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A CLINICAL STUDY TO EVALUATE THE EFFECT OF LATAKARANJAADI YOGA IN THE MANAGEMENT OF PCOS

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ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a complex endocrine and metabolic disorder affecting reproductive, physical, and psychological health in women. It presents with clinical features such as irregular menstruation, infertility, obesity, acne, hirsutism, alopecia, and emotional distress. Although PCOS is not explicitly described in classical Ayurvedic texts, its symptomatology closely resembles conditions such as *Vandhya Yonivyapada*, *Artavavyapads* including *Nashtartava* and *Artava Kshaya*, and *Pushpaghni Jathaharini* as described by Acharya *Kashyapa*. Conventional management often involves hormonal therapy, which may lead to adverse effects, highlighting the need for safe and effective non-hormonal alternatives. **Method**: The present study aimed to evaluate the efficacy of *Latakaranjaadi Yoga*, an Ayurvedic formulation, in the management of PCOS. A total of 30 patients diagnosed with PCOS were randomly selected from the OPD and IPD of S.D.M. Ayurvedic Hospital, Kuthpady, Udupi. This open-label clinical trial involved administration of *Latakaranjaadi Yoga* for three months, followed by a one-month follow-up. Clinical and metabolic parameters were assessed before and after treatment. **Result:** The results showed significant improvement in menstrual regularity, acne, and metabolic

disturbances. The study concludes that *Latakaranjaadi Yoga* is effective in managing PCOS by restoring hormonal balance and improving associated symptoms.

KEYWORDS: PCOS, *Vandhya Yonivyapada*, *Nashtartava*, *Artava Kshaya*, *Pushpaghni Jathaharini*, *Latakaranjaadi Yoga*.

INTRODUCTION

In the modern era, rapid changes in lifestyle, dietary habits, physical inactivity, and psychological stress have contributed significantly to the increasing prevalence of metabolic and endocrine disorders. These changes have resulted in hormonal imbalance and menstrual irregularities among women of reproductive age. Among these disorders, Polycystic Ovary Syndrome (PCOS) has emerged as one of the most common gynecological endocrinopathies, affecting approximately 8–13% of women globally, with nearly 70% of cases remaining undiagnosed due to varied clinical presentation and lack of awareness.[1]

Polycystic Ovarian Syndrome is a heterogeneous metabolic–endocrine–reproductive disorder characterized by oligo-ovulation or anovulation, clinical or biochemical hyperandrogenism, and polycystic ovarian morphology on ultrasonography.[2] The underlying pathophysiology involves dysfunction of the hypothalamic–pituitary–ovarian axis, insulin resistance, hyperinsulinemia, and altered ovarian steroidogenesis. Excess insulin stimulates ovarian androgen production, particularly testosterone, which interferes with follicular maturation and ovulation, resulting in infertility. PCOS is recognized as the most common cause of anovulatory infertility in women of reproductive age. If left untreated, it may progress to serious long-term complications such as cardiovascular disorders, endometrial hyperplasia, carcinoma, hypertension, dyslipidemia, obesity, and type 2 diabetes mellitus.[3]

PCOS cannot be explained under one pathological entity in Ayurvedic literature, as it represents a cluster of symptoms rather than a distinct pathological condition. Classical Ayurvedic texts describe several conditions that closely resemble the clinical features of PCOS. *Yonivyapads* such as *Vandhya*,[4] *Artavavyapads* including *Nashtartava*.[5] and *Artava Kshaya*,[6] and *Pushpaghni Jathaharini*,[7] described by Acharya Kashyapa, show striking similarities to the manifestations of PCOS. The disease involves vitiation of *Dosha* and *Dushya*, particularly *Kapha*, *Vata*, *Meda*, and *Artava*, leading to impaired ovarian function and infertility.

Management for PCOS in contemporary medicine includes hormonal therapy, ovulation-inducing drugs, and symptomatic treatment, which often provide temporary relief and may be associated with adverse effects and recurrence. Therefore, there is growing interest in exploring holistic and non-hormonal management strategies through Ayurveda.

