



To Evaluate The Effect Of Matra Basti And Tikta Ksheera Basti On Asthikshaya W.S.R. To Osteoporosis

Dr Dev Anand¹, Dr V S Kanthi MD(Panchakarma)², Dr N H Kulkarni MD(Jamnagar), PhD(Jaipur)³

1. MD Scholar, Department of Panchakarma, Bhagawan Mahaveer Jain Ayurvedic Medical College and PG Centre, Gajendragad
2. Professor & HOD, Department of Panchakarma, Bhagawan Mahaveer Jain Ayurvedic Medical College and PG Centre, Gajendragad
3. Principal and Hospital Superintendent, Bhagawan Mahaveer Jain Ayurvedic Medical College and PG Centre, Gajendragad

ABSTRACT

Asthikshaya i.e. Osteoporosis is a condition in which there will be kshaya (diminution) of Asthidhatu (bone tissue). Asthikshaya may be compared to Osteoporosis, in which there is a decrease in bone mass leading to increased in bone fragility and susceptibility to fractures. Osteoporosis is a commonest condition affecting the older population. According to the principle of Ashraya Ashrayee Bhava, when Vata increases Asthi decreases because, Vata and Asthi are inversely proportional to each other. Hence the etiological factors of Vata Vriddhi are the causative factors for Asthikshaya. Apart from this, the causative factors for Asthikshaya can also be taken as the factors for the vitiation of Medavaha, Asthivaha, Majjavaha and Purishavaha Srotas as well. Thus very complex mechanism involves in the Samprapti of Asthikshaya. By the above mentioned results, the pathogenetic factors of the provoked Vata, either by Dhatukshaya or by Margavarana, enters the Rikta Asthivaha Srotas or leads to Asthikshaya. The clinical features of Asthikshaya are Asthishoola, Toda, Sandhi Shaithilya, Kesha, Loma, Nakha, Danta Paata, Dourbalya, Rukshata etc. As per Acharya Charak & Vagbhata, the remedial measures in the disorder of Asthi consist of the Panchakarma therapy Basti prepared with the Tiktadravya, Ksheera and Ghrita along with the use of Swayoni dravyas. The present clinical study was

undertaken to evaluate the efficacy of *Matra Basti and Tikta Ksheera* in the management of *Asthiksahya* w.s.r. to Osteoporosis

Aims & Objectives: To evaluate the effect of *Matra Basti and Tikta Ksheera* Basti on *Asthiksahya* w.s.r. to Osteoporosis.

Methodology: In Group-A 15 patients were given *Matra basti* & In Group-B 15 patients were given *Tikta ksheera basti*

Result: Among 15 patients in group A, marked improvement was found in 3 patients, and 12 patients were moderately improved in lakshana of *Asthikshaya*. Among 15 patients in group B, marked improvement was found in 5 patients and 10 patients were moderately improved.

In this study the Group- B (*Tikta ksheera basti*) shows slightly good results than Group-A (*Matra basti*) in all the symptoms in combating the disease *Asthikshaya*.

Key Words: *Asthikshaya*, Osteoporosis, *Tikta ksheera basti*, *Matra basti*

INTRODUCTION

Osteoporosis is a metabolic bone disease characterised by diffused skeletal lesions in which normally mineralized bone is decreased in the mass to the point that is no longer provides adequate mechanical support.¹ Worldwide, it is estimated that 1 in 3 women above the age of 50 will experience osteoporotic fractures, as well as 1 in 5 men. India with a population of 1.2 billion people is the second most populated country in the world with approximately 10% of population (more than 100 million) over 50 years of age.²

Osteoporosis can be correlated with *Ashtikshaya* in Ayurveda. It is a condition in which diminution of *Asthidhatu* will occur. According to *Ashrayaashrayee bhava*, *Vata* and *Asthi*, both are inversely proportion to each other means when *Vata* increase *Asthi* decrease.³ So, etiological factors which are responsible for *Vata* increase can cause *Asthikshaya*. The clinical features of *AsthiKshaya* mentioned by *Acharyas* are *Asthishula*, *Toda*, *Sandhi Shaithilya*, *Kesha*, *Loma*, *Nakha*, *Danta Vikara*, *Daurbalya*, *Rukshata* *Sparshashyatava* etc. which are closely resembles with the symptoms of Osteoporosis like bone pain, tenderness and weakness etc.^{4,5}

As per *Acharya Charak & Vagbhata*, the remedial measures in the disorder of *Asthi* consist of the *Panchkarma* therapy, *Basti* prepared with the *Tiktadravya*, *Ksheera* and *Ghrita* along with the use of *Swayoni dravyas*.⁶ Hence the present study was undertaken to understand and study the efficacy of *Matra basti & tikta ksheera basti* in the management of *Asthikshaya* w.s.r.to Osteoporosis.

