



Review Article

Managing PCOS: Treatment options and lifestyle strategies

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ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a common hormonal disorder that affects many women. It's characterized by an imbalance of reproductive hormones, which can lead to a variety of symptoms. One of the main features of PCOS is the presence of cysts on the ovaries, which can affect their ability to release eggs regularly. This can result in irregular menstrual cycles or even a lack of periods. PCOS can also cause excess production of androgens, which are male hormones. This hormonal imbalance can lead to symptoms like acne, excessive hair growth, and hair loss. In addition to these physical symptoms, PCOS can also have an impact on fertility. Women with PCOS may have difficulty getting pregnant due to irregular ovulation. It's important to note that not all women with PCOS will experience all of these symptoms, and the severity can vary from person to person. While the exact cause of PCOS is unknown, it is believed to involve a combination of genetic and environmental factors. There is currently no cure for PCOS, but there are treatment options available to manage the symptoms. These can include lifestyle changes such as diet and exercise, as well as medications to regulate hormones and improve fertility. Medications, including 3-hydroxy-3-methyl-3-glutaryl-coenzyme A (HMG-CoA) reductase inhibitors, thiazolidinediones, sodium-glucose cotransporter-2 inhibitors, dipeptidyl peptidase-4 inhibitors, glucose-like peptide-1 receptor agonists, mucolytic agents, and some supplements have supporting data for being repurposed in PCOS. It's important for women with PCOS to work closely with their healthcare provider to develop a personalized treatment plan. Regular check-ups and monitoring are crucial to manage the condition effectively. PCOS is an endocrine gynaecology disorder from childbearing age. If the PCOD/PCOS is not treated at its critical stage it can lead to permanent infertility. Clomifene and metformin are the drug of choice for this disease. Some time PCOS shown glucose-induced hyperinsulinemia, insulin resistance and independent BMI. The insulin dependent glucose level can be decreased by 35-40% in case of PCOD affected women by comparing to normal healthy women.

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More than 2% of women are suffering to type 2 diabetes mellitus and almost 16% of women move from impaired glucose tolerance to type 2 diabetes mellitus. The incidence of PCOS with obesity is very complex although PCOS occurs both in obese and meta-analysis reveal that obesity more frequently.

INTRODUCTION

PCOS, or Polycystic Ovary Syndrome, is a common hormonal disorder that affects women of reproductive age .It's like a sneaky troublemaker that messes with your body's hormone levels and can cause a range of symptoms and health issues(1). One of the key features of PCOS is irregular periods. Instead of having a regular monthly cycle, your periods may be unpredictable, with longer gaps between them or even skipping periods altogether(2). This happens because your ovaries don't release eggs regularly, which is necessary for a normal menstrual cycle. Another thing that happens with PCOS is an increase in androgen levels.(3) Androgens are male hormones that are present in both men and women, but when they're too high in women, it can lead to unwanted symptoms. These symptoms can include acne, oily skin, and excessive hair growth, especially in areas like the face, chest, and back(4). On the flip side, some women with PCOS may experience hair loss or thinning on their scalp .Now, let's talk about those tiny cysts on the ovaries. Despite the name, these cysts are not harmful or cancerous. They're actually small sacs filled with fluid that form on the ovaries(5). These cysts can be seen during an ultrasound examination, but not all women with PCOS have them. So, even if you don't have cysts, you can still be diagnosed with PCOS based on other symptoms and hormone levels. PCOS is not just about the physical changes. It can also have an impact on your overall health(6) .Women with PCOS are more likely to develop insulin resistance, which means their bodies have trouble using insulin effectively. This can lead to high blood sugar level(7). Weight gain and difficulty losing weight are also common

