

To Study Role Of Shatavari In Postmenopausal Osteoporosis

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Abstract:

A Substantial proportion of the population of females in India falls in the around menopausal age groups. One of measure complication which came forward in older aged women is weakening of bones and the fall in bone mineral density. It has serious debilitating consequence in women's life and causes reduced quality of her life along with a greater incidence of fractures. If this fracture involves hip or vertebrae, unfortunately it can cause immobility and be devastating. Postmenopausal osteoporosis is linked with deficiency of estrogen that occurs with cessation of unctio of the ovaries with progress of age. Estrogen is very important factor as it plays both the functions of formation of bones as well as prevention of resorption of bone. In patients who have been diagnosed with disorder, pharmacological intervention is needed and it should be given by viewing its attributes, side effects and contraindications. Shatavari is a Rasayana herb and it is widely accepted as female rejuvenative. Since hundreds of years, shatavari has been used as anti ageing as well as women's tonic. So present study is selected to study the role of shatavari in Postmenopausal Osteoporosis.

Keywords: Post menopause, Osteoporosis, Shatavari, Rasayan

Introduction:

The state of women health is indeed completely tied up with the culture in which she lives, her position in it, as well as the way she lives her life as an individual. During her span of existence, she undergoes different changes in her psyche and body. In spite of this, she performs her duties in all the stages to stand up with the changing demands of the society. As a consequence of this, various health problems arises. The alterations in her body during puberty, reproductive, menopausal and postmenopausal stages, create affinity towards different diseases. Population greatly affects the social, economical, political and health aspects of a country. Women's longer life expectancy and rise in their population throughout most of the world has resulted in rise in their health needs. Men and women reach old age with different prospects for older age. Aging is a real challenge for women. This phase of life is more vulnerable for women, as along with aging, she suffers from inevitable scars of menopause. With increasing life expectancy, women spends one third of her lifetime under postmenopausal period. The postmenopausal period is associated with significant increase in the

incidence of age related medical conditions like cardiovascular diseases and osteoporosis.

Life expectancy is increasing around the globe and the number of elderly individuals is rising in every geographic region. There are currently 323 million individuals aged 65 years or over, and this number is expected to reach 1555 million by the year 2050. The demographic changes alone can be expected to cause the number of hip fractures occurring among the people aged 65 years and over throughout the world to increase from 1.66 million in 1990 to 6.26 million in 2050. Statistical data reveal that osteoporotic fractures are four times more common than cardiovascular stroke and can lead to permanent disability and hence can even be life threatening, thus becoming a significant cause of morbidity and mortality. The population of postmenopausal women is about 36 million now and the figures are expected to rise. Indians suffers from hip fractures at earlier age as they have genetically low bone mass. The incidence of osteoporosis is high in Indian women because of lack of awareness and inadequate calcium intake. Bone loss is only partly reversible. Currently, no treatment exists to reverse established osteoporosis. Prevention and early intervention can prevent osteoporosis in majority.

Shatavari is a well-known female rejuvenative. Its beneficial effect on women during fertile i.e.

reproductive life is well established. The present research work was planned with the hypothesis that Shatavari, which is a Rasayana herb, may be effective in minimizing the risk of postmenopausal osteoporosis by decreasing asthi kshaya in women. As asthi is a Gambhira dhatu and treatment is through Rasayana, the duration of the treatment implemented was kept as 2½ months – 10 weeks.

Aims and Objectives:

Aim

- To study role of shatavari in postmenopausal osteoporosis

Objectives

- To study the disease postmenopausal osteoporosis – as per Ayurveda and modern concept.
- To assess the effect of shatavari in minimizing bone loss.
- To see for any adverse effects of the same during the study.

Review of Literature:

Rajah

Life span of every individual is divided into three stages as Bala, Madhya and Vriddha in our classics. For women, Acharya Bhavmishara and Acharya Harita have again sub classified the life span since child hood till old age. These sub divisions indicate the puberty, beginning and end of reproductive period. Also, during lifetime, all the physiological and psychological changes are attributed to status of dhatu and doshas in the body.

