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CLINICAL IMPROVEMENT IN OVARIAN RESERVE MARKERS FOLLOWING AYURVEDIC TREATMENT: A CASE SERIES OF 30 WOMEN WITH LOW AMH

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ABSTRACT

Low Anti-Müllerian Hormone (AMH) levels are considered a key indicator of diminished ovarian reserve and reduced reproductive potential in women.[1] Patients with low AMH are often predicted to have a poor response to conventional fertility treatments and are frequently advised to assist reproductive techniques such as in vitro fertilization. However, conventional medicine offers limited therapeutic strategies for improving ovarian reserve markers.[2] This case series presents the clinical outcomes of 30 women with low baseline AMH levels who underwent Ayurvedic management using proprietary formulations including *Poshini*, *Rutuja*, *and Vardhani* for a period of 6 months. These formulations are traditionally used to support reproductive health through mechanisms such as enhancement of egg quality, *Artava Dhatu* (reproductive tissue), improvement of ovarian function, regulation of ovulatory cycles, and correction of *srotorodha* (functional obstruction of physiological channels). Patients also received structured dietary and lifestyle guidance aimed at improving systemic metabolic balance and hormonal regulation. Following treatment, a consistent improvement in AMH levels was observed across the cohort, with several patients demonstrating clinically meaningful increases from severely diminished baseline levels. These findings suggest that Ayurvedic treatment interventions contribute to improvement in ovarian reserve markers and reproductive physiology. The observations from this case series

highlight the role of Ayurveda as a supportive approach in the management of diminished ovarian reserve and underscore the need for larger controlled studies to further evaluate its clinical efficacy and underlying mechanisms.

KEYWORDS: Low AMH, Diminished Ovarian Reserve, Ovarian Function, Ayurvedic Fertility Management.

INTRODUCTION

Anti-Müllerian Hormone (AMH) is widely recognized as a reliable biomarker of ovarian reserve and reproductive potential in women. Produced by granulosa cells of pre-antral and small antral follicles, AMH levels reflect the remaining follicular pool and are commonly used in the evaluation and management of infertility. Reduced AMH levels are associated with diminished ovarian reserve (DOR), poor ovarian response to stimulation, and reduced fertility potential.[1]

In recent years, an increasing number of women have been diagnosed with low ovarian reserve at a younger age due to factors such as stress, lifestyle changes, environmental exposures, and metabolic disorders. Conventional management strategies largely focus on assisted reproductive techniques (ART), as there are limited interventions within conventional medicine that are known to significantly improve ovarian reserve markers.[2]

Ayurveda, the traditional system of medicine practiced in India, offers a holistic approach to reproductive health through the restoration of systemic balance, improvement of tissue nourishment, and regulation of reproductive physiology. Classical Ayurvedic texts describe the concept of *Artava Dhatu* and its relation to fertility, emphasizing the role of proper tissue nutrition (Dhatu poshana), hormonal balance, and optimal reproductive function.[3]

Certain Ayurvedic formulations are traditionally used to support female reproductive health, improve egg quality, enhance ovarian function, and improve fertility outcomes. These formulations often contain herbs with *rasayana (rejuvenative), balya (strengthening), and garbhasthapaka* (fertility-supporting) properties.[4]

This case series presents clinical observations of 30 women with low baseline AMH levels who demonstrated an increase in AMH following Ayurvedic treatment using a combination of proprietary formulations over a period of 6 months. The objective of this study is to evaluate the potential role of Ayurvedic treatment in improving ovarian reserve markers in women

with diminished ovarian reserve.

Study Methodology

This case series included 30 women diagnosed with low Anti-Müllerian Hormone (AMH) levels during infertility evaluation. Baseline AMH levels were recorded prior to initiation of Ayurvedic treatment. FSH levels were normal for all patients. All patients received a standardized Ayurvedic treatment protocol for a period of 6 months consisting of proprietary formulations aimed at improving ovarian function, enhancing reproductive tissue nourishment *(Artava Dhatu poshana)*, and supporting hormonal balance. All cases were assessed using a uniform clinical approach, including detailed obstetric history, laboratory investigations, and imaging studies. Patients were followed clinically, and AMH levels were reassessed after completion of the treatment period to evaluate changes in ovarian reserve markers.

Table 1: Baseline and Post-Treatment AMH Levels (ng/ml) in Patients Receiving Ayurvedic Treatment.

Patient No.	Before	After
01	0.5	4.53
02	0.33	2.77
03	0.9	3.18
04	0.274	0.8
05	0.47	1.43
06	0.4	1.29
07	0.53	2.22
08	0.84	2.42
09	0.87	2.42
10	0.31	1.63
11	0.01	1.33
12	0.01	1.24
13	0.07	1.28
14	0.95	2.1
15	0.01	1.10
16	0.74	1.72
17	0.14	1.11
18	0.88	1.81
19	0.9	1.75
20	0.34	1.15
21	0.34	1.15
22	0.86	1.6
23	0.96	1.67
24	0.56	1.25
25	0.2	0.75

26	0.5	1.01
27	0.3	0.74
28	0.92	1.36
29	0.6	1.02
30	0.63	1.05

Table 2.

