

A Comparative Study on Shatavari and Kukkutanda Twak Bhasma in Minimizing the Risk of Postmenopausal Osteoporosis

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ABSTRACT : Postmenopausal period is a very vulnerable time for women, as she has to face inevitable scars of menopause amongst which the most disabling one is Osteoporosis. The present study was aimed to compare the effect of Shatavari and Kukkutanda twak bhasma in minimizing bone loss in menopausal and postmenopausal period. The duration of treatment was 10 weeks along with diet restrictions. The results of Shatavari were encouraging, as it has shown not only decrease in bone loss, but an significant increase in bone formation.

Key words : Postmenopausal osteoporosis, Shatavari, Kukkutanda twak bhasma, biochemical bone markers.

INTRODUCTION

Menopause is defined as the cessation of ovarian function, resulting in permanent amenorrhoea. The average age of menopause is usually around 50 years, with limits between 45 and 55. Menopause apparently occurs because of two processes. First, oocytes responsive to gonadotropins disappear from the ovary, and second, the few remaining oocytes do not respond to gonadotropins. The menopause is a consequence of estrogen deficiency due to the depletion, or relative absence of primordial follicles responsive to the rising levels of gonadotropins.

The postmenopausal period is associated with significant increase in the incidence of age related medical conditions like cardiovascular diseases and osteoporosis. The care of elderly women should go beyond disease orientation to include their total well being. Primary health care and efforts to provide health services should be directed to enable women to live healthy life as long as possible.

Postmenopausal Osteoporosis is a condition of major health importance which affects over one third of all postmenopausal women with increasing morbidity and mortality because of its association with fractures.^{1,2} During the past decade, it has increasingly been perceived as serious disabling disease needing substantial involvement of all medical sciences to develop and assess potential treatments. The use of HRT in managing this condition is now questioned with increasing risks of cancer and cardiovascular diseases with long term HRT

treatment.³ Less effectiveness and more side effects of other new therapeutics along with financial burden of management of osteoporosis related fractures, has led tremendous interest in herbal alternatives.

We, being the learners of great science of life - Ayurveda, it is our moral duty to apply this invaluable system of medicine to assist woman in journey towards better health in the latter half of her life and add quality to her life.

The present study was aimed in comparing the efficacy of Shatavari and Kukkutanda twak bhasma in decreasing bone loss, increasing bone formation and hence minimizing the risk of postmenopausal osteoporosis.

MATERIAL AND METHODS

Clinical Study :

Patients : For clinical study, patients attending OPD and IPD of I. P. G. T & R.A. hospital presenting risk factors for developing the disease were registered.

Drugs : Shatavari moola churna, Kukkutanda twak bhasma were prepared in the pharmacy of Gujarat Ayurved Univeristy, Jamnagar.

Criteria of Selection :

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

Criteria of exclusion :

1. Hyperparathyroidism.
2. Chronic diseases.

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Criteria of Assessment :

Subjective criteria : Results of the treatment were assessed on the basis of relief in Asthikshayatmaka lakshana with the help of specific scoring pattern as recorded in research proforma.

Objective criteria : To assess the effect of treatment on bone loss, biochemical bone markers (Serum Calcium, Urine Calcium, Serum Alkaline phosphatase) were used before treatment (BT) and after treatment (AT) to detect any change in rate of bone formation and bone resorption.

Grouping :

	GROUP A	GROUP B
Drug	Kukkutanda Twak bhasma	Shatavari Moola churna
Dose	500 mg / day in 2 divided doses	6 gm / day in 3 divided doses
Duration	10 Weeks	10 Weeks
Anupana	Milk	Milk
No. of Patients	10	14

Pathyapathya according to the diet chart advised to all the patients.

OBSERVATIONS

Maximum no. of patients i.e. 62.79% belonged to the age group of 40-45 years. The 23.25% of patients belonged to age group of 46-50 years, 11.62% of patients were between age group of 51-55 years and rest 2.32% of patients belonged to age group of 56-60 years. The 55.81% of patients were postmenopausal, whereas 44.81% fell into perimenopausal age group. Maximum i.e. 55.81% of patients had less than 2 years as duration of menopause. Total 83.72% of patients registered had natural menopause whereas 16.27% underwent hysterectomy. Total 34.88% of patients had age of menopause between 40-45 and 45-50 years. The 23.23% of patients had menopause at age of 35-40 years and 6.97% patient's age of menopause was between 51-55 years. Maximum patients - (74.41%) were housewives. The 67.44% of patients did not perform any exercise in their daily routine. Vata dominant Prakriti was found maximum number of patients with combination of Pitta (58.13%) and Kapha (32.55%).

Avara Sarata was observed in 65.11% of patients. Total 95.34% of patients had low life time calcium intake as risk factor, 69.76% presented small body frame as well as inactive life style whereas 48.83% were underweight and 34.88% of patients had early menopause

as risk factor for developing osteoporosis.

Bone pain and low back pain was observed in 95.34%, extreme fatigue and cramps in legs in 90.69%, difficulty in walking in 88.37%, premature graying of hair in 67.44% and pain at symphysis pubis was observed in 60.46% of patients.

Radiological findings indicated established osteoporosis in 18.60% of patients. Loss of normal lumber lordosis was found in 23.25% of patients.

