

THEORETICAL ESTABLISHMENT OF MAINTAINENCE OF HEALTH DURING PERI-MENOPAUSE THROUGH BIOACTIVE COMPOUNDS OF ASHWAGANDHAGayatri R Zunjarrao¹, Swati S Mohite²

¹MS Scholar, Department of Prasuti evum Striroga, College of Ayurveda, Bharati Vidyapeeth Deemed (to be) University, Pune, Maharashtra, India

²M.S. (Ayurved), H.O.D. and Professor, Department of Prasuti evum Striroga, College of Ayurveda, Bharati Vidyapeeth Deemed (to be) University, Pune, Maharashtra, India

Email: drgayatrizunjarrao@gmail.com<https://doi.org/10.46607/iamj08062020>

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**ABSTRACT**

Perimenopause is the time between the onset of the climacteric and the year after the last menses. It is the period of transition in a woman's life from reproductive to non-reproductive state and begins between 40 to 50 years of age. According to Ayurveda, it is the *Adhirudha Avastha* in a woman's life which corresponds to Perimenopause. It is the physiological process. But due to tremendous change in lifestyle of today's woman, the physiological changes do not become easy and affects her day-to-day life. So, it is essential to strengthen the body physiology to cope up with the physiological changes. Ayurveda believes in prevention rather than cure. *Rasayana Chikitsa* is described in Ayurveda as a systematic and scientific method of maintaining longevity and preventing diseases. *Rasayana* drugs are capable of imparting suitable body components namely *Rasa* and *Dhatu*. This *Chikitsa* is known as *Rasayana Chikitsa*. This *Chikitsa* helps in protection and promotion of health. Out of the multiple *Rasayana* herbs, in this article role of *Ashwagandha* will be discussed to attain silent menopause. Relation of bioactive components and desirable effects is discussed in this article.

Keywords: *Ashwagandha*, Perimenopause, *Rasayana*

INTRODUCTION

In Ayurveda, care of Female in every phase of her life has been given importance. Ageing is an unavoidable process which involves transition from one stage of life into other. This causes tremendous physiological changes in a woman's body. The state of *Doshas*, *Dhatu*s and *Mala* keep on changing according to age, day, night, period of digestion by accommodating the changes, and thus help in this transition. *Rajonivrutti* is an inevitable manifestation of ageing process in women. It occurs in a naturally degenerated body at the age of fifty years¹. Taking this into consideration the epochs of women's life are classified as follows with special reference to menstruation, procreative capability, sexual maturity, etc.

There are mainly 3 epochs in a woman's life²-

Bala Avastha - from birth up to 16 years of age.

Rajaswala Avastha- between 16-50 years.

Vridha Avastha- beyond 50 years of age.

Rajaswala Avastha comprises of two subdivisions- *Taruni* (16years-32years) and *Adhirudha* (32-50years of age)

Perimenopause comes in the early stage of *Rajonivrutti* which is called the *Adhirudha Avastha*. Climacteric is the alternative word for Perimenopause. From the Greek word kiltmaker (meaning rung of the ladder) it signifies a major movement of life's ladder and is often used synonymously with Perimenopause or 'the change'. It marks the transition from the reproductive to the non-reproductive state, the menopause being the specific event within that phase. Hence the term Perimenopause will be used to denote the early stage of *Rajonivrutti*.

The word Menopause comes from Greek word 'Menos' (month) and 'Pausis' (cessation) and represents a watershed in the reproductive life of a woman. While the menopause can sometimes be a sudden event, for most woman there is a gradual change in menstrual pattern preceding the menopause as ovarian activity fluctuates, which may be accompanied by troublesome symptoms; this is called the Perimenopause.

Cessation of menstrual cycle and end of reproductive phase of life, after certain time period with many psy-

cho-physiological changes comes under the title of '*Rajonivrutti*.' The term, *Rajonivrutti* is made up of two words viz. '*Rajah*' and '*Nivrutti*'. *Rajah* means to give colour to the substance. Here in the context of *Rajonivrutti*, the word *Rajah* shall be considered as *Aartava* (ovum) (S. Sh. 3/10)³ & *Stripushpa* (menstrual discharge) (S. Su. 14/6)⁴. *Nivrutti*: Meaning of *Nivrutti* can be stated as '*Apravrutti*', *Virati*, *Uparati*. Meaning of all the words is summarized as accomplishment, fulfilment, completion, end, cessation. The meaning of *Nivrutti* is understood as end or cessation. Thus, the whole term *Rajonivrutti* means 'end of *Aartava Pravritti*' or 'cessation of *Raja*'. *Vata Dosha* being the dominant *Dosha* in this period, *Kapha Dosha* is in its *Kshaya Avastha* while *Pitta Dosha* in its *Chaya Avastha*.

