

Review Article

A Contemporary Review on PCOS

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ABSTRACT:

Polycystic ovarian syndrome also known by the name of stein-leventhal syndrome. Incidence of this condition is growing amongst young women in reproductive age. It is almost ranging between 5-10% of young women coming for infertility, it is now increasingly perceived as disorder of changed life styles and is a metabolic syndrome. It interferes with metabolic, endocrine and reproductive functions. Hyperinsulinemia appears to play a key pathogenic role in women with PCOS, regardless of whether they are obese or lean. It affects the pituitary-ovarian hormones and results in infertility, menstrual problems and excessive body hair growth in female.

Ayurveda understands a disease based on the doshas and dushyas involved in disease manifestation. But the specific nomenclature of the emerging diseases as such is not available as the other streams of medicine. This indicates that there is a description of the emerging disorders in Ayurveda which are explained under various contexts which needs to be analyzed based on the symptoms. It depends upon the Yukti of the physician to derive an exact correlation of the disease PCOS as per Ayurvedic parlance and arrive at a correct conclusion.

Treatment of PCOS according to Ayurveda is mainly to correct hyperinsulinemia by using Pramehghna drugs, weight reduction through vyayama, diet and drugs.

KEY WORDS: Polycystic Ovarian Syndrome, Hyperinsulinemia, Pushpaghni Jataharini, Nashtartva

INTRODUCTION:

In recent times there has been a significant change in lifestyle with most people leading a more sedentary existence combined with an abundance of food. PCOS can be counted as one among such disease. PCOS is one of the most common reproductive endocrinological disorder in women. In the present era, the erratic lifestyle and diet, increased stress, strain and restlessness have resultantly expanded the spread of hormonal imbalance and menstrual disorders.

The Polycystic ovarian syndrome is a lifelong, multisystem, genetic disorder characterized by the presence of menstrual irregularities, insulin resistance, hyperandrogenaemia and central obesity with a higher risk of developing Diabetes mellitus, Endometrial hyperplasia and Cardiovascular diseases.

Definition :

Polycystic Ovarian syndrome is defined as a syndrome of ovarian dysfunction associated with hyperandrogenism and polycystic ovary morphology.

Types :

PCOS can be broadly classified into two types based on BMI as follows:

- a. Lean PCOS
- b. Obese PCOS.

Epidemiology :

The epidemiological factors which influence the development of PCOS are as follows:

a. Age: PCOS is one of the most common endocrine disorder in reproductive-aged women within the age group of 12 – 45 years.

b. Socio-economic Status: In an ethnically homogenous PCOS population, the high Socioeconomic status is associated with a higher prevalence of Polycystic Ovarian Syndrome.

Symptoms-

- Menstrual disorders
- Acne
- Abnormal hair growth on face
- Acanthosis nigricans
- Hair fall from scalp
- Weight gain
- Insulin resistance.

Synonyms-

1. Polycystic ovaries syndrome
2. Polycystic ovarian disease
3. Functional ovarian Hyperandrogenism
4. Stein-leventhal Syndrome
5. Ovarian Hyperthecosis
6. Sclerocystic Overhead Syndrome
7. Polyfollicular Ovary Syndrome
8. Cystic oophoritis

The conditions which are mentioned in various contexts in Ayurvedic classics under various headings as-

1. Vandhya Yonivyapad,
2. Arajaska Yonivyapad,
3. Shandhi Yonivyapad,
4. Shushka Yonivyapad,
5. Shushkarevati Jataharini,
6. Katambhara Jataharini,
7. Anartava,
8. Nashtartava,
9. Artava Kshaya,
10. Pushpaghni Jataharini,
11. Granthibhootha Artavadushti,
12. Srotodushti and Santarpanottha Vyadhi

can be to some extent compared with the symptoms of Polycystic ovarian syndrome which needs to be analyzed as per Ayurvedic parlance.

Causes and Etiopathogenesis-

Ayurvedic aspect-

1. Nidana-

The cause and symptoms of Polycystic ovarian syndrome finds its similarity with most of the Santarpanottha vikaras.

I. santarpanottha nidana has been dealt with-

- **Aharaj-** excessive indulgence in snigdha,

madhura, guru, picchila ahara, navanna, nava madya, anupa and varija mamsa,gorasa, gaudika and paishtika preparations.

- **Viharaj-** chesta dveshi - lack of physical exercise, divaswapna - indulgence in excessive day sleep, shayyasanasukha -comfortable bed and seats suffers from diseases caused by over saturation.

II. Vikaras :

Some of the santarpanottha vikaras include – Prameha, Pidaka, Atisthoulya, Gurugatrata, Indriya Srotasam lepa, Amapradosha, Buddhemoha and Shopha have relevance with some of the symptoms of PCOS.

