factor of CVD such as hypertension and hypertriglyceridemia were considered as more prevalent among the women with PCOS at postmenopausal stage <sup>[14, 15]</sup>.

## Oncology

PCOS is considered as lifelong multiple systemic disorder, the metabolic and reproductive alterations characterization that is associated with an increased in risk of development of cancer, such as endometrial, ovarian and breast cancer<sup>[14]</sup>.

## PATHOPHYSIOLOGY

To explain the of pathogenesis of PCOS various theories have been proposed. There as are follows: The increase of LH secretion results in gonadotropin releasing hormone secretion. an alteration of insulin secretion that leads to hyperinsulinemia and secretion of insulin. The defect in anhydrogen synthesis that leads to increase in ovarian anhydrogen production.

## DIAGNOSIS

The diagnosis of PCOS is based on hyper anhydrogenic or chronic an ovulation in absence of specific pituitary disease. The various diagnostics include as history and physical examination, ultrasonography, and testing of hyperanhydrogenemia <sup>[16, 17]</sup>.

## MANAGEMENT

Through diet, exercise therapy, life style modifications PCOS can be managed

### Diet

Eucaloric and ketogenic diet are followed to manage the PCOS.Insulin inhibits the production of sex harmony binding globulin

and stimulates the anhydrogen production. Eucaloric acid is enriched with monounsaturated fatty acids. The small decrease in body weight that followed low carbohydrate diet and contribution observed reduction in fasting of insulin. The low carbohydrate diet which have low carbohydrate and cholesterol, high fiber and 45% of women has improved metabolism of fat within 16 days. Ketogenic diet that reduces the insulin like reduction in blood insulin level and growth factor-1 (IGH-1).

### **Exercise therapy**

Regular and aerobic exercise are used to control PCOS [27]. Without aerobic exercise without weight loss that improves insulin sensitivity and ovarian morphology in women in PCOS. Exercise that induce in change in visceral fat and ectopic lipid in non-fatty tissues. Moderate intensity of aerobic exercise over a short period that improves the reproductive outcomes that including ovulation and menstrual cycle regulation in addition to reducing weight and IR in young women with overweight with PCOS [18, 19].

### **Lifestyle modifications**

Intervention of life style that improves the level of FSH, SHBG, FAI, total testosterone anhydrostenedione. Life style and metformin appears to offer benefits in weight loss and menstrual cyclicity [21].

## **CURRENT STATUS OF VARIOUS SYSTEM OF TREATMENT FOR PCOS**

The various treatments used for PCOS are allopathy, ayurveda, siddha, homeopathy, acupuncture.

### **Allopathy**

Metformin Oral hantihyperglycemic agent like biguanide. It is taken at a daily dose of 500 mg with food. The use of metformin such as

increased menstrual cycle, improved ovulation, reduction in circulating anhydrogen levels.

### **Rosiglitazone**

It is oral hyperglycemic agents, it improves sensitivity. It is taken in daily dose 8 mg. Some common side effects such as edema, nausea, dry skin, vomiting. It is use to improve ovulation and increase pregnancy rate.

### **Clomiphene citrate**

It is estrogen receptor antagonist. It is administered at a dose 50-150 mg for 5 days. Common side effect stomach pain, bloating, blurred vision. It is used to treat infertility in women & first line treatment for ovulation.

### **Dexamethasone**

It is glucocorticoids. It is taken a daily dose is 0.25- 0.5 mg at bed time. The common side effects are nausea, stomach pain, spinning sensation. It helps to induce ovulation.

### **Letrozole**

It is a aromatase inhibitors that inhibits the estrogen production in the hypothalamus pituitary axis which implies an increase in gonadotropin.

### **Ayurveda**

Because of severe side effects in allopathic medicines, now days ayurvedic medicines are mainly used. The protocol for ayurvedic treatment includes shodhanachikitsa, shaman chikitsa, lifestyle management, yoga and pranayama therapy.

### **Immunology**

Women with PCOS have low level of progesterone, causing anovulatory complications. The absence progesterone with patients with PCOS may lead to over

stimulation of immune system that including autoantibodies [22].

## Treatment

The recent studies reported that meformin promotes apoptosis and inhibits the growth of uterine serum carcinoma in endometrial cancer. Along with metformin an oral contraceptive pills is new treatment which may reduce the risk of endometrial cancer by 50-70% in the PCOS population. The standardization and fixed study protocols where all patients receive the same treatment will increase the validity of treatment studies in future [23].

**AKNOWLEDGEMENT:** Nil

**CONFLICT OF INTEREST:** Nil

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## HOW TO CITE THIS ARTICLE

Sabina, K., SK Maruf Hossain.,Pritam, S.,Neha, M. (2020). Overview Of Polycystic Ovary Syndrome. *International Journal for Pharmaceutical Research Scholars*, 9(1); 01-08.

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IJPRS V9 I4 000001