Rajonivrutti Kala is mentioned by most of the *Acharyas* as 50 years. *Acharya Sushruta* said that menarche occurs at the age of 12 years and due to the effect of aging menopause occurs at the age of 50 years⁵. *Acharya Vagbhata* and *Bhavamishra* mentioned the same age for menarche & menopause.

Types of *Rajonivrutti*: There are two types of *Rajonivrutti*⁶-

1) *Kalaja Rajonivrutti*: *Kalaja* means *Rajonivrutti* occurring at the age of 50 years. *Swabhava*, *Kala*, *Vayu* and *Jara awastha* can be considered as biological factors which stimulate *Rajonivrutti*. All these factors lead to *Dhatukshay*, *Vata Vridhi* and *Kapha Kshay*.

2) *Akalaja Rajonivrutti*- *Akalaja Rajonivrutti* means *Rajonivrutti* occurring before or after the age of 50 years.

Physiological changes during Perimenopause:

Body is made up of 1) *Dosha* 2) *Dhatu* 3) *Mala*.

Perimenopausal changes on the basis of *Dosha*, *Dhatu*, *Mala Vichar*:

1) *Dosha vichar* during Perimenopause:

Doshas are biological energies found throughout the human body and mind. They govern all physical and mental processes and provide an individual blueprint for health to every living being. Ayurveda quotes that *Dosha* changes according to age, day and night, period of digestion.

Dominance of *Doshas* in different stages of age⁷ - there is dominance of *Kapha Dosha* in *Balavastha* (up to 16 years); dominance of *pitta Dosha* in *Madhyam Avastha* (16 to 50 years); dominance of *Vata Dosha* in *Vridhavastha* (beyond 50 years). Thus, we can observe that early stage of *Rajonivrutti Avastha* is dominated by *Vata*. So in this phase, *Vata Vridha Lakshana* are seen: Due to *Vridha Vata Lakshanas* seen according to *Acharya Vagbhata*⁸: *Stransa* (can be correlated with prolapse uterus from its anatomical position), *Vyaas* (laxity, loss of tone of organs), *Vyadha* (needling pain piercing pain), *Swap* (loss of tactile sensation), *Saad* (loss of strength), *Ruuk*, *Toda*, *Bheda* (continuous, pricking/crushing pain), *Sanga* (obstruction), *Angabhanga* (bodyache), *Sankoncha* (atrophic changes in body and reproductive organs), *Kampa*(tremors), *Parushya*, *Rukshata*(dryness in vagina and over all body), *Stambha* (feeling of stiffness in joints), *Kashyarasata* (weight loss), *Aarakta Varnata*, *Shyava*, *Aaruna Varnata* (skin discolouraton blackish, reddish, etc),

Rajonash⁹

When *Vata Dosha* is in *Vridhavastha*, there is *Pitta Dosha* and *Kapha Dosha Dushti*.

The funtions of *Pitta* are impaired due to *Vridha Vata* and following symptoms are seen in Perimenopause (*Adhirudha Avastha*)¹⁰- *Apakti* (improper digestion resulting in bloating/ constipation), *Adarshana* (visual errors), *Vishama Ushma* (abnormal temperature/hot flashes), *Vikruta Varna* (impaired colour and complexion), *Bhaya* (fear/loss of confidence), *Moha* (delusion), *Vishada* (worry).

Similarly, functions of *Kapha Dosha* are disturbed due to *Vridha Vata* and following symptoms are seen in Perimenopause¹¹- *Shaithilya* (flaccidity and looseness), *Irritability* (loss of patience), Decreased libido (decreased *Vrushata*, *Krushata* (emaciation), etc.

2) *Dhatu vichar* during Perimenopause: *Dhatu*s are the seven fundamental principles that support and nourish the basic structure of the body. They have the nature to be vitiated and are known as *Dushyas*. Due to the *Vridha Vata* in perimenopause, *Sapta Dhatu*s are affected. There is gradual decline in all the *Dhatu*s is uniformly noted during Perimenopause:

Rasa- Rasa Dhatu Kshay occurs during Perimenopause. The *Lakshanas* of *Rasa Dhatu Kshay* can be correlated to irregular menses, dry /tanned/rough skin, palpitation, drowsiness. *Vikruti* in *Rasa Dhatu* causes *Uttarottar Dhatu Vikruti/Kshay*.