Menstrual Irregularities and its effect on Bone mass

New research on calcium and bone development suggests that efforts to prevent osteoporosis should be started around puberty,¹(menarche) as peak bone mass can be achieved up to the age of 20. Menstruating women loose calcium with each cycle with loss of blood (containing calcium). For young girls going through the rapid spurts of puberty, getting calcium from dairy products is better for building bones.² The greatest stimulus for increasing or maintaining bone mass in adults is weight-bearing exercise. However, female athletes with menstrual dysfunction are identified having reduced bone mass.³ The link between the menstrual irregularities

and low bone mass is the effect of menstrual irregularities on hormonal function. A reduced estrogen level in girls with low weight, anorexic with prolonged fasting and over exercise with menstrual irregularities is common finding. This situation is similar to that experienced by postmenopausal women. The reduced bone mass, bone strength and increased bone fractures for these individuals are well known and feared.

Rajonivritti

50 years is mentioned as the age when there is kshaya of artava due to kshaya of all dhatus in jara awastha. This age of rajonivritti is classified between praudhawastha and vriddhawastha in the division of life span of women.

Types of Rajonivritti

- 1) Kalaja
- 2) Akalaja

Rajonivritti, which occurs as per svabhava and kala, is timely, at probable age of 50, is kalaja rajonivritti. Other than it is Akalaja Rajonivritti.

Samprapti Ghataka :

Dosha :- vatapitta

Dushya :- sapta dhatu including udhatu artava

Agni :- Jathargni vishamta / Dhatvagni vishamta

Menopause

Menopause is defined as the cessation of ovarian function, resulting in permanent amenorrhoea. The diagnosis of menopause is retrospective following a period of amenorrhoea for 12 months or 6 months. In clinical practice, the term menopause indicates the period of time during which spontaneous menstruation normally ceases. It is characterized endocrinologically by evidence of decreasing ovarian activity, biologically by decreasing fertility and clinically by alterations in menstrual cycles and by a variety of symptoms.

Factors affecting menopausal age :

1. **Nutritional status** : Height and weight both may influence menopausal age. Studies show that malnourished women may undergo early menopause.⁴
2. **Cigarette smoking** : Women who smoke may have menopause average one to two years earlier than non-smokers.⁵

3. **Other risk factors :** The effect of reproductive history, parity, socioeconomic class, educational status and use of oral contraceptives on age of menopause is debatable as the associations have not been consistent.

Symptoms of Menopause

1. Hot flashes, flushes, night sweats and/or cold flashes, clammy feeling
2. Irregular heart beat
3. Irritability
4. Mood swings, 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

Asthi

It is a basic body tissue which is covered by mamsa. It is also defined as a dhatu that is constantly moving due to the sira and snayu attached to it. Asthi dhatu gives strength, shape and size to the body. It keeps the body erect.

Asthikshaya

Vitiated vata when lodges in ashti dhatu, it produces rachanatmaka and kriyatmaka vikriti. Hence, the symptoms can be divided as per these abnormalities.

Symptoms due to rachanatmaka vikriti.

1. Asthisosa
2. Asthishula / toda / bheda
3. Sakthishula
4. Mamsakshaya
5. Anga bhanga
6. Danta vikriti / patana
7. Kesa patana
8. Loma kshaya

Symptoms due to kriyatmaka vikriti :

1. Sandhisaitihilya
2. Sandhi shula
3. Srama
4. Balakshaya
5. Vinamana (loss of height)

Effect of Menopause of Bone Remodelling

Increased bone turnover during menopause is clearly demonstrated by various biochemical data. There is a rapid increase in indices of bone resorption followed by a slower increase in markers of bone formation in oophorectomised women. Similar sequence occurs in natural menopause.⁶ Estrogen deficiency accelerates the rate of bone turnover with a rapid activation of new bone remodeling units. Thus, at any one time, a progressively greater surface of bone will be occupied by remodeling events. Because of this, the skeletal volume missing increases. In addition, an imbalance between the amount of bone removed and that subsequently incorporated into each remodeling sites forms the basis of both age related and menopause related bone loss.^{7,8} Bone loss is either due to deep resorption cavities by osteoblasts or incomplete refilling of normal resorption cavities by osteoblasts. Thus, skeletal mass decreases incrementally with each remodelling event. With accelerated bone turnover after menopause, the rate of bone loss is amplified leading to trabecular thinning. About two third of bone loss in women is due to menopause and about one third to ageing.^{9,10}

Shatavari

Taxonomical Classification

Kindgom : Plant kingdom

Division : Phenerogames

Sub-Division: Angiosperm

Class : Monocotyledons

Series: Coronarieae

Natural order: Liliaceae

Genus : Asparagus

Species : racemosus willd.

