



AN OPEN LABEL RANDOMISED COMPARATIVE CLINICAL STUDY TO EVALUATE THE EFFICACY OF JANU BASTI FOLLOWED BY PANCHATIKTA KSHEERA BASTI AND ATASI UPANAHA FOLLOWED BY PANCHATIKTA KSHEERSA BASTI IN THE MANAGEMENT OF JANUSANDHIGATA VATA W.S.R TO OSTEOARTHRITIS OF KNEE JOINT

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ABSTRACT

Background: Janusandhigata Vata is one among the Vata Vyadhi in all the Samhitas, characterized by Shoola, Shotha, Stambha, Atopa, and Prasarana Akunchana Vedana in Janusandhi. Acharyas have recommended Snehana, Swedana, Bandhana, Upanaha, Agnikarma and Basti Karma as one of the treatment modalities for disease pertaining to Snayu, Asthi, and Sandhi. In this study, Snigdha Swedana and Upanaha is followed whereas in Asthigata vata chikitsa. Tikta ksheera basti is mentioned to get qualified result Panchatikta ksheera basti is adopted.

Methodology: In the present study, 40 subjects were diagnosed as Janusandhigata Vata were randomly assigned into two groups, Group A and Group B, comprising 20 subjects each. Subjects belonging to Group A were subjected to Janu Basti with Moorchita Taila for the duration of 30 minutes, Panchatikta ksheera basti in the form of Yoga Basti pattern was administered for 8 consecutive days, whereas the subjects pertaining to Group B were subjected to Atasi Upanah and Panchatikta ksheera Basti in the form of Yoga Basti pattern for the duration of 12 hours a day, for 8 consecutive days. **Results:** In both Group A and Group B, the Wilcoxon Signed Rank Test applied within the group analysis for the subjective parameters has shown statistically highly significant results ($P < 0.001$). The Mann-Whitney 'U' Test applied between the group analysis for the subjective parameters has shown no significant difference between the two groups. **Conclusion:** The present study showed statistically significant result in both the Groups, based on mean rank Group B has an edge over a Group A.

INTRODUCTION

The present study entitled “An Open Label Randomised Comparative Clinical Study To Evaluate The Efficacy Of Janu Basti Followed By Panchatikta Ksheera Basti And Atasi Upanaha Followed By Panchatikta Ksheersa Basti In The Management Of Janusandhigata Vata W.S.R To Osteoarthritis of Knee Joint.” Janu sandhigata vata is one among Vatavyadhi. When the vitiated vata lodges in Janusandhi it is considered as Janusandhigata vata by all

Dhatu undergoes Kshaya, thus leading to Vata Prakopa, which gets localized in Janu Sandhi, leading to the manifestation of Janusandhigata Vata presenting with Janusandhi Shoola, Janusandhi Shotha, Janusandhi Stambha, Janusandhi Atopa and Janusandhi Prasarana Akunchana Vedana.^[1] In modern it can be comparable to Osteoarthritis of knee joint which is one among the degenerative joint diseases particularly seen in geriatric age group which typically result of wear and tear and

progressive loss of articular cartilage. The causes are due to mechanical damage of the structures of knee, post-traumatic arthritis, Autoimmune form of arthritis and obesity is also a risk factor for the development of Osteoarthritis of Knee joint. The main symptoms are joint pain, crepitus, joint instability and stiffness. The current line of treatment in contemporary field of medicine includes the administration of analgesics, NSAIDs, intra articular steroids and surgical intervention which later may have delirious effect on all over the body. Also, Charaka Samhita it is mentioned as Asthi-majja gata vikara both Bahya snehana and Abhyantara snehana are to be employed. Janubasti is categorized under both Snehana and Swedana. In Sushruta Samhita, the chikitsa of Vatavyadhi is mentioned as Snehana, Upanaha, Bandhana and Mardana. Upanaha is a form of swedana which is helpful in reducing Sandhigata vata. Formulations like Atasi Upanaha are mentioned in Classics. Also, Janubasti and Upanaha sweda are categorized under Bahirparimarjana Chikitsa. Meanwhile in Charaka Samhita it is explained that one should administer Tikta ksheera basti in Asthipradosaja vikaras.^[2] Many research works have been conducted on individual treatment modality of these. Hence, the present study has been taken to analyse the combined action of Antar parimarjana and Bahirparimarjana Chikitsa. (i.e.,) to see the efficacy of Janu Basti, Atasi upanaha and Tikta ksheera basti in Janusandhigata vata.