Rakta- Amla Preeti, Shishira Preeti, Sira Shaithilya, Rukshata

Mamsa- Sphik Shushkata, Sandhi Vedana, Glani

Meda- Shrama, Alpa Api Cheshtite Shwasa

Asthi - Sandhishoola, Keshpatan, Dantapatan

Majja- Bhrama, Timir Darshanam, Daurbalya, Laghu Asthi (thinness, weakness and lightness of bones)

Shukra- Chirat Praseka (delayed ejaculation), *Vrushana Medhra Vedana* (pain in scrotum), *Pandutva* (pallor), *Shrama, Klaibya, Shukra Avisarga* (no ejaculation, no ovulation)

Oja- Bibheti(fretful), Durbala, Abhikshnam (repeatedly worries without any reason)

3) *Mala Vichar* during Perimenopause: Those which pollute other structures, being themselves, waste products are called *Mala*. They purify body after getting excreted. As *Saptadhatu* are affected, the *Mala* produced by them also get affected during Perimenopause.

There is *Rasadi Dhatu Kshay* found due to *Vata Dosha* dominance. *Rasa Dhatu Kshay* affects the *Upadhatu* of *Rasa- Stanya* and *Mala- Kapha*. Hence its *Dushti* or *Kshay* is observed. Similarly, each *Uttarottar Dhatu* which is produced causes *Dushti* of the *Mala* produced during the process.

Symptoms of Perimenopause according to Ayurveda:

a) *Vataja symptoms: Stransa, Vyaas, Vyadha, Saad, Ruuk, Toda, Bheda, Sanga, Angabhanga, Sankoncha, Kampa, Parushya, Rukshata, Stambha, Pralapa, Hasta-Pada And Shira Graha, Garbhana-sha, Nashta Shukra, Rajonash.*

b) *Pittaja symptoms: Apakti, Adarshana, Vishama Ushma, Vikruta Varna, Bhaya, Moha, Vishada*

c) *Kaphaja Symptoms: Shaithilya, Krushata, Sphik Shushkata, Sandhi Vedana, Glani, Shrama, Alpa Api Cheshtite Shwasa*

Symptoms of Perimenopause according to Modern science: 35 symptoms have been associated with menopause so far¹²:

1. Hot flashes, night sweats and/or cold flashes, clammy feeling
2. Bouts of rapid heartbeat
3. Irritability, mood swings
4. Sudden tears
5. Trouble sleeping through the night (with or without night sweats)
6. Irregular periods; shorter, lighter periods; heavier periods, flooding; phantom periods, shorter cycles, longer cycles
7. Loss of libido
8. Dry vagina
9. Crashing fatigue
10. Anxiety, feeling ill at ease
11. Feelings of dread, apprehension, doom
12. Difficulty concentrating, disorientation, mental confusion
13. Disturbing memory lapses
14. Incontinence, especially upon sneezing, laughing; urge incontinence
15. Itchy, crawly skin
16. Aching, sore joints, muscles and tendons
17. Increased tension in muscles
18. Breast tenderness
19. Headache change: increase or decrease
20. Gastrointestinal distress, indigestion, flatulence, gas pain, nausea
21. Sudden bouts of bloat
22. Depression
23. Exacerbation of existing conditions
24. Increase in allergies
25. Weight gain
26. Hair loss or thinning, head, pubic, or whole body; increase in facial hair
27. Dizziness, light-headedness, episodes of loss of balance
28. Changes in body odor
29. Electric shock sensation under the skin and in the head
30. Tingling in the extremities
31. Gum problems, increased bleeding
32. Burning tongue, burning roof of mouth, bad taste in mouth, change in breath odor
33. Osteoporosis
34. Changes in fingernails: softer, crack or break easier
35. Tinnitus: ringing in ears, bells, 'whooshing' buzzing etc.

