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Efficacy of Herbal Treatments in Managing Polycystic Ovary Syndrome: A Comprehensive Review

Dr. Ashwini Kumar Sharma[1], Dr. Surbhi Saini[2], Rajesh Chandra Mishra[3], Dr. Devichand Bishnoi[4]

[1]Professor & Head of department, department of Drvyaguna Vigyan, MMM Govt. Ayurveda College, Udaipur.
[2]M.D. Scholar, Department of Drvyaguna Vigyan, MMM Govt. Ayurveda college, Udaipur
[3]Associate professor, Department of Drvyaguna Vigyan, MMM Govt. Ayurveda college, Udaipur
[4]Assistant Professor, Department of Drvyaguna Vigyan, MMM Govt. Ayurveda college, Udaipur
Institute - MMM Govt. Ayurveda college, Udaipur, Rajasthan Mail id - drashwinishrama1972@gmail.com

ABSTRACT

Polycystic ovarian disease (PCOD) is a heterogeneous endocrine disorder marked by ovarian cysts, anovulation, and hormonal fluctuations, significantly impacting women's health. With sedentary lifestyles, excessive fast food consumption, and other unhealthy habits, PCOD has evolved into a lifestyle disorder. Factors such as genetics, neuroendocrine influences, environmental conditions, and obesity contribute to its development. In Ayurveda, PCOD correlates with various diseases like Vandhya and Nasthartava, managed based on Dosha Dushya imbalances.

Polycystic ovarian syndrome (PCOS), a neuroendocrine metabolic disorder, is commonly treated with synthetic drugs. However, the shift towards herbal remedies is due to their effective therapeutic outcomes and the limitations of allopathic medicines. The review highlights the significance of herbal remedies, discussing their chemical composition, mechanisms of action, and therapeutic applications in treating PCOS. This review serves as a valuable resource for researchers focusing on herbal medicine's role in PCOS treatment.

Keywords: PCOD, herbal medicine, Polycystic ovarian syndrome , infertility, obesity

Introduction

Women play a pivotal role in society, acting as the cornerstone for happiness and the well-being of families. The United Nations reports that women constitute half of the world's human resources, making them an invaluable asset. Modern women are increasingly focused on advancing their careers and gaining financial independence, often at the expense of their health.

Lifestyle changes, poor dietary habits, and irregular sleep patterns are leading to health issues, including the prevalence of conditions such as Polycystic Ovarian Disease (PCOD).

PCOD is the most common endocrine disorder among women of reproductive age, affecting 5 to 10% of women. First described in 1935 by Stein and Leventhal, the condition is also known as Stein-Leventhal Syndrome.[i] It is characterized by chronic anovulation and androgen excess, leading to symptoms such as irregular menstrual cycles, hirsutism, acne, and obesity.[ii] The World Health Organization (WHO) estimates that over 116 million women (3.4%) worldwide are affected by PCOD. [iii]Although the exact cause of PCOD is unknown, it is believed to result from a complex interplay of genetic, epigenetic, and environmental factors, including high insulin levels and hyperandrogenism.[iv]

Common symptoms of PCOD include menstrual irregularities and reproductive challenges, often leading to infertility. PCOD frequently goes undiagnosed because irregular periods during adolescence are often considered normal.[v] Many women only become aware of PCOD when it affects their fertility. In Ayurvedic texts, there is no direct mention of PCOD, but its symptoms are described under various conditions such as Aartavavaha Strotas Dushti, Nastaartava, Granthi, Santarponnth Vyadhi, and Yonivyapad. PCOD is understood to result from the obstruction of Vata and Pitta by Kapha, disrupting movement and transformation processes in the body. Dietary habits and activities that increase Kapha can lead to its dominance, impacting the digestive fire (Jatharagni) and the metabolic function of the body's tissues (Dhatu Agni).[vi] [vii]

