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TO EVALUATE THE EFFECT OF ARJUNADI SIDDHA KSHEERA BASTI IN COMPARISION WITH PANCHATIKTA KSHEERA BASTI IN RAJONIVRUTTI JANYA ASTHI KSHAYA w.s.r TO POSTMENOPAUSAL OSTEOPOROSIS

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ABSTRACT

Basti Karma is one among the *panchakarma* and is the best line of treatment in case of *Vatadosha.* Simultaneously it is also true that *basti* is equally effective in *vikruta pitta* as well as in *vikruta Kapha*. It is said to be *Ardhachikitsa* by *Acharya Caraka* and *Vagbhata.* In *Ayurveda* classics direct reference of *Rajo-nivrutti janya Asthi kshaya* is not available but in *Sushruta Samhita Dallhana* commentary, he comments that after *Rajo-nivrutti, Dhatukshaya* will occur. Postmenopausal osteoporosis is a common, debilitating public health problem and progressive skeletal disease. With the withdrawal of estrogen at menopause, bone resorption begins to exceed formation in remodeling cycles and bone mass is inexorably lost. *Charaka* has explained that in *Asthipradoshaja vikaras, Panchakarma* is the best line of treatment and in particular administration of *Ghrita yukta Tikta ksheera Basti* is the choice. 40 patients who fulfilled the inclusive criteria were selected and divided into two groups, each group having 20 patients. *Arjuna, Balaamoola, Yastimadhu ksheera basti* to group A and *Panchatikta Ksheera basti* to group B is administered in *Kala basti* schedule. The study statistically revealed that *ArjunaBalamoolaYashtimadhu ksheera Basti* has significant role in improving the Serum Estradiol level which reflected the reduced intensity of Knee joint pain after follow up than *Panchatikta Ksheera Basti.* Encouraging results were observed in *Arjunabalamoola yashtimadhu* group.

Keywords: *Asthi Kshaya, Basti, Rajo-Nivrutti Janya, Vikruta Pitta*

INTRODUCTION

Ayurveda the age old science of human living aims at promoting health and managing the ailments. *Panchakarma* is a special treatment explained for prevention and curing the diseases. *Basti Karma* is one among the Panchakarma and is the best line of treatment in case of *Vatadosha.* Simultaneously it is also true that *basti* is equally effective in *vikruta pitta* as well as in *vikruta Kapha*. It is said to be *ardhachikitsa*

by *acharya Caraka*[1].

In *Ayurveda* classics direct reference of Rajo-*nivrutti janya Asthi kshaya* is not available but in *Sushruta Samhita Dallhana* commentary, he comments that after *Rajo-nivrutti, Dhatukshaya*[2] will occur. *Dhatukshaya* further leads to *Vata Prakopa* which in turn will result in *Asthikshaya.* Vagbhata also explains the similar concept under *Ashraya -Ashrayi Bhaava.*

Menopause is the time of cessation of ovarian function resulting in permanent amenorrhoea[3].One year after attaining menopause the period of life is called post-menopausal period[8].Osteoporosis is often called the "Silent Disease" because initially bone loss occurs without any symptoms. People may not know that they have osteoporosis until a sudden fall causes fracture. Women are four times more likely than men to develop osteoporosis. Around the world 1 in 3 post-menopausal women are at risk of an osteoporotic fracture[3].

Postmenopausal osteoporosis is a common, debilitating public health problem and progressive skeletal disease. With the withdrawal of estrogen at menopause, bone resorption begins to exceed formation in remodeling cycles and bone mass is inexorably lost. Individuals with risk factors for developing this condition should have non invasive bone density determination and should be considered for preventive regimens. Therapeutic options for prevention include calcium, estrogen supplementation, and exercise. Once osteoporosis is established, therapeutic options may include local procedures for pain management and interventions to balance bone re absorption and bone formation[3].

Charaka has explained that in *Asthipradoshaja vikaras, Panchakarma* is the best line of treatment and in particular administration of *Ghrita yukta Tikta ksheera Basti* is the choice[4]. *Arjuna, Balaamoola, Yastimadhu* are *Vatapittahara, Vrushya* and *kshaya-shosha nashaka*[4] and is having phytoestrogen compounds[7] which have great potential ability in regulating the bone remodeling cycles in post menopausal women.