MATERIALS AND METHODS

40 subjects presenting with the Lakshanas of Janusandhigata Vata w.s.r. to Osteoarthritis of Knee Joint, coming under the inclusion criteria, were screened and randomly selected from the OPD and IPD of Sri Kalabyraveswary Ayurvedic Medical College, Hospital and Research Centre, Bengaluru for the study. The sample collection was initiated with post approval from the Institutional Ethics Committee with number SKAMCH & RC/IEC/015/2023 dated 27th September 2023 and Post registration in CTRI (CTRI/2023/12/076898).

The identified raw drugs required for the study were purchased from approved vendors, and post-purchase of the raw drugs were authenticated by the faculty of the Department of Dravyaguna of Sri Kalabyraveswary Ayurvedic Medical College, Hospital and Research Centre. The Atasi upanaha Choorna and Panchatikta Ksheera basti was prepared in the pharmacy of Department of Rasa Shastra and Bhaishajya Kalpana of Sri Kalabyraveswary Ayurvedic Medical College, Hospital and Research Centre. The subjects who fulfilled the inclusion criteria complying with the informed consent were selected using random sampling techniques. This was a comparative study, wherein 40 subjects of either gender diagnosed as Janusandhigata Vata w.s.r. to Osteoarthritis of the Knee Joint were assigned through a random sampling method.

1) Inclusion Criteria

- Subjects of either gender in between the age group of 40-60 years.
- Subjects with the Lakshanas of Janu Sandhigata Vata.
- Subjects with the clinical features of Osteoarthritis of Knee Joint.
- Subjects with the radiological evidence of Osteoarthritis of Knee Joint.
- Subjects fit for Basti Karma were selected.

2) Exclusion Criteria

- Subjects having history of any other systemic disorder which may interfere with the course of treatment.
- Subjects with history of fracture and dislocation of knee joint.

Intervention

40 patients of Janusandhigata Vata who fulfilled the inclusion criteria were selected and randomly assigned into 2 groups viz Group A and Group B, comprising 20 patients in each. Group A: Janu Basti followed by Panchatikta Ksheera Basti was administered. Group B: Atasi Upanaha followed by Panchatikta Ksheera Basti was administered. In both groups, the procedure was done using Panchatikta Ksheera basti. The only difference was Janu basti and Atasi upanaha in each group Panchatikta Ksheera basti was done in a Yoga Basti schedule of 8 days, consisting of 5 Anuvashana Basti and 3 Niruha Basti alternatively.

Procedure of Janu basti in Group A

Poorva Karma:

Preparation of Medicine:

Murchita tila taila was taken in a vessel in a required quantity and was heated indirectly over hot water bath.

Preparation of Subject

The subject selected for Janu basti was made to lie in a supine position on Droni with exposed affected Knee joints, and Mridu abhyanga with Murchita tila taila was done.

Pradhana Karma

Murchita tila taila was indirectly heated in a water bath and poured into the frame using a cotton swab. After 5 minutes, the oil was taken out of the frame with help of cotton swab. Fresh warm oil was then poured into the frame. This process was repeated for a duration of 30 minutes.

Paschat karma

After 30 minutes, the complete oil was taken out from the frame with a cotton swab. The frame was then removed.

Procedure of Atasi Upanaha in Group B

Atasi upanaha was done for 8 consecutive days.

The ingredients of Atasi Upanaha were as follows.

Ingredients of atasi upanaha: (approx. 50gm for one knee joint)

Atasi churna (Linum usitatissimum) – 21.8gm

Godhuma (Triticum aestivum) – 21.8gm

Haridra (Curcuma longa) - 6.25gm

Saindhava lavana – 1 pinch

Murchita tila taila – (q.s) Total - 50gm

Procedure of Atasi Upanaha

1. The patient was asked to sit on a stool in a comfortable position, exposing the affected knee

joint region. The ingredients of Atasi upanaha were prepared into a semisolid paste, which was neither too thick nor too thin consistency, and applied over the Cora cloth of 1 cm thickness.

2. It was then tied over the affected Knee joint when it was warm, and this was followed by bandhana with Eranda patra and Cora cloth. The bandhana was removed on the next morning (after 12 hours). After the removing, the patient was advised to wash the knee part with lukewarm water.

Table No. 1: Shows medicine required for Panchatikta Ksheera Basti.

Medicine	Quantity
Madhu	96ml
Saindhava lavana	6gm
Murchita tila taila	144ml
Shatapushpa Kalka	48gm
Panchatikta kwatha	192ml
Ksheera	96ml

Method of preparation of Panchatikta Ksheera Basti

• In a clean, dry Khalwa Yantra, 96 ml of Madhu was taken, and 6 grams of Saindhava lavana was added to it.
• Trituration was done in clockwise direction until the sound which was produced during trituration of the mixture stopped, indicating a homogenous mixture had been obtained.
• To the mixture lukewarm of 144ml of Murchita ghrita which was added slowly in a single stream and triturated to get a homogenous mixture. After

that, 48 grams of Shatapushpa Churna Kalka was added and continue trituration. Once it become homogenous mixture. • Panchatikta Kashaya was prepared separately by adding panchatikta kwatha churna and ksheera with water. A total of 192ml kwatha was obtained and added to the above mixture in the khalwa yantra. The mixture was triturated continuously for 2 minutes then, final mixture was filtered through a fine sieve.