RESULTS**Effect of therapy in Group A :**

Subjective Parameters : On Asthi Kshayatmaka Lakshana, 66.66% relief in Keshapatan, 57.69% relief in Asthi vedana, 50% relief in Shrama and 36.84% relief in Sandhishoola was observed in this group which was statistically highly significant. Whereas 33.33% relief was observed in symptom of Katishoola which was statistically non significant.

Objective Parameters : On biochemical bone markers, Non significant change was seen in markers of bone formation, Serum Calcium and Serum Alkaline Phosphatase in this group.

Significant decrease ($p < 0.05$) was seen in marker of bone resorption, Urine Calcium, at the end of therapy.

Effect of therapy in Group B :

Subjective Parameters : On Asthi Kshayatmaka lakshana:- 85.29% relief in Shrama, 80% relief in Sandhishoola, 71.42% relief in Kesha patan, 70.37% relief in Katishoola and 68.57% relief was observed in Asthivedana which were all statistically highly significant. ($p < 0.001$)

Objective Parameters : Biochemical bone markers, highly significant ($p < 0.01$) rise in the level of Serum Calcium was seen in this group. Levels of Serum Alkaline Phosphatase indicated non significant change.

Highly significant ($p < 0.01$) decrease in levels of urine calcium was observed.

Total Effect of Therapy :

In group A, marked improvement (75-100% relief) was found in 10% of patients, 30% of patients were moderately improved (50-75% relief) and 60% patients showed mild improvement (25-50% relief) in lakshana of Asthi kshaya. No patient remained unchanged in this group.

In group B, marked improvement was found in 50% patients. The 42.85% patients were moderately

improved, 7.14% showed mild improvement and none of the patient remained unchanged.

Results of Comparative Effect on Levels of Serum Calcium and Urine Calcium in Group A and Group B :

Changes in the levels of serum calcium and urine calcium were compared and statistically analyzed through unpaired student t test.

Serum Calcium : Treatment with Group B - Shatavari, produced a highly significant increase ($p < 0.001$) in the levels of Serum Calcium at the end point of 10 weeks as compared to Group A - Kukkutanda twak bhasma.

Urine Calcium : Decrease in the levels of urine calcium in Group B were statistically non significant ($p < 0.10$) when compared with the levels in Group A.

DISCUSSION

Reviewing all the available literatures related to Asthi dhatu, the final diagnosis of the disease osteoporosis was given as 'Asthi Saushirya' and Anga bhanga (fractures) can be considered as pratyatma lakshana of this disease. Gambhira dhatu, Svabhavabalapravritta Vyadhi and bhedawastha makes this disease Kashta sadhya (Cha. Chi. 28/73-74). Intervention at proper level, following pathyapathaya and Rasayana Therapy makes it Yapya (Su. Su. 21/35).

Maximum patients registered in the present study had early menopause and had less than 2 years as duration of menopause which supports the fact that age of menopause is declining and that the bone loss is accelerated in the first few years of menopause.^{4,5,6} Low life time Calcium intake and inactive life style were the risk factors found in maximum number of patients which serves as Nidana of Asthi Saushirya.

Effect of Shatavari on Asthi Ksayatmaka lakshana was better over that of Kukkutanda Twak Bhasma and placebo. The effect of Shatavari on bone markers indicates that it enhances bone formation as well as decreases bone resorption. It acts on both ways and balances bone remodeling and hence can prevent bone loss and help in increasing bone mass. Shatavari has immune enhancing property by means of enhancing defense functions like leucocytosis and neutrophilia.¹⁴ Predominant cornification of epithelial cells have been observed due to presence of estrogenic activity in shatavari.

The mode of action of Shatavari can also be

explained with the help of its active chemical constituent - Steroidal Saponins which fall under Phytoestrogens.^{7,8,9} Phytoestrogens acts as SERM's (Selective Estrogen Receptive Modulators).¹⁰ They stimulate osteoblastosis and suppress osteoclastosis and thus help in preventing bone loss.¹¹

CONCLUSION

Postmenopausal osteoporosis is a disabling disease which renders women a bedridden life. Hormone replacement therapy- only known therapy in prevention and management of postmenopausal osteoporosis has got major risks than benefits. The medical community is in search of a better, safer, less expensive and more convenient antiresorptive agents and regimens.

Postmenopausal Osteoporosis can be termed as Rajonivrittijanya Asthi Saushirya. From the present study it can be concluded that the effect of Shatavari on Asthi Kshayatmaka lakshana was better over Kukkutanda twak bhasma. Shatavari provided encouraging results on bone metabolism by preventing bone loss and enhancing bone formation.

The unpaired 't' test which was done to compare the results in Group A and Group B indicates that Group B showed highly significant rise in the levels of Serum calcium as compared to Group A. Additional studies by combining Shatavari with calcium supplements and life style planning are needed to improve the quality of life of postmenopausal women.

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हिन्दी सारांश

रजोनिवृत्तीजन्य अस्थिसौषिर्य में शतावरी एवं कुक्कुटाण्ड

त्वक् भस्म का तुलनात्मक अध्ययन

जस्मीन जपी (गुजराथी) एवं एम. ए. पण्ड्या

स्त्रीयों के जीवन में रजोनिवृत्तिकाल में पाये जाने वाले विकारों में अस्थिसौषिर्य प्रमुख है। प्रस्तुत अध्ययन में अस्थिहास की प्रतिबंधात्मक चिकित्सा में शतावरी एवं कुक्कुटाण्डत्वक् भस्म का प्रयोग किया गया। प्राप्त परिणामों के अनुसार शतावरी के प्रयोग से उत्तम लाभ हुआ।

