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## A CONCEPTUAL STUDY ON POLYCYSTIC OVARY SYNDROME – A MOST PREVALENT DISEASE IN INDIA

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### ABSTRACT

**Introduction** -Polycystic ovarian disease is a frequent chronic anovulatory condition characterized by androgen excess in women of reproductive age. Obesity and insulin resistance are frequently linked with this multifactorial, multisystem illness. The patient has monthly abnormalities, excess androgen (hirsutism), and USG shreds of evidence in the cortex of the ovary that is >3-8 mm in size. **Aims:** To investigate and comprehend ayurvedic ideas and practices related to PCOS. **Methodology:** The Charka Samhita, a famous Ayurvedic text, was meticulously scrutinized to generate a list of pertinent references and Sanskrit commentary. To find study papers and relevant material. **Conclusion:** PCOS is researched in terms of Ayurveda, and its etiology is attempted to be determined.

**Keywords:** PCOS, Ayurveda, etiology, etc.

### INTRODUCTION

The most prevalent cause of infertility in ovarian syndrome (PCOS). women of reproductive age is a polycystic Hyperandrogenism, hyperinsulinemia,

obesity, insulin resistance, anovulation, and cystic follicles in the ovary are all symptoms of this complex illness [1]. If PCOS is not treated, it can progress to major complications such as type 2 diabetes, ovarian cancer, and cardiovascular disease. As a result, the specific etiology of this condition must be determined [2]. Obesity is thought to produce PCOS-like alterations in the ovary, although the exact process is unknown. Obesity is linked to hyperinsulinemia and insulin resistance in PCOS<sup>3</sup>. Obesity has also been linked to low-grade inflammation in recent research [4]. Low-grade inflammation in PCOS is triggered by compensatory hyperinsulinemia and insulin resistance.

Increased plasma levels of high sensitivity C-reactive protein (hsCRP) are linked to low-grade inflammation [5]. Obese people with elevated hs-CRP levels have previously been linked to a higher risk of acquiring type 2 diabetes mellitus. These data show that inflammatory indicators may be to blame for the long-term effects of PCOS [6]. The mechanism by which low-grade inflammation causes PCOS pathogenesis, on the other hand, has to be investigated further. PCOS has been linked to an increase in oxidative stress (OS), which occurs when there is inflammation. An increase in OS has been linked to an increase in IR [7].

IR and hyperglycemia have been proven to enhance OS in previous research, however, increased OS has also been reported in non-obese PCOS without IR in one study [8].

Hyperglycemia has been linked to increased lipid peroxidation (LPO) in the previous investigations [9]. Obesity increases OS, which leads to an increase in IR. Hyperglycemia causes an increase in the production of reactive oxygen species (ROS) in women with PCOS [10]. ROS and antioxidants are indicators for PCOS patients in previous research. However, the role of OS in the pathophysiology of PCOS has yet to be established [11]. PCOS-like symptoms have been induced in a variety of laboratory and domestic animal models [12].

Adult females were treated with dehydroepiandrosterone, estradiol valerate, insulin, anti-progesterone, human chorionic gonadotropin (hCG), and neonates with testosterone, resulting in cystic follicles, hyperandrogenism, and anovulation [13]. However, the exact mechanism of insulin resistance, oxidative stress, and low-grade inflammation in PCOS has yet to be discovered. Letrozole, a non-steroidal aromatase inhibitor, was recently used to create a rat model for PCOS [14].

To investigate the mechanism of PCOS pathogenesis, we looked at temporal changes in morphology, oxidant-antioxidant state, serum hormone levels,

and serum levels of low-grade inflammatory markers in letrozole-treated rats. A rat model for PCOS was recently created with letrozole, non-steroidal aromatase inhibitor [15].

We looked at temporal changes in morphology, oxidant-antioxidant state, serum hormone levels, and serum levels of low-grade inflammatory markers in letrozole-treated rats to determine the mechanism of PCOS development. PCOS is a complicated lifestyle disorder that affects 2–26% of reproductive-age females and is the most common form of chronic anovulation with androgen excess when other causes of hyperandrogenism are ruled out, such as non-classical congenital adrenal hyperplasia, androgen-secreting adrenal tumors, hyperprolactinemia, and so on [16].