OBJECTIVES

1. To evaluate the efficacy of *Matrabasti* in the management of *Asthikshaya*
2. To evaluate the efficacy of *tikta ksheera basti* in the management of *Asthikshaya*.
3. To evaluate and comparative effect of *Matrabasti* and *tikta ksheera basti* in the management of *Asthikshaya*

MATERIALS AND METHODS

Source of Data

Minimum 30 patients of *Asthikshaya* were selected randomly from the OPD, IPD and by conducting the special camps in Department of Post Graduate Studies in Panchakarma, Bhagawan Mahaveer Jain Ayurvedic Medical College, Hospital & PG Centre Gajendragad.

Study Design:

A comparative clinical study with pre-test and post- test design.

All the formulations were prepared in the pharmacy attached to the college.

Methods of Collection of Data

Patients of either sex were selected randomly based on the symptoms of *Asthikshaya*, the screened patients were randomly divided into two groups group A and group B with 15 patients in each group.

Inclusion Criteria

1. Patients were selected between the age group of 40-70 years.
2. Patient representing with classical features of *asthikshaya*.
3. Patient of both sex are taken.
4. Patient of osteoporosis diagnosed by BMD test.

Exclusion Criteria

1. Patient below the age of 40 and above 70 years.
2. Patient suffering from any systemic disorder like DM, HTN, Endocrinal disorders, Paget's disease, Cushing syndrome etc.
3. Patient suffering from pathological osteoporosis or any neoplasm or osteoporosis related to systemic disorders.

4. Osteoporosis associated with fracture

Diagnostic Criteria

- Parameter for diagnostic purpose depends on classical signs & symptoms.
- Bone mineral density.

Grouping

Groups	No of Patients	Trail Drugs	Duration of the Treatment
Group A	15	Matrabasti	8 days
Group B	15	Tikta Ksheera Basti	8 days

Intervention: Conducted on patient diagnosed as asthikshaya.

Randomly selected patients were assigned in two groups. Group A and Group B having 15 patients in each group.

Group A:

Sample size : 15 patients

Method : Matra basti

Duration : 25 days

Purva karma : Preparation of basti yoga

- Saindhava lavana heated red hot and dipped in ghruta till whole saindhava dissolves.
- Matra of panchatiktaka guggulu ghruta = 1 ½ pala = 72 ml
- Matra of saindhava lavana = 1 karsha = 10 gm

Preparation of patient:

Sthanika abhyanga.

Sthanika sweda.

Intake of laghu bhojana.

Pradhana karma : Matra basti administered Paschat karma :

- Hitting over buttocks
- Gently massaging over abdomen
- Raising both leg slightly above and patting over feet.
- Giving gentle massage over body so that patient feels sleepy.
- Basti pratyagamana should be observed
- Nireekshana of samyaka anuvasana and sneha jeerna lakshana

Treatment duration : 8 days

- Post treatment : On 25th day follow up

Group B:

Sample size : 15 patients
 Method : Tikta ksheera basti
 Duration : 25 days
 Purva karma : Preparation of basti yoga

- Madhu =1 prasruta
- Saindhava = 1 aksha
- Ghruta = Goghruata 2 prasruta
- Kalka =Rasana kalka 20 gms
- Kasaya =Pancha tikta + ksheera = 3 prasruta
- Total quantity = 6 prasruta

Preparation of patient: Sthanika abhyanga and Sthanika sweda.

Pradhana karma : Tikta ksheera basti administration.

Paschat karma : Patient should rest for a while till basti pratyagamana kala and nireekshana followed with pathya bhojana.

Treatment duration : 8 days

Post treatment : On 25th day follow up

Assessment Criteria

Assessment of the condition was done based on the detailed proforma adopting standard methods of scoring for subjective parameter and objective parameters.

- Pre test assessment- Before the commencement of treatment (0 day).
- Post test assessment- After the completion of treatment (25th day).