The buildup of Kapha and Ama (toxins) from impaired digestion causes blockages in the reproductive channels (Artavavaha Strotas), leading to menstrual disturbances such as oligomenorrhea and amenorrhea. Menstrual irregularities arise from the imbalance of all three Doshas, particularly Apana Vayu. When the Artava Dhatu (reproductive tissue) is obstructed, it aggravates Pitta, resulting in symptoms like acne and hirsutism. The excess Kledak Kapha and Ama also impair the metabolism of fat tissue, contributing to obesity.[viii] [ix]

Modern medicine primarily treats PCOD with hormonal therapy, while Ayurveda focuses on the predominance of Doshas, employing treatments that address Ama, Vatakaphahara, Strotoshodhaka, and Anulomana therapies. This holistic approach aims to balance the body's systems and alleviate symptoms effectively.

- **Etiology**

According to Ayurveda, the development of female genital disorders (yonivyapad) is influenced by four fundamental etiological factors: an unhealthy lifestyle, menstrual irregularities, genetic predispositions, and cryptogenic factors (those with unknown origins).[x] Among the factors is prdustaartava, which involves both bijarupa and rajorupaartava, leading to the dushti (vitiation) of rajorupaartava.[xi] The Ayurvedic interpretation aligns with rasapradoshajavyadhi and santarpanotthavyadhi.[xii] Dietary habits (ahara) and lifestyle (vihar) that cause vatakaphadushti and medodushti are crucial in the manifestation of the syndrome.[xiii] Genetic and environmental factors contributing to hormonal disturbances, alongside obesity, ovarian dysfunction, and hypothalamic-pituitary abnormalities, play significant roles in the etiology of PCOD. Obesity, in particular, exacerbates hyperandrogenism, hirsutism, infertility, and pregnancy complications, both independently and by worsening PCOD.[xiv] [xv]

- **Pathophysiology[xvi]**

Polycystic Ovary Syndrome (PCOS) is primarily influenced by Kapha dosha at all stages, leading to amenorrhea. When Apana is affected by Pitta, it results in artavatipravritti. An improper diet and lifestyle (Vishamaaaharvihar) lead to digestive fire impairment (agnimandya), causing improper digestion (apakwat) of the primary nutritive fluid (aadya rasa) and the formation of toxic byproducts (saam rasa). This vitiates the reproductive tissue (aartava) and increases Kapha, which further results in channel blockages (srotorodhajanya) and the accumulation of undigested metabolic products (apachita medodhatuvridhi). Consequently, this causes Vata imbalance (vataprakopa), leading to obesity and amenorrhea.

The precise pathophysiology of PCOS remains unclear. It may involve hypothalamic-pituitary compartment abnormalities, androgen excess, anovulation, obesity, and insulin resistance, as well as long-term consequences related to these factors.

- **Clinical Features**

In Ayurveda, the clinical manifestations of PCOS are described under various conditions such as Vandhya (infertility), Arajaska (absence of menstruation), Nashtartava (loss of menstruation), Lohitkshya (anemia), Granthyaartava (cystic menstrual disorders), and Ksheenaartava (scanty menstruation). These conditions align with the symptoms observed in PCOS.[xvii]

From a modern medical perspective, the clinical features of PCOS can be categorized as follows:[xviii]

1. **Ovulatory and Menstrual Dysfunction**: This includes anovulation (lack of ovulation), oligomenorrhea (infrequent menstrual periods), and irregular vaginal bleeding.
2. **Clinical Features of Hyperandrogenism**: These include hirsutism (excessive hair growth), acne, and androgenic alopecia (hair loss).
3. **Polycystic Ovaries**: As evidenced by radiological findings, such as ultrasound, showing the presence of multiple cysts on the ovaries.

- **Ayurvedic Management of polycystic ovarian syndrome**

1) **Nidanparivarjana:** Avoid the root causes of the disease, especially those that aggravate vatadosha and dushtamedas, including certain dietary habits (ahara) and lifestyle choices (vihara).[xix]

2) **Addressing Agnimandya:** Focus on treating digestive fire impairment (agnimandya) at both the jatharagni (digestive fire) and dhatwagni (tissue fire) levels, alleviating srotovarodham (blockages in channels), and regularizing apanavata (downward-moving energy).