Table No. 02: Yoga Basti pattern for Panchatikta Ksheera Basti.

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8
A	N	A	N	A	N	A	A

Assessment Criteria

Subjective Parameter

Janusandhigata Shoola

Janusandhigata Shotha

Janusandhigata Sthambha

Janusandhigata Prasarana Akunchana Pravritti Vedana

WOMAC score

Objective Parameter

Janusandhi Atopa

Statistical analysis

- For the Statistical analysis, the data obtained in the group were recorded and presented in tabulations and drawings.
- To infer the clinical study and draw a conclusion the subjective parameters like Janusandhi Shoola, Janusandhi Shotha, Janusandhi Stambha, Janusandhi Prasarana Akunchana Vedana, Janusandhi Atopa, and Womac Score were subjected to the Wilcoxon Signed Rank test for within-group analysis and Mann-Whitney U rank test for between group analysis.

Table No. 03: Showing interpretation of p Value.

Interpretation	p Value
Non significant	>0.05
Significant	<0.05
Highly significant	<0.01, <0.001.

Assessment was taken at:

•BT-Before treatment –Day 1

•AT –After Treatment –Day 8

RESULTS

The assessment was done before treatment (BT) and after treatment (AT), and the assessment parameters like Janusandhi Shoola, Janusandhi Shotha, Janusandhi Stambha, Janusandhi Atopa, Janusandhi Prasarana Akunchana Vedana, and Womac Score were subjected to the Wilcoxon Signed-Ranked Test to compare the Mean Rank within the groups and Mann Mann-Whitney 'U' test to compare the Mean Rank difference between the two groups respectively.

Effect of therapies on Subjective Criteria

In Group A, the Wilcoxon Signed rank Test on Janusandhi Shoola revealed statistically highly

significant reduction with Z value = -3.932, p value <0.001. In Group B, the Wilcoxon Signed rank test on Janusandhi Shoola revealed statistically highly significant reduction with Z value = -3.932, p <0.001. After treatment, the Mann Whitney 'U' test revealed that there is no statistically significant difference between the Group A and Group B. Based on Mean rank, after treatment effect on Janusandhi Shoola in Group B has shown better effect compared to Group A, as the mean rank of Group B is lower than that of Group A.

In Group A, the Wilcoxon Signed Rank Test on reduction in Janusandhigata Shotha revealed statistically highly significant result with Z= -3.6221, p <0.001. In Group B, the Wilcoxon Signed Rank Test on Janusandhi Shotha revealed statistically highly significant result with Z= -3.0612, p<0.001. After treatment, the Mann Whitney 'U' test revealed that there is no statistically significant difference between the Group A and Group B. Based on Mean rank, However after treatment effect on Janusandhi Shotha in Group B has shown better effect compared to Group A, as the mean rank of Group B is lower than that of Group A.

In Group A, the Wilcoxon Signed Rank Test on reduction in Janusandhi Stambha revealed statistically highly significant result with Z value =-3.295, P value <0.001. In Group A, the Wilcoxon Signed Rank Test on reduction in Janusandhi Stambha revealed statistically highly significant result with Z value =-3.295, p value <0.001. After treatment, the Mann Whitney 'U' test revealed that there is no statistically significant difference between the Group A and Group B. Based on Mean rank, However after treatment effect on Janusandhi Stambha in Group B has shown better effect compared to Group A, as the mean rank of Group B is lower than that of Group A.

In Group A, the Wilcoxon Signed Rank Test on reduction in Janusandhi Atopa revealed statistically highly

significant result with Z value = -3.517, p value <0.001. In Group A, the Wilcoxon Signed Rank Test on reduction in Janusandhi Atopa revealed statistically highly significant result with Z value = -3.1798, p value <0.001. Both Before and after Treatment, the Mann Whitney 'U' test revealed statistically no significant difference between the Group A and Group B with P value >0.05 Based on Mean rank, However after treatment effect on Janusandhi atopa in Group B has shown better effect compared to Group A, as the mean rank of Group B is lower than that of Group A.