Rasapanchak

Rasa: Tikta, Madhura

Guna : guru, snigdha

Veerya : sheeta

Vipaka : madhura

Prabhava : rasayana

Pharmacodynamics Profile

Doshagnata : Vatapittashamaka

Karma : Vedanasthapana, medhya, rakta-pittashamaka, Rasayana, Chaksshushya, nadibaladayak a, Pittashamaka, shoolhara, balya, shamaka, grahi, garbhaphoshaka, stanyajanana, shukrala, mutrala.

Roghagnata : Apsmara, murcha, vatavyadhi, amlapitta, shoola, grahani, arsha, hridroga, raktapitta, shotha, stanyakshaya, shukrakshaya, mootrakriccha, kshaya, daurbalya. dristhimandya.

❖ **Material and Methods:**

- **Source of data-** OPD & IPD patients of Matoshri Asrabai Darade Ayurved Medical college, Babhulgaon.
- **Study Design:** Open Randomized Controlled Clinical Trial
- Sample size - 30
- **Inclusion Criteria**

- 1 Women of age group 40 -60 years (perimenopausal and postmenopausal age group)
2. Presenting one or more risk factors for developing osteoporosis

▪ **Exclusion Criteria**

1. Hyperparathyroidism
2. Chronic diseases

▪ **Intervention:**

- Dose – 6 gms per day in 3 divided doses
- Route – Oral
- Dosage form – Tablet
- Duration – 2½ month – 10 weeks
- Anupana – milk

▪ **Parameters for Assessment:**

1. Asthivedana

None	0
Only on movement	1
Without movement at rest	2
Pain even at night	3

2. Katishool

No backache	0
Occasionally	1
Relieves by medicine	2
Dependent on painkiller	3

3. Sandhishool

No pain	0
Mild pain + no difficulty in walking	1
Slight difficulty in walking	2
Much difficulty in walking	3

4. Keshapatan

Absent	0
Hair fall on washing	1
Hair fall on combing	2
Hair fall on simple stretching	3

Results:

Effect of Shatavari on Postmenopause Osteoporosis on assessment criteria was as follows

Parameter	Mean		Difference in means	Paired 't' test				
	B	A		S. D.	S.E .M.	't'	'p' value	Remark
Asthivedana	2.2	1.13	1.07	0.69	0.126	8.4521	<0.001	S
Katishool	2.1	1.1	1.03	1.129	0.206	5.0137	<0.001	S
Sandhishool	2.2	0.96	1.27	0.8683	0.1575	8.042	<0.001	S
Keshapatan	2.3	0.93	1.43	0.710	0.1296	11.05	<0.001	S

Discussion and Conclusion:

- Postmenopausal Osteoporosis is a disabling disease, which renders women a bedridden life.
- Estrogen deficiency leading to imbalance in bone turnover is the underlying cause of Postmenopausal Osteoporosis.
- The use of biochemical bone markers has more utility to see the patient's compliance with the therapy and to assess the effect of medicine on bone turnover in limited time.
- The disease Postmenopausal Osteoporosis can be termed as Rajonivrittijanya Asthi Saushirya.
- Women - because of specific characteristics, possess genetically and naturally weak asthi dhatu; are prone to asthi Saushirya.
- Asthi Saushirya is mentioned as a lakshana of Majja Kshaya, but because of its specific pathogenesis; it can be taken as separate disease. This condition manifests in the end

phase of Jarawastha; but its Samprapti begins from the sandhikala of Madhyamawastha and Jarawastha.

- All the risk factors contributing for developing osteoporosis serves as Nidana of Asthi Saushirya.
- Asthi Majja gata vata, Asthi Majja kshaya etc. are important conditions to understand the Samprapti of this disease.
- Roopa of Asthi Saushirya arises due to Rachnatmaka and Kriyatmaka changes in asthi dhatu.
- Maximum patients were found to have early menopause; i.e. between 40 to 45 years, which supports the fact that median age of menopause of Indian women is less.
- Low-lifetime calcium intake, underweight, early menopause and sedentary life style were the risk factors found in majority.
- The assessment of therapy was done on Asthi Kshayatmaka lakshana and biochemical bone markers
- Shatavari provided encouraging results in bone markers indicating decreased bone resorption and enhanced bone formation at the completion of 10 weeks of therapy. Shatavari have guru, Snigdha Rasayani attributes, so it have proved to be quiet effective in the treatment of Osteoporosis without involving undesirable side effects

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