Latakaranjaadi Yoga is a compound Ayurvedic formulation containing *Kuberaksha Beeja Majja*, *Shunthi*, *Methika*, *Rasona*, *Hingu*, *Sauvarchala Lavana*, and *Manjistha*. Most of these drugs possess *Katu* and *Tikta Rasa*, *Ushna Virya*, and *Vata-Kapha Shamaka* properties, with additional *Mehaghna*, *Artava-Janana*, and *Vrishya* actions. Considering these properties, *Latakaranjaadi Yoga* may be beneficial in correcting metabolic disturbances and restoring normal ovarian function in PCOS. Hence, the present study titled "A Clinical Study to Evaluate the Effect of *Latakaranjaadi Yoga* in the Management of PCOS" was undertaken.

MATERIALS AND METHODS

Source of Data

The study was conducted on patients diagnosed with Polycystic Ovarian Syndrome (PCOS) attending the OPD and IPD of the Department of *Prasuti Tantra and Stree Roga*, Shri Dharmasthala Manjunatheshwara Ayurvedic Hospital, Kuthpady, Udupi.

Source of Drug

The trial drug *Latakaranjaadi Yoga* was prepared at Shri Dharmasthala Manjunatheshwara Pharmacy, Kuthpady, Udupi, following classical Ayurvedic standards.

Study Design

This was an interventional, non-randomized, open-label, single-group clinical study with efficacy as the endpoint and treatment as the primary purpose.

Sample Size

A total of 30 patients diagnosed with PCOS were selected. Diagnosis was confirmed using a specially designed case proforma incorporating history, clinical features, and investigations as described in Ayurvedic classics and allied sciences.

Diagnostic Criteria

Diagnosis was based on

1. Evidence of oligo-ovulation or anovulation
2. Polycystic ovarian morphology on ultrasonography

Inclusion Criteria

- Patients fulfilling the diagnostic criteria of PCOS
- Age between 16 and 35 years
- Willingness to provide informed consent

Exclusion Criteria

- Presence of systemic diseases interfering with treatment
- Pregnant and lactating women

Assessment Criteria

Clinical assessment was performed on Day 0, Day 30, Day 60, and Day 90. Ultrasonography of the abdomen and pelvis was done on Day 0 and Day 90.

Parameters Assessed

Subjective

Amenorrhea/oligomenorrhea, number of pads used, duration of menstrual cycle, and intermenstrual bleeding.

OBJECTIVE

Body Mass Index (BMI), hirsutism (Ferriman–Gallwey score), acanthosis nigricans, and ultrasonographic findings, including follicular size, ovarian volume, and endometrial thickness.

Investigations

Ultrasonography of abdomen and pelvis, thyroid function tests, and serum prolactin levels, wherever indicated.

Intervention

Latakaranjaadi Yoga was administered orally in a dose of 5 g twice daily before food with *Ushnodaka* as *Anupana*.

Statistical Analysis

Data obtained before and after treatment were statistically analyzed. Paired *t-test* was applied for parametric data, and the Wilcoxon Signed Rank test for non-parametric data.

Study Duration

The total duration of the study was 4 months, including 3 months of treatment and 1 month of follow-up.

RESULTS

Table 1: Menstrual Irregularities.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	-	-	1.2333	–2.84	<0.0001	Highly Significant
Day 0 vs Day 120	-	-	1.2000	–3.08	<0.0001	Highly Significant

Interpretation: Significant improvement in menstrual regularity was observed post-treatment and at follow-up.

Table 2: Days of Menstrual Flow.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	1.267	1.233	2.500	-0.05	0.6992	Not Significant
Day 0 vs Day 120	1.267	1.133	2.400	-0.15	0.3438	Not Significant

Interpretation: Slight improvement observed; not statistically significant.