The *nidana* for *Asthi Kshaya* are not mentioned separately. One should assess the *Nidana* for *Asthi Kshaya* on the principles of *Ashraya Ashrayi Bhav*. According to this principle *Asthi* is the main seat of *Vata Dosha* and both are inversely proportional to each other i.e. when *Vata* increases *Asthi* decreases and vice versa. Therefore the etiological factors responsible for the increase of *Vata* are themselves the *Nidana* for the decrease in the *Asthi Dhatu. Acharya Charaka* has explained the *Samanya Nidana* which leads to 18 types of *Kshaya. Asthi Kshaya* being one of them; these *Samanya Nidana* can also be considered as the etiological factor of *Asthi Kshaya*. Similarly *Samanya Nidana* for *Kshaya* is also explained in *Harita Samhita*. All these *Nidana* can be classified as follows.

Table 1:

Aharaja	***Viharaja***	***Manasika***	***Anya***
Shuska, Shaka, Shuska, mamsa	*Balavadvigraha*	*Chinta*	*Abhighata*
Katu, Tikta, Kashaya rasa Pradhana Dravya	*Pradhavana*	*Krodha*	*Kapha Shonitadi Dosha, Dhatu*
Mudga, Masura & Adhaki	*Adhayana*	*Bhaya*	*Vishama Upchara*
Ruksha, Laghu, Sheeta, Daruna, Khara, Vishada, Sushira	*Langhana (jumping)*	*Panchakarma Atiyoga*	
Jambavadi	*Plavana*	*Dhatu Kshaya*	
Alpashana, Pramitashana, Vishamasana	*Adhwa Gamana, Vyavaya Ratri Jagrana*		

ASTHI KSHAYA LAKSHANAS

Table 2: Showing the *Asthi Kshaya lakshanas*

Sl.no	*Lakshanas*	Charak	Su.Sam	A.S	A.H	H.S
1	*Asthi Bheda*	+	-	+	-	-
2	*Asthi Toda*	-	+	+	+	-
3	*Ruja*	-	-	-	-	+
4	*Asthi Shola*	+	+	-	-	-
5	*Kesha Vikara and Pata*	+	-	+	+	-
6	*Loma/Roma Vikara and Pata*	+	-	+	+	-
7	*Nakha Vikara and Pata*	+	+	+	+	-
8	*Smasru Vikara*	+	-	-	-	-
9	*Danta Vikara and Pata*	+	+	+	-	-
10	*Srama*	+	-	-	-	-
11	*Sandhi Saithilya*	+	-	+	-	-
12	*Ruksata*	-	+	+	-	-
13	*Parusya*	-	-	+	-	-
14	*Asthi Baddha*	-	-	+	-	-
15	*Mamsabhilasha*	-	-	+	-	-

Table 3: Materials and Method

SL. No	Names
1	*Vaishwanara choorna* *Gandharvahastadi Taila* *Moorchita Tila Taila* *Panchatikta quatha choorna.* *Pinchatiktaka ghrita* *Arjuna, balamoola, yashtimadhu quatha choorna*
2	**Glycerin** syringe (100ml capacity) **Enema** Can (1000ml capacity)
3	Gas stove
4	Rubber catheter (no. 14)
5	Latex hand gloves
6	*Khalva Yantra*
7	*Basti* table
8	Cotton swabs
9	Big and small vessels
10	*Abhyanga* Table
11	*Bhashpa sweda yantra*
12	Stop watch and Timer
13	Weighing machine

Preparation of 10 liters of *Panchatiktaka Ghrita*:

Preparation of *Panchatiktaka kashaya*:

- 1:8 $\Longrightarrow$ Reduced to $1/4^{th}$
- 20kg (*Panchatikta quatha choorna*) + 160liters (water $\Longrightarrow$ Heated on *mandangni* and reduced to $1/4^{th}$ that is 40 liters of *Panchatikta qwatha* is obtained.
- 1:4:16 $\Longrightarrow$ Reduced to *Snehavashesha(* $1/4^{th}$)
- 1kg (*Triphala kalka*) + 10 liters (Go Ghrita) + 40 liters (*Panchatikta qwatha*) Heated on *mandangi* and reduced to *snehavashesha.*
- Preparation was done for four times, 10 liters of

panchatiktaka ghrita is prepared in each time of preparation.

Methodology

The present clinical study entitled to evaluate the effect of *Bastikama* in *kalabasti* schedule in *Rajonivruttijanya Asthikshaya* was undertaken.

Source of Data:

For the present study female patients were randomly selected from the OPD and IPD of *Shri Jayachamrajendra* Institute of Indian Medicine Hospital (Teaching Hospital of G.A.M.C.) Bangalore.