challenges for women with PCOS(8) .Fertility can be another concern for women with PCOS . Irregular ovulation or lack of ovulation can make it harder to get pregnant. If you're planning to start a family, it's important to work closely with your healthcare provider to manage your PCOS and optimize your chances of conceiving(9) .The exact cause of PCOS is not fully understood, but it's believed to involve a combination of genetic and environmental factors .If other women in your family have PCOS, you may be more likely to develop it too(10). While there is no cure for PCOS . PCOS is a metabolic disorder that is more severe than PCOD(11). In this condition, the ovaries produce a higher quantity of the male hormone and this leads to the formation of more than ten follicular cysts in the ovary every month. This stops the release of the egg leading to anovulation(12). This includes changes to the menstrual cycle, unwanted hair growth. Untreated, it can lead to infertility. and other complications like overweight , irregular periods, difficulty getting pregnant (Because of irregular ovulation or no ovulation),excessive hair growth(hirsutism) -usually on the face, chest ,back or buttocks, weight gain , thinning hair and hair loss from the head, oily skin or acne.PCOS is one of the most common hormonal endocrine disorders affecting 8-20 percent of women, many of whom do not have a diagnosis(13)

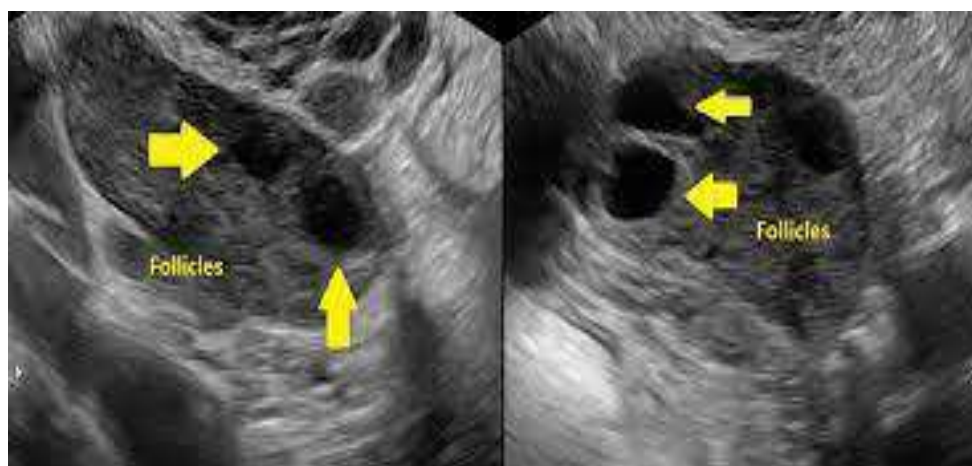


Echography Test :-

Without PCOS:-



With PCOS:-



Ayurvedic treatment on PCOS:

Ayurveda approaches PCOS as an imbalance in the doshas, particularly the Kapha and Pitta doshas. The treatment focuses on restoring balance through lifestyle changes, herbal remedies, and dietary modifications.(16)

1. Lifestyle Modifications:-

Regular exercise: Engage in physical activities like yoga, brisk walking, or swimming to improve metabolism and reduce insulin resistance.- Stress management: Practice relaxation techniques like meditation or deep breathing to reduce stress levels, as stress can worsen PCOS symptoms.- Adequate sleep: Get enough sleep to support hormonal balance and overall well-being(17)

2. Herbal Remedies:- Shatavari:

This herb helps regulate hormonal imbalances and supports reproductive health.- Ashwagandha: It helps reduce stress and promotes hormonal balance.- Triphala : It aids digestion and detoxification, which can be beneficial for PCOS(18)

3. Dietary Recommendations:-

Balanced diet: Focus on whole, unprocessed foods, including fruits, vegetables, whole grains, and lean proteins.- Avoid processed foods: Minimize the intake of refined sugars, unhealthy fats, and processed snacks.- Include spices: Turmeric, cinnamon, and fenugreek are known for their anti-inflammatory properties and can be beneficial for PCOS .Remember, it's essential to consult with a qualified Ayurvedic practitioner for

personalized advice. They can assess your specific condition and recommend the most suitable treatment plan. I hope this gives you a brief overview of Ayurvedic treatment for PCOS(19).

1. Holistic Approach:

Ayurveda considers the body, mind, and spirit as interconnected. It aims to address the root causes of PCOS rather than just treating the symptoms. By focusing on overall well-being, Ayurveda seeks to restore balance and harmony within the body(20)

2. Personalized Care:

Ayurvedic treatments are highly individualized. Practitioners take into account a person's unique constitution (dosha) and specific imbalances. This personalized approach helps in designing a treatment plan that suits the individual's needs, making it more effective(21).