Table 3: Interval of Menstrual Cycle.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	1.867	1.100	0.767	-	-	Significant
Day 0 vs Day 120	1.867	0.867	1.000	-2.84	<0.0001	Highly Significant

Interpretation: Cycle intervals reduced, showing improved ovulatory function.

Table 4: Amount of Bleeding.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	1.833	2.033	+0.200	+0.65	0.2632	Not Significant
Day 0 vs Day 120	1.833	2.100	+0.267	+0.78	0.0963	Not Significant

Interpretation: Slight increase in bleeding, not statistically significant.

Table 5: Clot Formation.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	0.667	0.200	-0.467	-1.08	0.0001	Highly Significant
Day 0 vs Day 120	0.667	0.167	-0.500	-1.23	<0.0001	Highly Significant

Interpretation: Marked reduction in menstrual clots, indicating positive therapeutic effect.

Table 6: Dysmenorrhea.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	1.567	0.833	-0.734	-1.76	<0.0001	Highly Significant
Day 0 vs Day 120	1.567	0.467	-1.100	-2.60	<0.0001	Highly Significant

Interpretation: Significant reduction in the severity of menstrual pain post-treatment.

Table 7: Hirsutism.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	0.567	0.433	-0.134	-0.10	0.1250	Not Significant
Day 0 vs Day 120	0.567	0.400	-0.167	-0.15	0.0625	Not Significant

Interpretation: Mild reduction in hair growth; not statistically significant**.**

Table 8: Acanthosis Nigricans.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	0.133	0.100	-0.033	-0.01	>0.9999	Not Significant
Day 0 vs Day 120	0.133	0.100	-0.033	0.01	>0.9999	Not Significant

Interpretation: Minimal change in skin pigmentation; not significant.

Table 9: Acne Vulgaris.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	0.567	0.167	-0.400	-0.68	0.0010	Highly Significant
Day 0 vs Day 120	0.567	0.200	-0.367	-0.68	0.0010	Highly Significant

Interpretation: Significant reduction in acne, reflecting improved androgenic symptoms.

Table 10: BMI.

Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	1.500	1.433	-0.067	-0.67	0.5000	Not Significant
Day 0 vs Day 120	1.500	1.433	-0.067	-0.67	0.5000	Not Significant

Interpretation: Slight decrease in BMI; not statistically significant.

Table 11: Number of Pads Used.

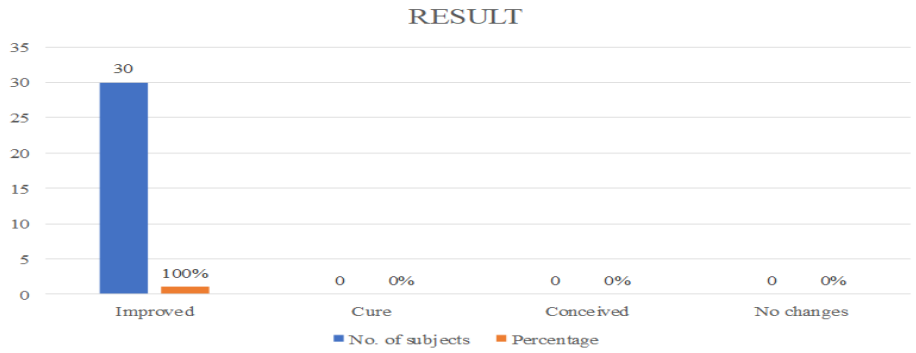
Comparison	Mean (BT)	Mean (AT / FU)	Mean Difference	Z value	*p* value	Significance
Day 0 vs Day 90	2.567	3.067	+0.500	-2.65	0.0082	Significant
Day 0 vs Day 120	2.567	3.100	+0.533	-2.63	0.0087	Significant

Interpretation: Increase in pad usage due to improved menstrual flow; statistically significant.

Table 12: Ultrasonographic Parameters (Paired t-test).