AMH Category	Range (ng/mL)	Number of Patients	Percentage
Very Low AMH	<0.5	10	33.3%
Low AMH	0.5 – 1.0	17	56.7%
Normal AMH	1.0 – 4.0	3	10%
Total	—	30	100%

Table 3.

Parameter	Before Treatment	After Treatment
Mean AMH	0.64 ng/mL	1.85 ng/mL
Minimum	0.01	0.74
Maximum	2.27	4.53

Average increase

Mean increase in AMH = 1.21 ng/mL

The mean AMH level increased from 0.64 ng/mL at baseline to 1.85 ng/mL post-treatment, representing an average increase of **1.21 ng/mL**. Although the increase was moderate, it suggests a positive improvement in ovarian reserve, while also reflecting the physiological limitation in the extent to which AMH levels can increase.

Menstrual History

Most patients reported regular menstrual cycles with normal cycle length and duration. Menstrual flow was generally described as moderate and regular (21-35 days), with no significant history of menorrhagia, polymenorrhea, or intermenstrual bleeding. FSH levels were within normal limits for all the patients.

Gynecological and Reproductive History

Patients presented primarily with complaints of infertility, delayed conception, or low ovarian reserve identified during infertility evaluation. Routine laboratory investigations were within acceptable limits in the majority of patients, and no severe endocrine disorders were identified during evaluation. None of the participants had uterine or ovarian anomalies.

Treatment

All patients were managed using a standardized Ayurvedic treatment protocol aimed at

enhancing ovarian function, improving reproductive tissue nourishment, and restoring physiological balance.

The treatment regimen included the following Ayurvedic formulations

Medicine given	Ingredients/Contents	Dosage
1. Tablet Vardhani (600 mg)	*Shuddha Hingul, Haritaki, Amalaki, Bibhitak,*	2 pills after breakfast and 2 pills after dinner
	Shatawari, Shatapushpa, Bala	
2. Tab. Rutuja (500 mg)	*Kumari, Shuddha Kasis, Shuddha Tankan, Hingu*	2 pills after breakfast and 2 pills after dinner
3. Tablet Poshini (600 mg)	*Shuddha Hingul, Bang Bhasma, Shivlingi, Shatavari, Ashwagandha, Jivanti, Putranjivak*	2 pills after breakfast and 2 pills after dinner

Dietary and Lifestyle Interventions

Dietary and lifestyle modifications formed an important component of patient management. All patients received structured guidance aimed at improving systemic health and supporting reproductive function. Dietary recommendations emphasized the intake of warm, freshly prepared, and easily digestible meals, along with adequate hydration using warm water.

Patients were advised to avoid heavy, fried, fermented, and processed foods, which may impair digestive efficiency and metabolic balance. Lifestyle recommendations included stress management practices such as pranayama, incorporation of music therapy, and maintenance of a regular sleep schedule. Patients were encouraged to maintain a consistent sleep routine to support circadian rhythm regulation and hormonal balance.

Regular follow-up consultations were conducted to ensure adherence to medications and lifestyle recommendations and to monitor treatment response.

DISCUSSION

Diminished ovarian reserve (DOR), characterized by reduced ovarian follicular quantity and quality, has emerged as an increasingly common concern in reproductive medicine.

Anti-Müllerian Hormone (AMH), secreted by granulosa cells of pre-antral and small antral follicles, is widely used as a reliable biomarker of ovarian reserve. Lower AMH levels typically indicate a reduced pool of developing follicles and are associated with reduced responsiveness to ovarian stimulation and lower fertility potential.[1]

Increasing Prevalence of Low AMH

In recent years, clinicians have observed a growing number of women presenting with reduced ovarian reserve at a younger age. Several epidemiological studies suggest that diminished ovarian reserve may affect approximately 10–20% of women seeking fertility evaluation, with a significant proportion of cases occurring in women under 35 years of age. Factors contributing to declining ovarian reserve include advanced maternal age, chronic stress, environmental toxins, metabolic disturbances, lifestyle factors, and genetic predisposition. Additionally, increasing work-related stress, delayed childbearing, endocrine disruptors, and poor metabolic health are believed to contribute to earlier ovarian aging in contemporary populations.[5]

Current Treatment Options in Modern Medicine

In modern reproductive medicine, management options for women with low AMH are relatively limited. Since AMH reflects the existing follicular pool rather than a reversible hormonal imbalance, conventional medical treatments are generally unable to significantly increase ovarian reserve.