3. Natural Remedies:

Ayurveda often relies on natural remedies, herbs, and dietary modifications. This can be appealing to those who prefer a more natural and gentle approach to their health. Some commonly used herbs for PCOS in Ayurveda include Shatavari, Ashwagandha, and Turmeric, which are believed to help balance hormones and reduce symptoms(23).

4. Lifestyle Modifications:

Ayurveda emphasizes the importance of lifestyle modifications in managing PCOS. This includes


recommendations for regular exercise, stress management techniques, and adequate sleep. By adopting these lifestyle changes, individuals can support hormonal balance and overall well-being(24).





5. Potential Fewer Side Effects:




Ayurvedic treatments generally have a low risk of side effects when compared to conventional medications. This is because Ayurveda uses natural remedies and focuses on restoring the body's natural balance rather than suppressing symptoms. However, it's important to consult with a qualified Ayurvedic practitioner to ensure safe and appropriate use of treatments(25)

6. Emotional and Mental Well-being:

Ayurveda recognizes the impact of emotional and mental factors on physical health. Stress and emotional imbalances can contribute to hormonal disruptions in PCOS. Ayurvedic treatments often include stress management techniques, meditation, and counseling to promote emotional well-being(26) It's important to note that Ayurvedic treatment for PCOS may not be suitable for everyone. It's always advisable to consult with a qualified Ayurvedic practitioner who can assess your individual condition and provide personalized guidance. They can help determine if Ayurveda is the right approach for you or if it should be used in conjunction with other medical treatment(27)

Sr.No	Herb	Sources/Family	Uses	
1	Shatavari	Asparagus	Hormone regulate balance menstrual cycle.	

2	Lodhra	<p>Symplocos racemose Roxb Symplocasceae</p>	<p>Shows anti-androgenic effect regulate menstrual cycle by maintaining ratio between progesterone and estrogen. Decrease the testosterone level</p>	
3	Ashwagandha	<p>Withania Somnifera Solanaceae</p>	<p>Helps to reduce stress Support hormone regulation</p>	
4	Guggul	<p>Commiphora wightii Bhandari Burseraceae</p>	<p>Weight management and helps maintain cholesterol level</p>	
5	Turmeric	<p>Curcuma longa Zingiberaceae</p>	<p>Possess anti-inflammatory properties and aid in hormone balance</p>	

6	Ashoka	Saraca Indica Linn Leguminosae	Helps to reduce stress Support hormone regulation	
7	Aloe vera	Liliaceae	Helps to control acne, cleanses skin	
8	Brahmi	Bacopa Monnieri Scrophulariaceae	Brahmi being a grain tonic enhances mental well being, improve sleeps, allows women to handle mental stress, depression, anxiety.	

In Ayurveda, churna (powder) formulations are commonly used for the treatment of PCOS. Here are a few churnas that are often recommended:

1. Triphala Churna:

This herbal blend of three fruits (amalaki, bibhitaki, and haritaki) is known for its detoxifying and rejuvenating properties. It may help regulate hormones and support overall reproductive health. Triphala churna can be beneficial for PCOS as well. It has been used in Ayurveda to help regulate hormones, improve digestion, and support overall reproductive health. However, it's important to note that while it may offer some benefits, it's not a cure for PCOS. It's always a good idea to consult with a healthcare professional before trying any

new supplements or remedies to ensure they are safe and suitable for us(29).

2. Shatavari Churna :

Made from the root of the shatavari plant, this churna is believed to have hormone-balancing effects and can help improve fertility and menstrual irregularities associated with PCOS. Shatavari churna is another herbal remedy that is commonly used in Ayurveda, and it is often recommended for women's health, including PCOS. Shatavari is believed to help regulate hormonal imbalances and support reproductive health(30).

3. Ashwagandha Churna:

Derived from the ashwagandha plant, this churna is known for its adaptogenic properties. It may help reduce stress, balance hormones, and improve reproductive health. Ashwagandha churna is another Ayurvedic herb that is often used for various health benefits, including hormonal balance. Some studies suggest that ashwagandha may help improve symptoms of PCOS, such as irregular periods and hormonal imbalances. However, it's important to remember that PCOS is a complex condition(31).