PARAMETERS OF THE STUDY:

Subjective Parameters:

	Shoola (Asthi Pradesha)	Sparsha Asahyata	Daurbalya/ Shrama	Sandhi Saithilyata
Grade 0	-	-	-	Pain
Grade 1	Mild	Mild	No strenuous activity	Pain and swelling
Grade 2	Discomfort	Wincing of face on pressure	Moderate activity	Pain ++ Swelling ++
Grade 3	Distress	Wincing of face and drawing affected part back	Only mild activity	Pain +++ Swelling+++ Crepitus +
Grade 4	Horrible	Resist touch	Even mild activity can be performed	Pain ++++ Swelling ++++ Crepitus ++ Tenderness +

Objective Parameters:

- **Bone Mineral Density (W.H.O. criteria for osteoporosis)**

T-score

Normal = -1

Osteopenia = -1 to -2.5

Osteoporosis = less than or equal to -2.5

Severe osteoporosis = less than -2.5 with fracture

RESULTS**Table No. 1: Effect of therapy on Shoola**

Symptoms	Group	Mean		Diff.	%	SD	SE	't'	P
		B.T.	A.T.						
Shoola	A	2.80	0.93	1.86	67	0.74	0.19	9.72	<0.05
	B	2.86	0.86	2.00	70	0.65	0.16	11.83	<0.05

Table No. 2: Showing effect of therapy on Sparsha Asahyata

Symptoms	Group	Mean		Diff.	%	SD	SE	't'	P
		B.T.	A.T.						
Sparsha Asahyata	A	2.66	1.00	1.66	62	0.48	0.12	13.2	<0.05
	B	3.00	0.80	2.20	73	0.67	0.17	12.60	<0.05

Table No. 3: Showing effect of therapy on Shrama

Symptoms	Group	Mean		Diff.	%	SD	SE	't'	P
		B.T.	A.T.						
Shrama	A	2.66	1.00	1.66	63	0.48	0.12	13.2	<0.05
	B	3.26	0.86	2.40	73	0.50	0.13	18.3	<0.05

Table No. 4: Showing effect of therapy on Sandhi Saithilyata

Symptoms	Group	Mean		Diff.	%	SD	SE	't'	P
		B.T.	A.T.						
Sandhi Saithilyata	A	3.00	1.06	1.93	64	0.25	0.06	29.00	<0.05
	B	2.86	0.80	2.06	72	0.59	0.15	13.48	<0.05

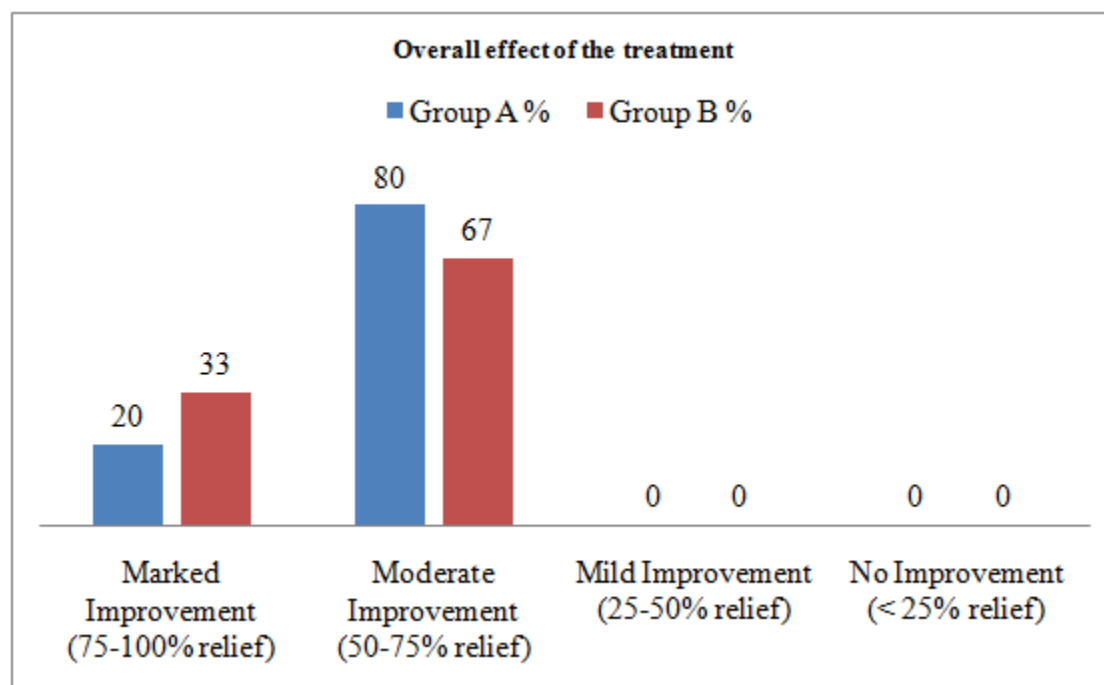
Table No. 5: Showing effect of therapy on Singh index

Symptoms	Group	Mean		Diff.	%	SD	SE	't'	P
		B.T.	A.T.						
Singh index	A	4.40	2.00	2.40	54	0.63	0.16	14.69	<0.05
	B	4.06	1.93	2.13	52	0.51	0.13	16.0	<0.05