The above-mentioned symptoms can be interpreted according to *Doshas* as follows:

Dosha	Symptoms according to modern science
<i>Vata</i> vitiated symptoms	Bouts of rapid heartbeats, irritability, mood swings, sudden tears, insomnia, irregular menstruation, dry vagina, loss of libido, anxiety, difficulty in concentrating, disorientation, mental confusion, incontinence especially upon sneezing, itchy/crawly skin, aching joints, muscles and tendons, increased tension in muscles, headache, sudden bouts of bloat, depression, exacerbation of existing conditions, hair loss or thinning, tingling in extremities, osteoporosis, fingernails softer, crack or break easier.
<i>Pitta</i> vitiated symptoms	hot flashes, night sweats, breast tenderness, gastrointestinal distress, indigestion, nausea, changes in body odour, gum problems, increased bleeding, burning tongue, burning roof of mouth, bad taste in mouth, change in breath odour.
<i>Kapha</i> vitiated symptoms	fatigue, weight gain, increase in allergies

Thus, it can be concluded that majority of the symptoms observed in Perimenopause are due to vitiated *Vata Dosha* in the body.

Perimenopause is a physiological process. But due to tremendous change in lifestyle of today's women, these physiological changes do not become easy and affect their day-to-day life. So, it becomes essential to strengthen body physiology to cope up with these changes.

Ayurveda believes in prevention rather than cure. *Rasayan* is one of the concepts of prevention & maintenance of health. The term *Rasayan* is a compound word comprising of two words '*Rasa*' & '*Ayan*'. *Rasa* is derived from the verb root '*Rasa*' in the sense of *Gati* (movement). It means the pure and minute essence of

food which has the ability to pass into minute channels. *Rasa Dhatu* is the first *Dhatu* produced after digestion of food. Due to liquidity it circulates and saturates persons of all ages, promotes the growth and development of body tissues & sustains the well-formed *dhatu*s. The other word constituting *Rasayan* is *Ayan*. The word *Ayan* has the sense of attainment. Thus, the term *Rasayan* is a compound word which denotes the process of attaining *Ahara rasa* of good quality for the body. *Rasayana* helps attain *Deerghayu*, *Smriti*, *Medha*, *Arogya*, *Bala*, *Kanti*.

Ashwagandha is one such drug which is believed to provide beneficence during Perimenopause. *Ashwagandha* is a *Rasayana* herb which means smell of the horse (*Ashwa*-horse, *Gandha*-smell). It refers to both its

unique smell and ability to increase strength. Any drug or formulation for Perimenopause must meet the need of the psycho-physical condition and changes in the physiology during Perimenopause. *Ashwagandha* helps producing *Samyavastha* of all the three *Doshas* thus helping attain a healthy menopause.

Pharmacodynamics of *Ashwagandha*¹³-

Rasa- Madhur Tikta, Kashay

Vipak - Madhur

Veerya – Ushna

Guna - Laghu, Snigdha

Doshaghñata-Vata Shamak (Madhura Rasa, Madhura Vipaka, Snigdha Guna and Ushna Veerya), Kapha Shamak (Tikta, Kashay Rasa, Ushna Veerya)

Rogaghanata- Medhya, Nidrajanana, Stanyajanan, Vedanasthapana, Balya, Vajikarana, Rasayana, Shothahara, Mastishka Shamak, Deepana, Anulomana, Krimighna, Raktabharashamak, Vajikarana, Garbhashay shothahara, Mutrala

Gana: It is mentioned by *Acharya Charak* in *Balya, Bruhaniya, Madhuraskandha Gana*

Kula: Kantakarī Kula

Chemical composition of *Ashwagandha*: Laboratory analysis has revealed over 35 chemical constituents contained in the roots of *Withania somnifera*.¹⁴ They are:

Alkaloids- withanine, somniferine, somnine, somniferinine, withananine, pseudo-withanine, tropine, pseudotropine, 3-a-gloyloxytropine, choline, isopelletierine, anaferin, cuseohygrine, anahygrine

Steroidal lactones- withanolides, withaferins

Acylsterylglucosides containing an additional acyl group (sitoindosides VII and VIII)

Withanolides with a glucose at carbon 27 (sitoindoside XI and X)

Much of *Ashwagandha*'s pharmacological activity has been attributed to two main withanolides- withaferin A and withanolide D.

There is ongoing research worldwide to study the effect of bioactive compounds found in herbal medicinal plants. Animal studies or human clinical studies are available as references to determine the ingredients causing desired effect in a particular clinical condition.