PRECAUTIONS

When it comes to Ayurvedic precautions for PCOS, there are a few things you can keep in mind:

1. Follow a balanced diet:

Focus on incorporating whole, unprocessed foods into your meals. Include plenty of fruits, vegetables, whole grains, and lean proteins. Avoid excessive consumption of sugar, refined carbohydrates, and processed foods. A balanced diet for PCOS (Polycystic Ovary Syndrome) typically includes:

- I. High-fiber foods like whole grains, fruits, and vegetables.
- II. Lean protein sources in such as chicken, fish, tofu, or legumes.
- III. Healthy fats like avocados, nuts, and olive oil.
- IV. Low-glycemic index carbohydrates like sweet potatoes and quinoa.
- V. Limiting processed foods, sugary snacks, and drinks(32).

2. Stay active:

Regular exercise can help improve insulin sensitivity and hormone balance. Aim for at least 30 minutes of moderate-intensity exercise most days of the week. Regular exercise can be beneficial for managing PCOS. Here are a few exercises you can try: 1. Cardiovascular exercises like brisk walking, jogging, cycling, or swimming can help improve insulin sensitivity and aid in

weight management. 2. Strength training exercises, such as lifting weights or bodyweight exercises, can help build muscle mass and increase metabolism. 3. Yoga or Pilates can help reduce stress levels and improve flexibility. Remember to start slowly and gradually increase the intensity and duration of your workouts(33).

3. Manage stress:

Chronic stress can worsen PCOS symptoms. Explore stress management techniques like yoga, meditation, deep breathing exercises, or any activity that helps you relax and unwind. Managing stress is important for overall well-being, including PCOS management. Here are a few tips to help you manage stress:

- I. Engage in relaxation techniques like deep breathing, meditation, or yoga.
- II. Find activities that you enjoy and help you unwind, such as listening to music, reading, or spending time with loved ones.
- III. Prioritize self-care by getting enough sleep, eating nutritious meals, and taking time for yourself.
- IV. Regular exercise, as we discussed earlier, can also help reduce stress levels.
- V. Consider seeking support from a therapist or counselor to help you cope with stress(34).

4. Get enough sleep:

Aim for 7-9 hours of quality sleep each night. Establish a regular sleep routine and create a sleep-friendly environment. Getting better sleep is important for managing PCOS. Here are a few tips to help improve your sleep: 1. Establish a consistent sleep schedule by going to bed and waking up at the same time every day, even on weekends. 2. Create a calming bedtime routine, such as reading a book, taking a warm bath, or practicing relaxation techniques. 3. Make your sleep environment comfortable and conducive to sleep by keeping the room dark, quiet, and at a cool temperature. 4. Limit exposure to electronic

devices, especially before bed, as the blue light can interfere with your sleep. 5. Avoid consuming caffeine or heavy meals close to bedtime, as they can disrupt your sleep(35).

5. Limit exposure to environmental toxins:

Try to minimize your exposure to chemicals found in certain household products, plastics, and pesticides. Opt for natural and organic alternatives whenever possible. Minimizing exposure to environmental toxins is a great step towards a healthier lifestyle. Here are a few tips to help you with that:

- I. Choose organic produce and foods whenever possible to reduce exposure to pesticides and chemicals.
- II. Use natural cleaning products and avoid harsh chemicals in your home.
- III. Opt for natural personal care products without harmful ingredients like parabens and phthalates.
- IV. Be mindful of air quality by keeping your living spaces well-ventilated and using air purifiers if needed.
- V. Filter your drinking water to remove potential contaminants(36).

Allopathy Treatment:

Allopathy is the conventional or mainstream approach to medicine. It focuses on treating diseases and symptoms using medications and procedures. When it comes to PCOS, allopathic treatment aims to manage the symptoms and hormonal imbalances associated with the condition. This can include the use of birth control pills, anti-androgen medications, metformin, fertility medications, and lifestyle changes.