2. Samprapti :

- i. Santarpanottha nidana sevana leads to agnimandya, because of which there is improper digestion leading to the ama annarasa.
- ii. This leads to dhatvagnimandya which hampers the formation of dooshita rasa dhatu which circulates through the whole body.
- iii. Due to the madhuratara and the ati-snigdha property of rasa dhatu, having close affinity to the medo dhatu vitiates it.
- iv. Thus, there is increase in the medo dhatu leading to ati sthoulya, and also because of the avarana to other srotas caused by kapha dosha there is no proper formation of other dhatus.

Samprapti Ghatakas :

- Dosha : Kapha, Vata
- Dushya : Rasa, Rakta, Mamsa, Meda, Asthi
- Srotas : Rasavaha, Raktavaha, Mamsavaha, Medovah,
- Asthivaha, Artavavaha
- Rogamarga : Abhyantara
- Adhishtana : Garbhashaya, Phalakosha
- Vyaktasthana : Sarvashareera
- Udbhavasthana : Amapakvashaya
- Dushti prakara : Sanga, Atipravrutti and Granthi
- Agni : Jataragni and Dhatwagni

MODERN ASPECT-

Probable Causes-

Etiology:

The exact underlying etiology of PCOS remains largely unexplained. However, probable causes explained in this regard are as follows :

1. Genetic factors
2. Gestational factors
3. Environmental factors
4. Endocrine factors

1. Genetic factors :

The familial clustering of PCOS would suggest that there is a strong genetic component to the origin of PCOS. The candidate genes that have been analysed and possibly associated with the condition include :

- Steroid hormone synthesis (CYP11A, CYP17, CYP21 and androgen receptor)
- Carbohydrate metabolism (insulin receptor and insulin gene)
- Gonadotrophin action (follistatin gene)

2. Gestational factors :

- Impaired foetal growth has been reported as a factor in the etiology of PCOS. Gestational environment and lifestyle factors in early childhood mediates the effect of predisposing genetic factors.
- Pregnant women with PCOS have elevated circulating concentrations of androgens at mid-gestation, which may increase foetal androgen exposure and female offspring of PCOS mothers are at an increased risk of altered ovarian development and function.

3. Environmental factors :

- The environmental factors most often cited to contribute to the etiology of PCOS are nutrition and diet.
- Other environmental factors like sedentary life style may contribute in a minor way.
- Obesity, especially in adolescence is a predictive of menstrual irregularities, reproductive failures as well as PCOS.
- Furthermore, it is well established that diet and nutrition in the form of weight gain shape the course of progression of PCOS.

4. Endocrine factors :

The possible endocrine abnormalities include:

- Dysregulation of gonadotropin-releasing hormone
- Hypersecretion of Luteinizing hormone
- Decreased Follicle – Stimulating hormone
- Hypersecretion of Androgens
- Hypersecretion of Insulin.

5. Other factors-

- C.A.H.(congenital adrenal hyperplasia)
- Thyroid dysfunction,
- hyperprolactinemia,
- Cushing syndrome
- Those are to be excluded.

Presence of multiple cysts around ovaries indicate high levels of impurities and toxins. From Ayurvedic point of view, PCOD reflects vitiation of rassa and rakta dhatus. When levels of impurities and toxins increase in rassa and rakta dhatus, body stores them in the form of cysts around ovaries. Sign and Symptoms in PCOD patients suggest imbalance of all three doshas. Dhatwagnimandya may also exist in some patients. History of improper diet exist in some patients. History of improper diet and lifestyle is generally found among majority of PCOD patients. Excessive consumption of hormonal pills and contraceptive pills too reported by many patients. Mental stress and lack of physical exercise are marked among quite a few ladies with PCOD. From, Ayurvedic perspectives, all these things can produce toxins in body and cause diseases like PCOD.

DISCUSSION:

PCOS is the complex multisystem disorder causing dysfunctional of three inter related axes i.e. metabolic, steroidogenic and reproductive. Root causes of PCOS is hyperinsulinemia, it is result of following conditions.

1. Excess weight and obesity^[2] (Santarpanajanya): It is linked to insulin resistance, an imbalance of glucose and insulin levels hyperinsulinemia in the body.
2. Teenage (Kalajanya): There is increase of sex steroid and growth hormone during puberty which stimulates the production of insulin-like growth factor-1, in response to develops hyperinsulinemia^[3]. May be some teenagers fail to normalize the hyperinsulinemia whom are more prone to develop PCOS.

PCOS also increases the risk of developing the cluster of cardiovascular risk factors called metabolic syndrome. PCOS sufferers with metabolic syndrome are also at greater risk of developing gestational diabetes during pregnancy as well as health hazard in later age like type II diabetes, hypertension, coronary heart disease and endometrial, liver, breast and colon cancer.

possible effect of hyperinsulinemia on the HPO axis -

1. **Effect of hyperinsulinemia on the hypothalamus and pituitary^[4]:** Hyperinsulinemia → ↑GnRH from hypothalamus → ↑LH and ↓FSH from the pituitary → chronic anovulation.
2. **Effect of hyperinsulinemia on the ovary and liver^[5]:** Increase insulin level creates estrogenic state in the body through the disturbance of ovarian and liver functions as follows.