Table No. 6: Showing the Overall effect of the treatment

Criteria	Group A		Group B		Total	Total Percentage
	No.	%	No.	%		
Marked Improvement (75-100% relief)	3	20	5	33	8	27
Moderate Improvement (50-75% relief)	12	80	10	67	22	73
Mild Improvement (25-50% relief)	0	0	0	0	0	0
No Improvement (< 25% relief)	0	0	0	0	0	0

Graph Showing the Overall effect of the treatment



DISCUSSION

Effect of Therapy on Asthi Kshaya Lakshana Effect of medicines on Shoola:

Group A and group B showed 67% and 70% decrease in Shoola respectively. Reduction in Shoola in both groups was statistically significant at $p < 0.05$.

Effect of medicines on Sparsha Asahyata :

Group A and group B showed 62% and 73% decrease in Sparsha Asahyata respectively. Reduction in Sparsha Asahyata in group A and group B was statistically significant at $p < 0.05$.

Effect of medicines on Shrama:

Group A and Group B provided 63% and 73% decrease in Shrama respectively. Reduction in Shrama in group A and group B was statistically significant at $p < 0.05$.

Effect of medicine on Sandhi Saithilyata:

Group A and Group B provided 64% and 72% decrease in Sandhi Saithilyata respectively. Reduction in Sandhi Saithilyata in group A and group B was statistically significant at $p < 0.05$.

Effect of medicine on Singh's index:

Group A and Group B provided 54% and 52% decrease in Singh index respectively. Reduction in Singh index in group A and group B was statistically significant at $p < 0.05$.

Mode of Action of Matrabasti on Osteoporosis:

Arunadatta in his commentary Sarvangasundari, in case of *Asthi Kshaya*, *Ksheeraghrita Tikta Samyukta Basti* is advised. In *Asthi Kshaya*, there is no such drug which causes *Asthi Vriddhi*. When *Tikta dravya* is used, it causes *Vata Vriddhi* and it will lead to *Asthi Kshaya*. Since *Asthi* is *Khara* by its nature, in order to control *Vata* and to make *Asthi Vriddhi*, Drug of choice should be drugs possessing *Gunas* like, *Snigdha*, *Shoshana* and *Khara*⁷. For this type of combination of properties, *Ksheera Ghrita Tik-tayukta Basti* is advised. *panchatiktaka guggulu ghrita* is the compound formulation having these *Snigdha*, *Shoshana* and *Khara* qualities. *Snigdha Guna* is obtained by *Ghrita*, *Shoshana Guna* is obtained by *Tikta Rasa* and *Khara Guna* is obtained by *Guggulu*. In the case of *Asthi Kshaya*, or in case of *Sandhivata*, *Matrabasti* with *Panchatikta Guggulu Ghrita* is advocated or *panchatiktaka guggulu Ghrita* can be used as *Snehana Dravya* in *Ksheera basti*. The ingredients of *Panchatikta Guggulu* have *Tikta Rasa*, *Ushna Virya*, and *Madhura* and *Katu Vipaka*. It may increase *Dhatwagni* and *Poshana* of all the *Dhatu*s, especially *Asthi* and *Majja Dhatu* which controls *Asthi* and *Majja Kshaya* (the degeneration process). *Tikta Rasa* is predominant in *Akasha* and *Vayu Mahabhuta* which helps in preservation of normal health of *Asthi Dhatu*. *Tikta Rasa* has got *Deepana* and *Pachana* effect that might have helped to improve general health and thus strengthens the whole body. *Purana Guggulu* also acts as *Rasayana* which may help to prevent any degenerative changes in the body. *Ghrita* is having property such as *Yogavahi* which is helpful to increase bioavailability of other drugs without losing its own property. *Ghrita* is *Vata- Pittashamaka*, *Balya*, *Agnivardhaka*, *Madhura*, *Saumya*, *Sheeta Virya*, *Shulahara*, *Jwarahara*, *Vrishya*, and *Vayasthapaka*. Thus, it pacifies *Vata*, improves the general condition of the body, and acts as a rejuvenator of the body causing in the *Samprapti Vighatana* of the *Asthi Kshaya*.