- 1) Researchers discovered that *Ashwagandha* significantly reduces the level of stress. Animals were given the herb an hour before the foot shock. They experienced reduced level of stress. Thus, *ashwagandha* is a proven anti-stress, adaptogenic drug¹⁵.
- 2) *Ashwagandha* is a potent anti-inflammatory drug due to the presence of biologically active steroids. Out of them *Withaferin-A* is a major component. It is as effective as hydrocortisone sodium succinate¹⁶.
- 3) *Ashwagandha* was administered to animal models (mice). They were previously treated with three immunosuppressive drugs viz. cyclophosphamide, azathioprine and prednisolone. After giving *Ashwagandha* it was found that the myelo-suppression in mice was prevented. Also, it significantly increased haemoglobin concentration, RBC count, platelet count and body weight in mice. Thus, *Ashwagandha* is a proven immunomodulatory and anti-ageing drug¹⁷.
- 4) Clinical trials on human subjects showed hypoglycemic, diuretic and hypocholesterolemic effects of *Ashwagandha*. Powder of roots of *Ashwagandha* were given to six mild NIDDM subjects and six mild hyper-cholesterolemic subjects for 30 days. The blood and urine samples of the subjects were studied for different suitable parameters before and after the treatment period. Results showed that roots of *Ashwagandha* is a potential source of hypoglycemic, diuretic, hypocholesterolemic agents¹⁸.

Summary: Thus, *Ashwagandha* is a proven anti-stress, anti-inflammatory, immunomodulatory, anti-ageing, antioxidant, sedative and tonic drug.

Perimenopause:

- 1) New study documents lack of screening for depression and need to better educate healthcare providers on women's mental health issues during the menopause transition. Almost 40% of women experience symptoms of depression during perimenopause, yet it often goes undetected and untreated because many healthcare providers aren't screening for it and aren't prepared with treatment options. A new study analysed screening practices by

women's healthcare providers and their management of depression during perimenopause¹⁹.

- 2) 23 studies from six electronic databases were systematically searched. Significant effects in exercise-based intervention and mind-body therapies were found for quality of life, menopausal symptoms and depression but not for hot-flashes. Thus, healthcare professionals can consider exercise-based interventions or mind-body therapies to manage menopausal symptoms²⁰.
- 3) This study aimed to evaluate the effectiveness of a behaviour change counselling program which was planned in order to improve the women self-care during the perimenopausal stage. The study was a quasi-experimental type, conducted before and after counselling intervention, to evaluate effect of the health behaviour counselling on self-care of 42 women aged 39 to 51 (during climacteric stage) in areas of general health, physical activity, nutrition, sleep, psycho-social health, body image, sexual health. Results showed significant difference between the self-care score before counselling, and one and three months later, in all areas except body image and sleep. Thus, it was concluded that women need more information about menopause process to manage its symptoms²¹.
- 4) Aim of this study was to compare the clinical efficacy and safety of electro-acupuncture therapy and escitalopram on perimenopause women with mild-moderate depressive symptom. A multicentre, randomized, positive-controlled clinical trial was conducted at 6 hospitals in China. It showed that EA treatment is effective and safe in relieving depression symptom and improving the quality of life in the perimenopausal depression²².

Summary

During Perimenopause anti-stress, anti-ageing, immunomodulatory, anti-inflammatory, cognition promoting, anxiolytic, adaptogenic, sleep promotive activity is desirable. Ashwagandha is found to be active for these effects in one or more ways.

DISCUSSION

Bioactive compounds are those compounds in food that influence physiological or cellular activities in animals or humans that consume them. They are found in small quantities but are beneficial for health. This potential is assessed through animal or human trials. During Perimenopause the priority is to reduce stress, mood swings, hot flashes. As mentioned above, adaptogenic, sleep promotive, anxiolytic, anti-ageing, anti-stress action is needed during this period. Ashwagandha is a proven drug showing all these activities. Perimenopause is a *Vata Dosha Pradhan Avastha*. Though it is a physiological process, it affects day-to-day life of the woman. Ashwagandha is *Snigdha, Ushna, Madhura Rasa, Madhura Vipaka* and hence *Vata Shamak*. Thus, Ashwagandha can be a drug of choice to help face the physiological changes during Perimenopause period and attain Menopause smoothly.

CONCLUSION

The modern-day changes in lifestyle may cause some short term or long-term health complications. Ayurveda has advocated some drugs which can be used as preventive or curative medicines during Perimenopause. Ashwagandha is one such drug. The claim of efficacy of Ashwagandha in woman during Perimenopause matches the bioactivity of chemicals for most desired action.

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