Method of collection of data:

40 patients who fulfilled the inclusive criteria were selected irrespective of religion, economic status and marital status and divided into 2 groups, each group having 20 patients.

Diagnostic Criteria:

The Signs and symptoms of *Asthikshaya* mentioned in classics such as *sandhishota, sandhi ruja* etc, are the main basis of diagnosis in addition, the criteria laid down for pain by Visual analogue scale also followed**.**

Table 4: Showing the Diagnostic criteria

SL NO	CRITERIA
01	*Asthishola* and *Sandhishola* (assessed with Visual analogue scale)
02	Serum Estrodiol level

Inclusion Criteria:

1. Women within 1 to 5 years of menopause.
2. Patients fit for *Basti karma.*
3. The patients with *Asthi* and *Sandhi Shola* as explained in diagnostic criteria.

Exclusion Criteria:

1. Patients with Systemic disorders like DM, HTN, Thyroid disorders.
2. Women underwent Hysterectomy.

Treatment Plan:

It is a comparative clinical study with Pre test and Post test study design where Minimum of 40 patients suffering from *Rajonivrutti janya Asthikshaya* fulfilling the inclusion criteria will be selected and randomly divided into two groups. Group A and Group B each with 20 patients.

STUDY DESIGN:

Table 5: Showing the Study design for the present study

	GROUP A	GROUP B
POORVA KARMA	*Deepana Pachana* with *Vaishwanara Choorna*, 3gms bd with *ushnajala* (Till the *Niraama lakshanas* seen.) *Koshtashuddhi* with G H *taila* *Sarvanga Abhyanga* with *Moorchita tila taila* and *Bashpa sweda*	*Deepana Pachana* with *Vaishwanara Choorna*, 3gms bd with *ushnajala* (Till the *Niraama lakshanas* seen.) *Koshtashuddhi* with G H *taila* *Sarvanga Abhyanga* with *Moorchita Tila taila* and *Bashpa sweda*
PRADHANA KARMA	*Arjuna balamoola yashtimadhu khseera basti.* *Anuvasana basti* with *Panchatiktaka Ghrita.*	*Panchakikta ksheera basti* *Anuvasana basti* with *Panchatiktaka Ghrita*.
PASCHAT KARMA	*Niruha*- After *pratyagamana ushna jala snana laghu bhojana.* *Anuvasana basti-sphik tadana,mardana* of soles & palms	*Niruha*- After *pratyagamana ushna jala snana laghu bhojana.* *Anuvasana basti-sphik tadana,mardana* of soles & palms

Table 6: Showing the ingredients and the quantity of *Panchatikta ksheera basti* and *Arjuna balamoola yashtimadhu ksheera basti*

INGREDIENTS	QUANTITY

Makshika	60ml
Saindhava lavana	10gms
Panchatikta Ghrita	120m
Putoyavani kalka	40gms
Arjuna Balamoola Madhuyasti Siddha ksheerapaka. / panchatikta ksheera paka	300ml

Table 7: *Basti karma* intervention**:** 10 days

1	2	3	4	5	6	7	8	9	10
A	A	N	N	N	N	N	N	A	A
		A	A	A	A	A	A		

Follow up: 20 days after treatment

Total Study Duration: 30days

Assessment criteria:

The subjective and objective parameters of base line data to pre and post medications will be compared for assessment of the results.

Subjective parameters:

Symptoms of *Asthikshaya – Asthishola, Sandhishola, Sandhishotha.*

Objective parameters:

1. Visual analog Scale.
2. Serum Etrodiol

A total number of 40 subjects fulfilling the inclusion criteria were studied.

- Number of subjects registered for the study - 85
- Number of subjects excluded - 40
- Number of subjects completed the study - 40
- Number of dropout - 05

Results:

Table 8: Showing Analysis between the Group A and Group B Subjective and Objective parameters

PARAMETERS	GROUP A			GROUP B		
	BT	AT	MEAN%	BT	AT	MEAN%
JANU SANDHI SHOLA (VAS)	6.60	2.30	65.15	7.60	5.30	30.26
SERUM ESTROGEN	0.50	0.95	90	0.75	0.80	6.6

Table 9: Showing the Comparative results Group A and Group B

PARAMETERS	GROUP	Mean difference (BT-AT)	% diff	SD	SE	T value	P value	REMARKS
JANU SANDHI SHOLA (VAS)	A	4.30	65.15	1.49	0.33	5.2099	0.0001	HS
	B	6.30	30.26	0.98	0.22			
SERUM ESTROGEN	A	87.6290	90	73.6398	16.4664	4.5319	0.001	HS
	B	12.7065	6.6	6.6028	1.4764			