3) **Amapachan and Agnideepana:** Use remedies such as chitrakadivati, panchkolachurna, or shadushanachurna to digest toxins (ama) and stimulate the digestive fire.

4) **Vaman Karma:** Perform therapeutic emesis to eliminate vitiated kapha and soumaya substances from the body, resulting in an increase in agneya (fiery) constituents and subsequently, menstrual fluid (artava).[xx]

5) **Uttarbasti:** Administer medicated enemas to remove blockages (sanga) in the reproductive channels (aartavavahasrotas).[xxi]

6) **Pathadikwatha:** Administer orally along with satapushpa tail matrabasti for seven days after menstruation to treat vatakaphajaartavadushti, leveraging its aampachan (toxin-digesting), srotoshodhan (channel-cleansing), and vatakaphashamak (Vata and Kapha balancing) properties.[xxii]

7) **Sukumaraghrita:** Use to reduce the size of ovarian cysts.[xxiii]

8) **Satapuspachurna:** A drug of choice for menstrual disorders (artava) due to its strengthening (balya), digestive (dipanapachana), and reproductive-cleansing (yonivishodhana) properties. It aids in ovulation due to its katu (pungent), tikta (bitter) rasa, ushna (hot) virya, and tikshanasnigdhaguna (sharp and oily qualities).[xxiv]

9) **Narayan Tail**: Use to balance Vata and Kapha with its katu (pungent), tikta (bitter) rasa, laghu (light), ruksha (dry) guna, ushna (hot) virya, and katu (pungent) vipaka. It performs actions such as stimulating appetite (deepan), digesting (pachana), dissolving (vilayan), ensuring downward movement (anuloman), and channel- cleansing (srotoshodhan), leading to proper ovulation (bijotsarga).[xxv]

10) **Lekhandravyas:** Use herbs like takra and vyoshadyasattu to manage excess fat (medovriddhi) along with lifestyle modifications, including regular exercise.[xxvi]

11) **Dincharya:** Adjust the daily routine of patients according to Ayurvedic principles as much as possible.[xxvii]

➢ **Herbs use in PCOD**

Ayurvedic herbs have been traditionally used to regulate menstrual cycles, enhance ovulation, and alleviate symptoms associated with PCOD. Some of these herbs possess anti-inflammatory, anti-androgenic, and insulin-sensitizing properties, making them effective in addressing the underlying causes of PCOD.

- **Agneyadravya:** Aartva (menstrual fluid) is considered to be of Aagneya (fiery) nature in Ayurveda. Agneyadravya (fiery substances) possess properties that balance Vata and Kapha doshas while increasing Pitta dosha. These substances help to increase the amount of Aartva and aid in the removal of Kapha and Vata blockages, thereby curing related disorders.
- **Swavonivardhandravya:** This term refers to measures that promote the increase of Aartva. Administration of substances like Tila (sesame seeds) and Kulatha (horse gram) is recommended. These substances have similar properties and help increase the quantity of Aartva, thus supporting reproductive health.[xxviii]

Some classical Formulations

- Pushpadhanva Rasa
- Kanchnara Guggulu
- Nashtapushpantaka Rasa
- Rajah Pravartani Vati
- Chaturbeeja Choorna
- Aarogyavardhini Vati
- Varunadi Kashaya