Stein Leventhal Syndrome, first reported by Stein and Leventhal in 1935, is characterized by bilateral polycystic ovaries, menstrual irregularities such as amenorrhea and oligomenorrhoea, and indicators of androgen excess such as hirsutism and obesity [17]. The basic ovarian abnormality was assumed to be the cause, but further clinical, morphologic, hormonal, and metabolic research revealed several underlying causes, leading to the coining of the name polycystic ovarian syndrome to highlight the disorder's heterogeneity. The development of PCOS

is ascribed to a mix of environmental variables, including sedentary lifestyle changes, overeating without a suitable meal gap, workload, mental stress, and so on [18]. Genetic variables, as well as family history, might play a role. Obesity and IR are two of the most common underlying causes of PCOS, which can lead to infertility [19].

### **Aim & Objectives**

- To evaluate the role of tri Doshas in the ovaries' follicular formation.
- To learn about the origin and pathophysiology of PCOS according to Ayurvedic ideas.

### **Methodology**

The information was gathered from Ayurvedic Samhitas, publications, articles and textual information from Parul Institute of Ayurveda Library, Vadodara.

### **Clinical Features**

This disorder expresses itself in a variety of ways, ranging from minor monthly irregularities to severe reproductive and metabolic failure. Two common menstrual irregularities linked with PCOS are oligomenorrhoea (80 percent-95 percent) and amenorrhea (80 percent-95 percent) (35-45 percent) [20]. Up to 70% of PCOS patients suffer from hirsutism, a common clinical symptom of hyperandrogenism. Acne is an indication of hyperandrogenism, with 15-30% of women experiencing it [21].

PCOS diagnosis based on the presence of two of the three criteria –

- Anovulation or Oligo ovulation
- Excess androgen
- USG shards of PCOS evidence

We may classify PCOS as Kapha Vata Predominant Tridhoshaj Artava Dushti based on its symptoms and characteristics.

Vata governs cell division (granulosa, theca cells), follicle rupture, and other bodily functions. The conversion of androgen to estrogen and the maturation of follicles are paaka karma for Pitta. As a result of its Shrava Karma, it causes ovulation with the aid of Vata. Kapha, in conjunction with Vata, has a nourishing effect and aids in the growth of ovarian follicles [22].

#### **Pushpaghani jataharni**

Menstruation occurs regularly and at the same time each month. Women who suffer from this form of infertility have chubby cheeks that are covered with hair. Obese cheeks may signify central obesity, which is seen in PCOS when steroid hormones, particularly androgen, are elevated. There is also evidence of hirsutism, which is caused by androgen excess. Infertility caused by anovulation, poor quality ovum production, or a faulty endometrium is referred to as Phuspaghani.

**Vikuta jataharni:** The duration, color, and amount of menses are all unusual. Menses are either insufficient or excessive in quantity in the anovulatory and oligo-

ovulatory cycles, resulting in oligomenorrhoea or amenorrhea. The duration and color of menstrual flow might vary depending on the interval at which menstrual bleeding begins. It appears to be caused by PCOS's oligo ovulation or anovulation.

#### **Artavakshaya**

Artava kshaya has oligomenorrhea, scanty menses, and painful menses, which only partially explains PCOS. Because acharyas concentrated primarily on the description of bahaya artava Lakshana (menstrual blood) and not on the other, indicators of androgen excess and the existence of cystic ovaries were not described.

#### **Granthibhut artava dushti**

Ovum, hormone and menstrual blood are all terms used in artava. If we believe that excess Kapha and Vata vitiate the antaha artava/hormones, we can find anovulation cystic ovaries in Beeja roopi artava/ovum. And, based on the dosha predominance, the bahaya artava/menstrual blood will coagulate, whether the flow is light or heavy. Polyps may cause endometrial hyperplasia as well. Acharya Vagbhata indicated in the nidana of Nasta artava that if obstruction of the channels artava is not visible, the patient would stay amenorrheic. All of these data point to Vata Kapha Dosha's dominance in this illness, with symptoms manifesting as a result of the preponderance of the two doshas.

In ayurvedic literature, there are primarily four elements mentioned for conception, with the need of maintaining their quality for optimal pregnancy results.

- Kstera - field
- Ritu - opportune time (ovulating time) (whole reproductive tract)
- Ambu - appropriate nutrition
- Artav – ovum, menstrual blood, hormones;
- Beeja – ovum, menstrual blood, hormones;

Artava is the most important of the four variables since the proper physiology of the other three components is dependent on the normal functioning of artava. "stream garbhoupoygi shyaat artavam Sarva sammtam" means "strenam garbhoupoygi shyaat artavam Sarva sammtam." Antaha Pushpa – hormones and ovum – and Bahaya Pushpa – menstrual blood – are both referred to as artava in ayurvedic literature. The physiology of antaha Pushpa may be predicted using the characteristics of bahya Pushpa and rituchakra [23].