COMPARATIVE EFFECT OF TREATMENTS:

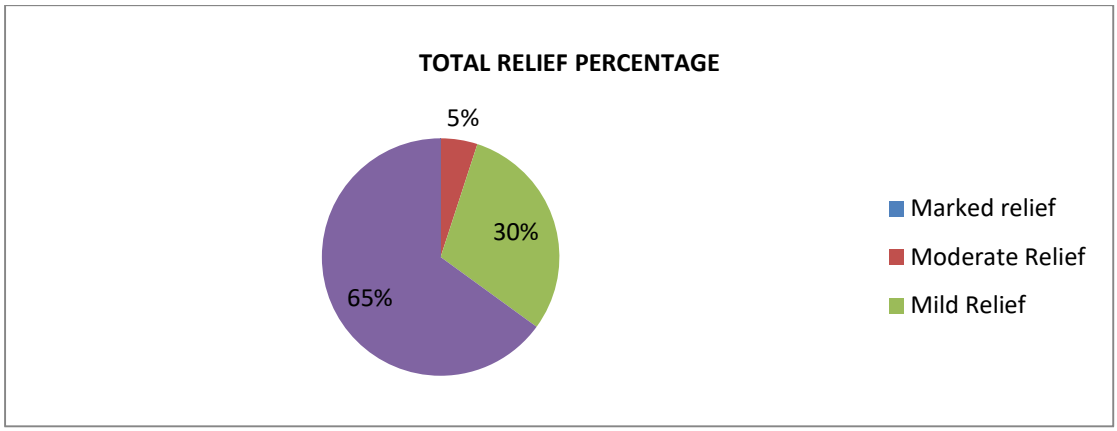
Comparative analysis of effect of treatment on *Janu Sandhishola* between Group A and B, with t-value 5.2099, the result is statistically Highly Significant (P>0.05). There was 65.15% improvement in Group A and 30.26% improvement in Group B treatment individually.

Comparative analysis of effect of treatment on *Sandhishotha* between Group A and B, with t-value4.5319, the result is statistically Highly Significant (P>0.05).There was 90% improvement in Group A and 6.6 % improvement.

OVER ALL RESULTS:

In Group A, total 20 patients were treated out of which, 5 patients were markedly improved, 9 patients

were moderately improved and 6 showed mild In Group B total 20 patients were treated out of them, 7 patients were markedly improved, 9 patients showed moderate improvement, 4 patients showed mild improvement.



DISCUSSION

Females after *Rajonivrutti (*menopause) may also suffer from *Asthi Kshaya.* This was noticed in the present study also it may be sarcastic to think of *Asthi Kshaya* in females with *Rajonivrutti* because Asthikhyaya in these females is not clearly explained in our science, but *Sushruta* explains that *dhatu kshyaya* will occur after *Rajonivrutti*. As age advances and by over indulgence in the *Vata Prakopaka Nidana* the *Srotas (Asthivaha srotas)* become *Rikta* because of *Dhatu Kshaya (Sara Kshaya*), This leads to further provocation of *Vata* and the provoked *Vata* fills in the *Rikta Asthivaha Srotas* leading to *Asthikshyaya*.

Women are much more prone to osteoporosis than are men. Women have been found five times more likely to have osteoporosis. Young women generally have less bone mass than young men, due to genetic factors. Also, bone loss in women begins 5 to 10 years earlier than it does for men. During their lifetimes, women lose 35 to 40 percent of their cortical bone and 55 to 60 percent of trabecular bone Men, on the other hand lose only one third of this amount. At menopausal and post menopausal period, woman rate of bone loss quickens. The rate of loss has been estimated to be as high as 2.5 to 3 % of total bone mass per year. Trabecular bone loss may be as much as 4 to 8 % per year. This accelerated bone loss that occurs around menopause is directly related to estrogen deficiency; which is independent of age[5].