- **Single drugs**
  - Ashwagandha (Withania somnifera): Believers attribute adaptogenic herbs to helping balance hormones and reduce stress.Shatavari (Asparagus racemosus)
  - Fenugreek (Trigonella foenum-graecum): Rich in antioxidants and known for its potential to improve insulin sensitivity.
  - Turmeric (Curcuma longa): Anti-inflammatory herb with potential benefits for managing inflammation associated with PCOS.
  - Guduchi (Tinospora cordifolia): Immune-modulating herb with potential anti- inflammatory properties.
  - Licorice (Glycyrrhiza glabra): An adaptogenic herb that may help regulate hormonal levels.
  - Cinnamon (Cinnamomum verum)
  - Triphala: Three fruits (Amalaki, Bibhitaki, and Haritaki) are known for their digestive and detoxifying properties.
  - Guggul (Commiphora wightii): Traditional herbs attribute lipid-lowering and anti- inflammatory properties and may be them to manage symptoms related to metabolic imbalances.
  - Neem (Azadirachta indica):Known for its anti-inflammatory and detoxifying properties.
  - Aloe Vera :The polysaccharide compounds in Aloe vera gel have anti-inflammatory, antibacterial, and antimicrobial properties.
  - Vitex agnus castus[xxix]: It helps balance estrogen levels, addressing menstrual cycle irregularities, premenstrual syndrome (such as luteal phase deficiency and cyclical mastalgia), and post-menopausal hot flashes.
  - Cocos Nucifera (Coconut)
  - Punica Granatum (Pomegranate)
  - Linum Usitatissimum (Flaxseed)
  - Mentha Spicata (Spearmint)

Discussion

Polycystic Ovarian Syndrome (PCOS) is a multifaceted endocrine disorder impacting women's reproductive and metabolic health. The etiology of PCOS is complex, involving genetic, environmental, and lifestyle factors that contribute to hormonal imbalances and metabolic disturbances. Traditional management often relies on synthetic drugs, which, though effective,can have limitations and side effects. Ayurveda offers a holistic alternative by addressing imbalances in the body's doshas (Vata, Pitta, Kapha) and promoting overall well-being.

Ayurvedic principles emphasize balancing the digestive fire (agnimandya), removing toxins (ama), and regularizing the body's energy flows (apanavata). Specific treatments such as Nidanparivarjana, Amapachan, Agnideepana, and therapies like Vaman Karma and Uttarbasti are designed to address these imbalances. Herbal remedies, including chitrakadivati, panchkolachurna, shadushanachurna, sukumaraghrita, satapuspachurna, and Narayan tail, play crucial roles in alleviating symptoms and improving overall health.

Herbs like Ashwagandha, Fenugreek, Turmeric, and Guduchi are valued for their adaptogenic, anti-inflammatory, and insulin-sensitizing properties, making them effective in addressing the root causes of PCOD. These herbs help restore hormonal balance, regulate menstrual cycles, and enhance fertility. Traditional formulations like Pushpadhanva Rasa, Kanchnara Guggulu, and Rajah Pravartani Vati combine multiple herbs to synergistically support reproductive health and well-being.

The Ayurvedic concepts of Agneyadravya (fiery substances) and Swavonivardhandravya (substances that increase Aartva) highlight the importance of balancing the doshas to manage PCOD effectively. By promoting the increase of Aartva and removing Kapha and Vata blockages, these substances help restore normal menstrual function and reduce PCOD symptoms.

Conclusion

The comprehensive management of PCOS requires a multifaceted approach that includes lifestyle modifications, dietary changes, and medicinal interventions. Ayurveda provides a valuable framework for understanding and treating PCOS by focusing on the balance of doshas, detoxification, and metabolic regulation. Herbal remedies offer an effective alternative to synthetic drugs, with fewer side effects and additional health benefits. Continued research into the chemical composition, mechanisms of action, and therapeutic applications of these herbs will further solidify their role in the treatment of PCOS. Integrating Ayurvedic principles with modern medical practices could lead to more holistic and effective management strategies for women suffering from PCOS.The integration of Ayurvedic herbs in the management of PCOD offers a natural treatments. These herbs, with their multifaceted properties, address the underlying causes of PCOD, such as hormonal imbalances, insulin resistance, and inflammation. Ayurvedic formulations and single herbs provide a comprehensive approach to improving reproductive health and alleviating PCOD symptoms.

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