Parameter	Mean (BT)	Mean (AT)	Mean Differ.	t (df)	95% CI of Diffe	Cor relation (r)	p Value	Significane
Right Ovary (mm)	13.38	13.28	-0.093	1.785 (29)	-0.2003 to 0.0136	0.9963	0.0847	Not Significant
Left Ovary (mm)	13.30	13.21	-0.090	1.368 (29)	-0.2246 to 0.0446	0.9951	0.1819	Not Significant
Endometrial Thickness (mm)	6.423	6.190	-0.233	1.240 (29)	-0.6182 to 0.1515	0.8796	0.2249	Not Significant

Interpretation: Slight reductions in ovary size and endometrial thickness; changes not significant.



Graph no.1.

Discussion on Disease

Polycystic Ovary Syndrome (PCOS) represents a complex interplay of reproductive, metabolic, and endocrine dysfunctions. Rather than being a localized gynecological disorder, PCOS manifests as a systemic condition involving hormonal dysregulation, impaired folliculogenesis, altered metabolism, and chronic low-grade inflammation. The variability in clinical presentation emphasizes the need for a multidimensional understanding of its pathogenesis.

From an Ayurvedic point of view, PCOS can be understood as a disorder arising from *Agni vaishamya* and *Avarana* rather than a single disease entity. Disturbed *Jatharagni* and *Dhatawagni* impair the sequential nourishment of *Rasa*, *Medo*, and *Artava dhatu*, leading to defective ovulation and menstrual irregularities. The obstruction of *Artavavaha srotas* by vitiated *Kapha* and *Vata* explains anovulation and delayed or absent menstruation, commonly observed in PCOS.

The metabolic component of PCOS is closely associated with *Medo dhatu dushti*, where excess and improperly processed *Medas* disrupt normal endocrine functioning. This state parallels insulin resistance seen in modern medicine. The resultant hormonal imbalance contributes to clinical features such as hirsutism, acne, and weight gain. These manifestations indicate deeper *Dhatawagni mandya* and accumulation of *Dhatu malas*, particularly affecting *Asthi* and *Majja dhatu*.

Skin changes like acanthosis nigricans and acne reflect involvement of *Pitta* and *Rakta*, along with *Kapha* dominance. Thus, PCOS demonstrates a *tridoshas* involvement with predominance of *Kapha-Vata*.

Understanding PCOS through this integrative framework highlights the necessity of addressing root metabolic dysfunction and *Avarana* rather than symptomatic management alone, thereby supporting holistic therapeutic strategies.

Discussion on Drugs

The pathogenesis of PCOS, from an Ayurvedic perspective, is rooted in *Agnimandya*, *Ama sanchaya*, *Kapha Vata dushti*, *Medo dhatu vriddhi*, and *Avarana* of *Artavavaha srotas*, leading to *Artava dushti*, anovulation, and metabolic imbalance. Hence, the therapeutic

strategy focuses on *Samprapti-Vighatana* through *Deepana*, *Pachana*, *Srotoshodhana*, *Medohara*, *Artavajanana*, and *Vatanulomana* actions.

Latakaranja (Caesalpinia crista) plays a pivotal role in correcting *Agnimandya* and *Ama* through its potent *Deepana-Pachana* and *Srotoshodhana* properties. Its *Medovilayana* and phytoestrogenic actions help reduce insulin resistance, regulate hormones, and promote *Artava utpatti*, thereby improving ovulatory function.

Methika (Trigonella foenum-graecum) acts primarily on the metabolic component of PCOS by enhancing insulin sensitivity and correcting *Kapha avarana*. Its *Vataghna* and *Shulaghna* properties alleviate dysmenorrhea, while phytoestrogens support normalization of the LH: FSH ratio and follicular development.

Shunthi (Zingiber officinale) and *Hingu* (Ferula assa-foetida) synergistically improve *Agni*, digest *Ama*, and relieve *Srotorodha*. *Shunthi* provides analgesic and anti-inflammatory benefits, effectively reducing dysmenorrhea, while *Hingu*, with its *Ushna* and *Teekshna* qualities, promotes *Artava pravartana* and corrects *Vata -Kapha avarana*.