Sex steroids i.e. estrogen and testosterone are major determinants of bone metabolism in both women and men[5]. *In vitro* and *in vivo* studies indicate estrogens and androgens to act via different cellular mechanisms[3]. The bone sparing effect of estrogen is antiresorption by inhibition of osteoclast activity. The cellular and molecular mechanism by which estrogen deficiency leads to bone loss are increasingly well understood. Estrogen deficiency increases receptor activation of nuclear factor kappa B ligand (RANKL), leading to increased osteoclast recruitment and activation and decreased osteoclast apoptosis. RANKL is the final key molecule required for osteoclast development and is normally expressed by bone marrow stromal/osteoblast precursor cells, T and B lymphocytes. RANKL binds to its receptor RANK on osteoclast lineage cells and is neutralized in the bone microenvironment by its soluble decoy receptor osteoprotegerin (OPG), which is produced and secreted by osteoblast lineage cells. Combined *in vitro* and *in vivo* studies have shown that estrogen normally suppresses RANKL production by osteoblastic cells and T and B lymphocytes and increases OPG production by osteoblastic cells. Thus, estrogen deficiency leads to an alteration in the RANKL/OPG ratio that favors bone resorption.[5]

In women, reduced estrogen levels e.g. following oophorectomy or natural menopause are well-known to increase bone loss, increase the risk of osteoporosis and fracture[5]. Oophorectomy also leads to a decline in testosterone levels by one-half, whereas the levels in postmenopausal women with intact ovaries are variable. Bone re-absorption increases by 90% after menopause, whereas bone formation also increases but only by 45%, as assessed by markers of bone formation. This difference favors greater bone re-absorption, which leads to accelerated bone loss during the first 8-10 years after menopause. Increased bone re-absorption leads to an efflux of calcium from the skeleton into the extracellular pool. Compensatory increased renal calcium excretion, decreased intestinal calcium absorption[6], and partially suppressed parathyroid hormone (PTH) secretion prevent development of hypercalcemia.

CONCLUSION

Rajonivruttijanya Asthikshyaya can be correlated to Postmenopausal Osteoporosis, as in both the condition Osteoporosis is seen after the cessation of menstrual cycle and is a degenerative disease. On an average minimum 5minutes of triturating after adding each ingredient will yield a properly mixed *Bastidravya*. Hence, Minimum of 20 minutes is required to mix a *Bastidravya*. The specific *Basti* formulated by the drugs having phytoestrogens helps in decreasing the expression of RANKL by binding to the estrogen receptors and thereby decreasing the bone re absorption activity by osteoclast cells. Phytoestrogen is having the regulatory effect on the bone remodeling cycles in the absence of host estrogen. The duration of bioavailability and regulatory effect of these phytoestrogens is not yet understood and the dosage of estradiol in postmenopausal women is still under research. As *Arjuna BalamoolaYashtimadhu ksheera basti* has shown promising result in the reduction of *janusandhi shola* and improving the Serum Estrodiol level, this *Basti* can be given as preventive seasonal *basti* in all perimenopausal women's' and as therapeutic *basti* in postmenopausal women's. The study statistically revealed that *ArjunaBalamoolaYashtimadhu ksheera Basti* has significant role in improving the Serum Estradiol level which reflected the reduced intensity of Knee joint pain after follow up than *Panchatikta Ksheera Basti.*

REFERENCES

1. Caraka. Caraka Samhita (Vidyotini Hindi Commentary), Vol.1. Sastri KN, Caturvedi GN, editors. 1st ed. Varanasi: Caukhambha Bharati Academy; 2001.Siddhi, 1 .p.672-673.
2. Sushruta. Sushruta Samhita (Nimbanda Sangraha commentary) Jadavji Trikamji Acharya, editors. 1st ed. Varanasi: Caukhambha Bharati Academy; 2001. Sutrasthana 14.p55
3. Kuchuk NO, van Schoor NM, Pluijm SM, Smit JH, de Ronde W, Lips P.2007.The association of sex hormone levels with quantitative ultrasound, bone mineral density, bone turnover and osteoporotic fractures in older men and women. *Clin Endocrinol (Oxf)* 67:295-303.
4. Caraka. Caraka Samhita (Vidyotini Hindi Commentary), Vol.1. Sastri KN, Caturvedi GN, editors. 1st ed. Varanasi: Caukhambha Bharati Academy; 2001.Sutrasthana, 28.p.323-324.
5. Albertazzi P, Purdie D. 2002. The nature and utility of the phytoestrogens:a review of the evidence. *Maturitas* 42:173-85.
6. Clarke BL, Khosla S. 2010. Physiology of bone loss. *Radiol Cli North Am* 48:483-95
7. The Wealth of INDIA. A dictionary of Indian Raw Materials and Industrial Products.National Institute of Science Communication and Information Resources, CSIR New delhi-INDIA.1956.Reprinted-2005.Vol-IV : F-G. pn 151-153. Vol-IX: Rh-So. Pn 323-324. Vol-X : Sp-W. pn 161-16

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