Probable action of Tikta Ksheera Basti in osteoporosis

Ksheera Basti is such a *vataghna yoga* that induces *bala*, *snehana* and when used with *tikta ksheera* and *gritha*, it acts specifically on *asthidhatu*. According to Arundatta commentary – Any *dravya* having *snigdha* and *shoshan* property and the *dravya* which produces *kharatva* in body is beneficial for *asthi Kshaya* as the *asthi dhatu* has *khara* property. In the universe there is not a single drug having these combined property. *Tikta* is the *rasa* which produces *kharatva* because of most *shoshana swabhava*, and *kharatva* is *pradhana guna* of *Asthidhatu*. *Tikta rasa* when combined with *ksheera* or *gritha* will improve the *dridatha* of *asthidhatu*, resulting in *asthiposhana* and *asthivardhana*. *Tikta rasa* aggravates *vata*, but when it's processed with *ksheera*, and *grithas* it promotes osteogenesis. Hence because of such combination this *Basti* though *vatahara* by nature, produces *kharatva* in the *shareera*, but does not cause *vataprakopa* because of *snighatva* of *ksheera* and *gritha*.

Ksheera and *gritha* are very useful and effective *dravyas* in degenerative conditions. Sushruta says that Basti stays in *pakwasaya*, where *pureesha dhara kala* exists and does its action.⁸ Dalhana in his commentary mentions that *pureeshadhara* and *Asthidhara kalas* are one and the same,⁹ so when Basti is given, it acts on *asthidhara kala*. It means *kharatva* produced in *pakwashaya* by *Tikta ksheera Basti* helps in normal formation of *asthidhatu* in *shareera*, and hence improves the condition.

CONCLUSION

The following conclusions are drawn after logical interpretation of the results obtained in this clinical study, which are listed below:

- The paired 't' test which was used to compare the effect of therapy before and after treatment in Group A and Group B, indicates that both group showed significant results but on the basis of percentage relief in the symptoms and t - score it can be said that the results in Group-B (*Tikta ksheera basti*) was better than Group-A (*Matra basti*) statistically.
- Among 15 patients in group A, marked improvement was found in 3 patients, and 12 patients were moderately improved in lakshana of *Asthikshaya*.
- Among 15 patients in group B, marked improvement was found in 5 patients and 10 patients were moderately improved.
- No patient remained unchanged result in both groups.

REFERENCES

1. In Strayer, D. S., In Rubin, E., In Saffitz, J. E., & In Schiller, A. L. (2015). *Bones and Joints*. In Rubin's pathology: Clinicopathologic foundations of medicine (6th ed.). USA, Philadelphia: Wolters Kluwer/Lippincott Williams and Wilkins. pp. 1226.
2. Kadam, N. S. (2018). Prevalence of Osteoporosis in Apparently Healthy Adults above 40 years of Age in Pune City. *Indian Journal of Endocrinology and Metabolism*. doi:10.4103/ijem. IJEM_438_17
3. Gupt, A. D. (2015). *Doshadivigyaniya Adhyayam in Sutra Sthana*. In *Astang Hridayam* (1st ed.). Varanasi, IN: Chaukhamba Prakashan. p. 117.
4. Shastri, S. N., Panday, K. N., & Chaturvedi, G. N. (2009). *Kriyantahshirshiya Adhyaya in Sutra Sthana*. In *Charak Samhita* (1st ed.). Varanasi, IN: Chaukhamba Bharati Academy. p. 348.
5. Gupt, A. D. (2015). *Doshadivigyaniya Adhyayam*. In *Astang Hridayam* (1st ed.). Varanasi, IN: Chaukhamba Prakashan. p. 116.
6. Shastri, S. N., Panday, K. N., & Chaturvedi, G. N. (2009). *Vividhsheetpitiya Adhyaya in Sutra Sthana*. In *Charak Saqmhita* (1st ed.). Varanasi, IN: Chaukhamba Bharati Academy. p. 573.

7. Vagbhata, AstangaHridaya, Sutrasthana chapter 11, Doshadivignaniya, shloka no.31 with commentaries, Sarvangasundara of Arunadatta and Ayurveda Ra-sayana of Hemadri (annotated by Dr. Annamoreswarkunte and Krishna Ramachandra sashtri Nar-ve) edited by Pt. Harisadashivasastri Paradakara, Chaukhambha Sanskritasansthan, Varanasi, Reprint- 2010, page no.187-188
8. Edited by Vaidya Jadavji Trikamji Acharya: Sushrut: Sushruta samhita: Nibandha Sangraha Commentary By Sri Dalhanacharya: Shareer Sthan: Chapter 5 Verse 8: Chaukhambha krishnadas academy, Varanasi, 2008; 364.
9. Edited by Vaidya Jadavji Trikamji Acharya: Sushrut: Sushruta samhita: Nibandha Sangraha Commentary By Sri Dalhanacharya: Kalpa Sthan: Chapter 4 Verse 40: Chaukhambha krishnadas academy, Varanasi, 2008; 574.