Lasuna (Allium sativum) acts as a potent *Medohara* and *Srotoshodhaka* drug. Its hypolipidemic, antidiabetic, and antioxidant properties address obesity, dyslipidemia, and insulin resistance, key contributors to hyperandrogenism and ovarian dysfunction in PCOS.

Manjistha (Rubia cordifolia) purifies *Rakta* and improves *Pitta* balance, helping manage acne, hirsutism, and acanthosis nigricans. It supports the qualitative improvement of *Artava dhatu* through its anti-inflammatory and antioxidant actions.

Sauvarchala Lavana, by enhancing *Agni* and regulating *Apana Vata*, supports digestion, prevents further *Ama* formation, and facilitates menstrual regularity.

Collectively, the formulation acts holistically on metabolic and reproductive pathology, restoring *Agni*, clearing *Ama*, reducing *Medo dushti*, removing *Avarana*, and normalizing *Artava pravritti*, thereby improving ovulation, menstrual regularity, and fertility in PCOS.

Discussion on the Result

A statistically significant improvement was observed in menstrual irregularities following treatment. The mean difference between baseline (Day 0) and post-treatment (Day 90) was

1.233, and between baseline and follow-up (Day 120) was 1.200, indicating a highly significant reduction in menstrual irregularity.

The duration of menstrual flow showed minimal change, with mean differences of 2.5 days at Day 90 and 2.4 days at Day 120, suggesting a limited effect on flow duration.

Menstrual cycle interval demonstrated marked improvement, with mean differences of 0.767 at Day 90 and 0.867 at Day 120, indicating restoration toward cycle regularity.

The amount of menstrual bleeding showed a mild, clinically insignificant increase (mean difference +0.200 at Day 90 and +0.267 at Day 120), reflecting minimal variation in flow.

Clot formation significantly reduced, with mean values decreasing from 0.6667 at baseline to 0.2000 at Day 90 and 0.1667 at follow-up.

Dysmenorrhea showed a marked and sustained reduction, with mean scores decreasing from 1.567 at baseline to 0.8333 at Day 90 and 0.4667 at Day 120.

Hirsutism demonstrated mild improvement, with mean scores decreasing from 0.5667 at baseline to 0.4000 at follow-up, though changes were minimal.

Acanthosis Nigricans showed no clinically significant improvement, with a marginal reduction in mean scores.

Acne vulgaris showed marked improvement, with mean scores reducing from 0.5667 at baseline to 0.1667 at Day 90, maintained at follow-up.

BMI showed a slight reduction from baseline (1.500) to Day 90 (1.433), with no further change at follow-up, indicating minimal effect on body weight.

The number of pads used increased from 2.567 at baseline to 3.100 at follow-up, indicating improved menstrual flow adequacy and normalization.

Ultrasonographic parameters showed minimal changes. Mean ovarian size was slightly reduced in both ovaries. Endometrial thickness showed a minor reduction, indicating no significant structural change.

CONCLUSION

Polycystic Ovarian Syndrome (PCOS) is a multifactorial disorder involving hormonal, metabolic, and reproductive dysfunctions. From an Ayurvedic perspective, it arises due to *Kapha Vata dushti*, *Agnimandya*, *Ama sanchaya*, *Srotorodha*, and *Medo Artava dushti*, resulting in menstrual irregularities, anovulation, and hyperandrogenic features.

The present clinical study demonstrates that *Latakaranjaadi Yoga* effectively supports *Samprapti-Vighatana* by improving digestion and metabolism, reducing *Meda*, clearing *Srotas*, and normalizing *Artava pravritti*. The formulation showed beneficial effects on menstrual regularity, ovulation, metabolic balance, and associated dermatological manifestations, indicating its holistic therapeutic potential in the management of PCOS.

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