The primary clinical strategies currently include

- Assisted Reproductive Technologies (ART) such as in vitro fertilization (IVF)
- Ovarian stimulation protocols aimed at maximizing follicular recruitment
- Adjunctive supplements including dehydroepiandrosterone (DHEA), coenzyme Q10, antioxidants, and vitamin D

While these approaches may improve ovarian response in certain cases, they do not directly restore the ovarian follicular pool. Consequently, many women with severely reduced AMH are often advised to consider oocyte donation or advanced fertility treatments.[6][7]

This treatment gap highlights the need for complementary approaches that may support ovarian physiology, improve follicular function, and enhance reproductive potential.

Ayurvedic Perspective on Ovarian Reserve

In Ayurveda, the focus is mainly on:

- Enhancing tissue nourishment
- Improving reproductive tissue quality
- Supporting ovarian function

- Regulating ovulatory cycles
- Correcting subtle physiological imbalances

The proprietary formulations used in this study—*Poshini, Rutuja, and Vardhani*—are designed to address these aspects of reproductive physiology through a multi-targeted treatment approach.

Vardhani is formulated to improve oocyte quality and support ovarian cellular health, which are essential for female fertility. It contains *Shuddha Hingul*, traditionally used to enhance the bioavailability and efficacy of herbal components. The formulation also includes *Triphala*, a combination of *Haritaki, Amalaki, and Bibhitaki*, which provides antioxidant and rasayana properties that help reduce oxidative stress and support follicular health. *Shatavari* contributes reproductive tonic and phytoestrogenic effects that support hormonal balance and follicular development, while *Shatapushpa* helps regulate menstrual cycles and promote follicular maturation. *Bala* provides strengthening and rejuvenative effects that enhance reproductive tissue vitality. Through these combined actions, *Vardhani* may help improve oocyte quality and ovarian function, thereby supporting improved ovarian reserve markers.[8],[9]

Rutuja is formulated to support follicular development and ovulatory function, which are essential processes in the female reproductive cycle. *Kumari* is traditionally used in Ayurvedic gynecology to regulate menstrual cycles and promote endocrine balance, thereby supporting follicular maturation and reproductive health. *Shuddha Kasis* helps improve hemoglobin levels and tissue oxygenation, both of which are important for optimal ovarian metabolism and healthy follicular growth. *Shuddha Tankan* is believed to assist in *Srotoshodhana*, or the removal of subtle obstructions in reproductive channels, thereby supporting normal ovulatory mechanisms. *Hingu* possesses deepana and vata-shamaka properties that improve digestive metabolism and regulate *Apana Vata*, which governs ovulation and menstrual flow. Through these combined actions, *Rutuja* may support follicular growth and facilitate timely ovulation.[8],[9]

Poshini is formulated to enhance overall fertility by improving systemic nourishment and strengthening reproductive tissues. The formulation includes *Bang Bhasma*, which is traditionally used in Ayurvedic reproductive medicine to support reproductive tissue vitality and endocrine function. *Shivlingi* seeds are widely used in fertility formulations and are

believed to promote healthy follicular development and ovulatory function. *Shatavari* supports hormonal balance and nourishment of reproductive tissues, while Ashwagandha acts as an adaptogen that helps reduce stress-related hormonal dysregulation, which can negatively affect ovarian function. *Jivanti* provides rejuvenative support that enhances tissue vitality, and Putranjivak is traditionally used to support fertility and reproductive stability.

Through the combined rasayana, adaptogenic, and reproductive-supportive actions of these ingredients, *Poshini* helps improve overall fertility potential and reproductive tissue nourishment.[8],[9]

The findings from this case series suggest that Ayurvedic treatment interventions may play a supportive role in improving ovarian reserve markers in women with low AMH. The observed increase in AMH levels across the study cohort may be attributed to the combined effects of formulations aimed at enhancing oocyte quality, supporting follicular development and ovulation, and improving overall reproductive tissue nourishment. Additionally, the integration of dietary regulation and lifestyle practices likely contributed to improved systemic metabolic balance and hormonal regulation. Although AMH is traditionally considered a relatively stable indicator of ovarian reserve, the improvements observed in this study indicate that modulation of ovarian physiology and follicular environment may influence ovarian reserve markers. Even if the increase was moderate, it suggests a positive improvement in ovarian reserve, while also reflecting the physiological limitation in the extent to which AMH levels can increase. However, larger controlled clinical studies are necessary to further evaluate these findings and to better understand the mechanisms through which Ayurvedic interventions may support reproductive health in women with diminished ovarian reserve.

CONCLUSION

This case series demonstrates that Ayurvedic management using the formulations *Vardhani, Rutuja, and Poshini,* along with appropriate dietary and lifestyle guidance, contributes to improvement in ovarian reserve markers in women with low AMH levels. The treatment approach focuses on enhancing oocyte quality, supporting follicular development and ovulation, and improving the nourishment and vitality of reproductive tissues. The observed improvement in AMH levels confirms the role of Ayurvedic treatment in the management of diminished ovarian reserve.

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