1)Metformin :

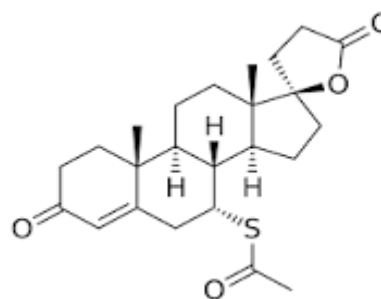
Metformin works by reducing the production of glucose in the liver and increasing the sensitivity of muscle and fat cells to insulin. This helps to lower blood sugar levels and improve insulin resistance. Additionally, metformin may also affect certain signaling pathways in the body that

are involved in regulating metabolism. Overall, metformin helps to improve insulin sensitivity and control blood sugar levels.



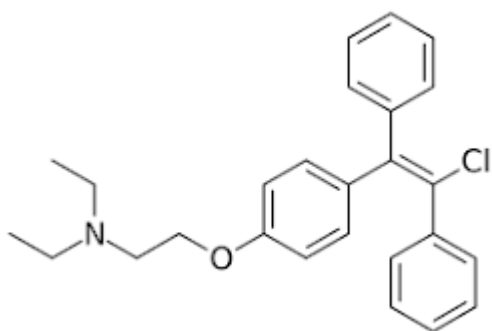
2) Spironolactone:

Spironolactone works by blocking the effects of a hormone called aldosterone in the body. It's known as a potassium-sparing diuretic, which means it helps the body get rid of excess fluid while retaining potassium. In addition to its diuretic effects, spironolactone also has anti-androgen properties. It can block the action of androgens (male hormones) in the body, which can be helpful in conditions like PCOS where there is an excess of androgens. By reducing androgen levels, spironolactone can help improve symptoms such as acne, excessive hair growth, and hair loss in women with PCOS.



3) Clomiphene :

It works by stimulating the release of hormones needed for ovulation. It blocks negative feedback signals, leading to increased production of follicle-stimulating hormone (FSH) and luteinizing hormone (LH). These hormones are crucial for the growth and release of eggs from the ovaries. By promoting ovulation, clomiphene can improve the chances of pregnancy for women struggling to conceive.



4) Letrozole:

It is also called Femara, works by blocking the aromatase enzyme. This enzyme is responsible for converting androgens (male hormones) into estrogens (female hormones). By inhibiting aromatase, letrozole reduces estrogen levels in the body. This can help slow down or stop the growth of estrogen-sensitive breast cancer cells.

Lifestyle strategies :

1. Maintain a balanced diet: Focus on whole foods, plenty of fruits and vegetables, lean proteins, and healthy fats. Limit processed foods and sugary snacks.
2. Regular exercise: Engage in regular physical activity, such as cardio exercises, strength training, or yoga. It can help improve insulin sensitivity and manage weight.
3. Stress management: Find healthy ways to manage stress, such as practicing mindfulness, deep breathing exercises, or engaging in hobbies that you enjoy.
4. Adequate sleep: Aim for 7-9 hours of quality sleep each night to support hormonal balance.
5. Weight management: If overweight, losing even a small amount of weight can help improve symptoms. Consult with a healthcare professional for personalized guidance(41).

CONCLUSION

Treatment of polycystic ovary syndrome (PCOS) requires a multifaceted approach that combines medical interventions with lifestyle strategies. Treatment options may include hormonal birth control, antiandrogen medications, and insulin-

sensitizing medications to treat certain symptoms, such as irregular periods, acne, and excessive hair growth. Lifestyle changes such as a balanced and nutritious diet, regular physical activity and maintaining a healthy weight play a crucial role in the treatment of PCOS. The importance of a personal approach cannot be overstated, as PCOS manifests itself differently in people. Regular follow-up by health professionals, including gynaecologists, endocrinologists, and nutritionists, is essential so that treatment and lifestyle recommendations are tailored to each patient's individual needs. Additionally, treating the underlying insulin resistance is often a key part of PCOS management, as it can contribute to a variety of symptoms. Lifestyle changes, including a focus on whole foods, regular exercise, and stress management, can help improve insulin sensitivity and overall well-being. People with PCOS must take an active role in their health care by maintaining open communication with their health care providers, adhering to prescribed treatments, and leading sustainable lifestyles. By combining medical interventions with a commitment to a healthy lifestyle, PCOS patients can effectively manage their condition, reduce symptoms and improve their overall quality of life. Regular follow-up and modification of the treatment plan if necessary are crucial in the long-term treatment of PCOS.

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