Hyperinsulinemia → ↑the testosterone and androstenedione in the ovary and ↓the SHBG (steroidal hormone binding globulin) in the liver → ↑ the bio- availability of estrogen in the female body. So that it is leading cause of infertility, recurrent pregnancy loss, menstrual disturbances ranging like amenorrhoea to dysfunctional uterine bleeding, hirsutism, alopecia and acne.

Diagnosis- It is based upon the presence of any two of the following three criteria(American society for reproductive medicine and European society of human reproduction and embryology.

1. Oligo or anovulation.
2. Hyperandrogenism(clinical or biochemical)
3. Polycystic ovaries.

Ultrasonography-

Investigation of PCOS are multiple cystic ovary by USG, LH ≥10 mIU/ml in early follicular phase or the ratio LH:FSH is > 2, Raised serum testosterone and insulin level.

According to ancient view understanding of PCOS are as follows-

- Clinical features are nearer to Pushpaghni Jataharini- The woman menstruates in regular interval but is unable to conceive is pushpaghni the other symptom is corpulent and hairy cheeks.
- According to reproductive point of view, the pathogenesis of PCOS is similar to condition of Nashtartva .
- Vitiating of vata-kapha (↑ estrogenic state) leads to Avarana of artava (inhibition of FSH) leads to Nashtartva (no proper growth of follicles and chronic anovulation).
- We found the reference of metabolic involvement in PCOS in our classics i.e. Acharya says that due to monthly menses, as impurities are excreted from woman body constantly, hence, there is less chances of her to suffer from Prameha.

- It means if lady has normal menstruation then she has less chance to develop diabetes in later age because the diabetes is disease of forties at that age the menopause starts and PCOS is the disease of reproductive age.
- So the root cause of PCOS is obesity and hyperinsulinemia, that's why the main line of treatment of PCOS is reduction of weight and use of Pramehghna drugs.

Management of PCOS can be categorized in two aspects-

1. Curative for infertility and menstrual disorders.
2. Preventive for hypertension and type II diabetes and endometrial cancer by timely treating of PCOS.
 - Overall goal of treatment of PCOS according to Ayurveda as under Weight reduction through Vyayam, diet, drugs.
 - The drug which is useful for vata and kapha shaman and the drug which increase agneya Guna vrudhhi of pitta are useful for PCOS.

Importance of vata in chikitsa :

- Without the vitiation of vata dosha there will not be manifestation of any type of yoni vyapat.
- Hence, it should be treated first followed by the other 2 doshas.

Chikitsa Siddhantha :

Ayurvedic management can be planned based on the pathological factors involved.

1. For Kapha dosha :

- According to Bhaishajya ratnavali, in balaasadushta yoni vikaras or kaphaja yoni vikaras, Rooksha and Ushna guna dravyas should be used for treatment.
- According to Ashtanga Hrudaya, *Shleshmanaha katu rooksha kashayadi* guna yukta dravyas should be used for treatment.

2. For Vata dosha :

- According to Charaka Samhitha, for the treatment of Apana vayu vikruthi the treatment modalities incorporated should possess Deepana, Grahi, atanulomana and pakvashaya vishodhana properties (Ch. Chi. 28/243).
 - ♦ To correct hyperinsulinemia by using Pramehghna drugs like Vijaysar etc. Give

Yakritotejak drugs for the oestrogen clearance and to decrease its bio- availability like Kumari etc.

- ◆ Clear the Avarana by using Vatakapha Nashaka drugs for the proper follicular genesis and ovulation like Dashmoola, Kanchar Guggulu and Gomutra haritaki etc.

Ahar(Diet):

- Low fat milk is recommended. Boil milk before drinking. Drink it warm. Add a pinch of turmeric or ginger to the milk before boiling it. This helps to reduce the kapha increasing qualities of milk.
- Lighter fruits such as apple, orange, grapes, pineapple, papaya are recommended.
- Sweetners= Honey is excellent for reducing kapha.
- Beans are recommended.
- Grains such as barley, chickpea and millet are recommended.
- Vegetables such as potatoes and sweet potatoes should be avoided as they can cause weight gain.
- Negative feelings like stress and tension should be avoided. Do not undertake physical or mental work beyond your capacity.

Vihar-

- follow an active lifestyle, yet the exercises should be according to one's capacity.

CONCLUSION:

PCOS is multifactorial disorder mainly characterised by hyperandrogenism and anovulation. Hyperinsulinemia appears to play a key pathogenic role in PCOS women. By above mentioned Ayurvedic treatment, hyperinsulinemia may bring down which allow spontaneous ovulation and prevents long term complications of PCOS.

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