If the antaha Pushpa (hormones) is functioning physiologically, the bahya Pushpa (menstruation) displays shudha artava characteristics if the vaginal tract is free of physical deformities.

### **Ritucharya**

Menses that are regular and cyclical, with a one-month cycle duration. Two pakshas of 15-15 days equal one month in the

ayurvedic or Hindu calendar. If bleeding happens every 30 days, it is considered normal. It should not be oily or soapy, should not cause burning, and should be painless.

The flow should last for at least five nights. The flow should neither be too heavy nor too light. Ritucharya- Due to cyclical variations in the hormonal state, cyclical physiological changes in reproductive organs, the uterus, and the ovary. According to Ayurvedic literature, the whole month of beeja rakta (hormones) causes the following changes. The endometrial bed is formed by Garbhashaye tarpyati pooryati. Folliculogenesis - Manshaad beejaye kalpte.

### **Rajaswala Paricharya**

Exertions of any type, whether connected to celibacy or another physical or mental stress, should be avoided during menstruation. These factors, according to Ayurveda, would produce vata vrudhi since the body is emaciating owing to monthly losses. When we try to comprehend, we discover that intercourse should be avoided during menses since the genital defense mechanism is hindered, making females more susceptible to illnesses. Physical stress may cause the production of more CRH, which in turn causes the release of more ACTH and cortisol. CRH inhibits GnRH production by acting directly on the hypothalamus.

**Adha Shayanni** - She should sleep on the ground/floor because it offers several advantages. On a soft surface, the spine is more prone to curving, therefore resting on a harder surface may assist to align and straighten the neck, as well as reducing back or pelvic discomforts during menses.

**Teekshana ushna amla lavanani varjayet**

Foods that are too spicy, sour, or salty might induce excessive blood loss by vitiating the pitta dosha. As a result, it's best to avoid. After researching rajaswala paricharya, it has been determined that Rajah Kala is a natural shodhana. Following the path and apathy given during shodhana treatment, which is the same as rajaswala paricharya, is important for Kala leading to agnimandhya [24]. The goal is to minimize dosha vitiation, prevent aama development, and restore energy to avoid monthly irregularities caused by lifestyle changes.

**DISCUSSION**

The tridosha is a physiological unit of the organism according to Ayurveda. Dhatu and malas, on the other hand, are structural units. Tridosha was therefore regulated by ovarian follicular recruitment, growth, maturation, ovulation, and ovarian steroidogenesis. We know that the Vata dosha is prevalent below the umbilicus, and that vata is primarily important for good reproductive function [25]. The outside world's Sun, Moon, and air, as well as the

inner world's pitta, Kapha, and vata, are responsible for the body's healthy functioning [26]. Kapha contains visarga karma, which means it is nourishing and produces strength. Pitta has a metabolic activity called aadan karma [27]. Vata possesses vikshepa karma, which means it is responsible for dispersing function. When doshas are present in the body within their typical physiological boundaries and exhibit normal qualities, follicle growth, development, maturation, and ovulation occur promptly, however when they are unbalanced, this process is disrupted. As a result, the tridosha equilibrium is disrupted, leading to PCOS symptoms and indicators.

The probable doshaja vitiation appears to be Kapha vata dominated tridoshaja vikara based on the study of etiology, pathophysiology, monitoring the signs and symptoms of PCOS, and associating these with the characteristics of vata, pitta, and Kapha in their nature as well as vitiated forms. Obesity, hirsutism, and recurrent anovulation are all symptoms of PCOS, a complex endocrine disorder. It's a leading cause of infertility and irregular periods. PCOS is not tied to a single entity in Ayurveda, however, it resembles pushpaghni jatiharini. Handi yoni vyapad, Charak's bandhya, Sushruta's bandhya yoni vyapad, and Kashyap's vikuta jatiharini are some of the other names. Obesity is the major cause and symptom, which may be

prevented and minimized by the practice of dincharya and ritucharya, as well as pathya aahar, vihar, aushadh, and apathya aahar vihar restriction.

### CONCLUSION

PCOS is explained from the perspective of Ayurveda in this article. If doctors have a greater knowledge of diseases, they can treat them more effectively. Even though PCOS is not addressed in the Samhita, Acharya mentions treatment. Unnamed disorders should be categorized by Dosha and Dushya, and therapy should be organized accordingly. Of all the Yonivyapada, Bandhya yonivyapada shows the highest concordance with PCOS. Expanded definitions of Aartava, such as menstrual blood, ovum, and hormones, help to explain PCOS symptoms in an Ayurvedic perspective and to outline treatment choices.

**Conflict of Interest -Nil**

**Source of Support -None**

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