In Group A, the Wilcoxon Signed Rank Test on reduction in Janusandhi Prasarana Akunchana Vedana revealed statistically highly significant result with Z value = -3.409, p value <0.001. In Group A, the Wilcoxon Signed Rank Test on reduction in Janusandhi Prasarana Akunchana Vedana revealed statistically highly significant result with Z value = -2.665, p value <0.001. After treatment, the Mann Whitney 'U' test revealed that there is no statistically significant difference between the Group A and Group B. Based on Mean rank, However after treatment effect on Janusandhi Prasarana Akunchana Pravrutti Vedana in Group B has shown better effect compared to Group A, as the mean rank of Group B is lower than that of Group A.

In Group A, Paired 't' Test on WOMAC INDEX revealed statistically highly significant results with t value = 21.08 and p value <0.001. In Group B, Paired 't' Test on WOMAC INDEX revealed statistically highly significant results with t value = 13.086 and p value <0.001. After treatment, the unpaired 't' test revealed that there is no statistically significant difference between the Group A and Group B. Based on mean rank after the treatment effect on WOMAC score is comparatively little better in Group B than Group A, as the mean rank of Group B is lower than that of Group A.

Table No. 04: Showing the Effect of therapies on subjective criteria within the groups.

Assessment criteria	Group	Parameter	Rank		Mean Rank	Sum of Rank	Z value	P value	remarks
Janusandhi Shoola	A	BT-AT	NR	0	10.5	210	-3.932	<0.001	HS
			PR	20					
			Ties	0					
	B	BT-AT	NR	0	10.5	210	-3.932	<0.001	HS
			PR	20					
			Ties	0					
Janusandhi Shotha	A	BT-AT	NR	0	9	153	-3.622	<0.001	HS
			PR	17					
			Ties	3					
	B	BT-AT	NR	0	6.5	78	-3.061	<0.001	HS
			PR	12					
			Ties	8					
Janusandhi Sthamba	A	BT-AT	NR	0	7.5	105	-3.295	<0.001	HS
			PR	14					
			Ties	6					
	B	BT-AT	NR	0	7.5	105	-3.295	<0.001	HS

			PR	14					
			Ties	6					
Janusandhi Atopa	A	BT-AT	NR	0	8.5	136	-3.517	<0.001	HS
			PR	16					
	Ties	4							
	B	BT-AT	NR	0	7	91	-3.179	<0.001	HS
PR			13						
Ties			7						
Prasaranna Akunchana Vedana	A	BT-AT	NR	0	8	120	-3.409	<0.001	HS
			PR	15					
	Ties	5							
	B	BT-AT	NR	0	5	45	-2.665	<0.001	HS
PR			9						
Ties			11						
PR			19						
Ties	0								

Table No. 05: Effect of Treatment in Group A On Womac Score.

Womac	Mean	MD	SD	SE	t-value	p value	Remarks
BT-AT	BT 2.1	1.05	0.223	0.0498	21.08	0.001	HS
	AT 1.05						

Table No. 06: Effect of Treatment in Group B On Womac Score.

WOMAC	Mean	MD	SD	SE	t-value	P value	Remarks
BT-AT	BT 2.2	1.2	0.4098	0.916	13.086	0.001	HS
	AT 1						

Table No. 07: Showing the effect of therapies on Subjective Criteria between the groups.

Assessment criteria	Phase	Group A		Group B		'U value'	Z value	P value	Result
		MR	SR	MR	SR				
Janusandhi Shoola	BT	19.05	381	21.95	423.5	171	-0.784	>0.05	NS
	AT	21.17	423.5	19.82	396.5	186.5	-0.365	>0.05	NS
Janusandhi Shotha	BT	25.3	505.5	15.7	314.5	104	-2.597	>0.05	NS
	AT	25	501.5	15.9	318.5	108.5	-2.475	>0.05	NS
Janusandhi Sthamba	BT	21.65	433	19.35	387	177	-0.622	>0.05	NS
	AT	21.1	422.5	19.8	397.5	212.5	-0.338	>0.05	NS
Janusandhi Atopa	BT	23.65	473	17.35	347	137	-1.704	>0.05	NS
	AT	21.5	430	19.5	390	180	-0.5411	>0.05	NS
Prasaranna Akunchana Vedana	BT	24.02	480.5	16.97	339.5	129.5	-1.907	>0.05	NS
	AT	22	440	19	380	170	-0.811	>0.05	NS

Table No. 08: Showing the effect of therapies on Subjective Criteria between the groups for WOMAC Score.

Womac	Mean	MD	SD	SE	t-value	p-value	Remarks
BT	A 2.1	4.75	0.3625	0.1146	-0.872	>0.05	NS
	B 2.2						
AT	A 1.05	1.07	0.1577	0.0498	1.002	>0.05	NS
	B 1						

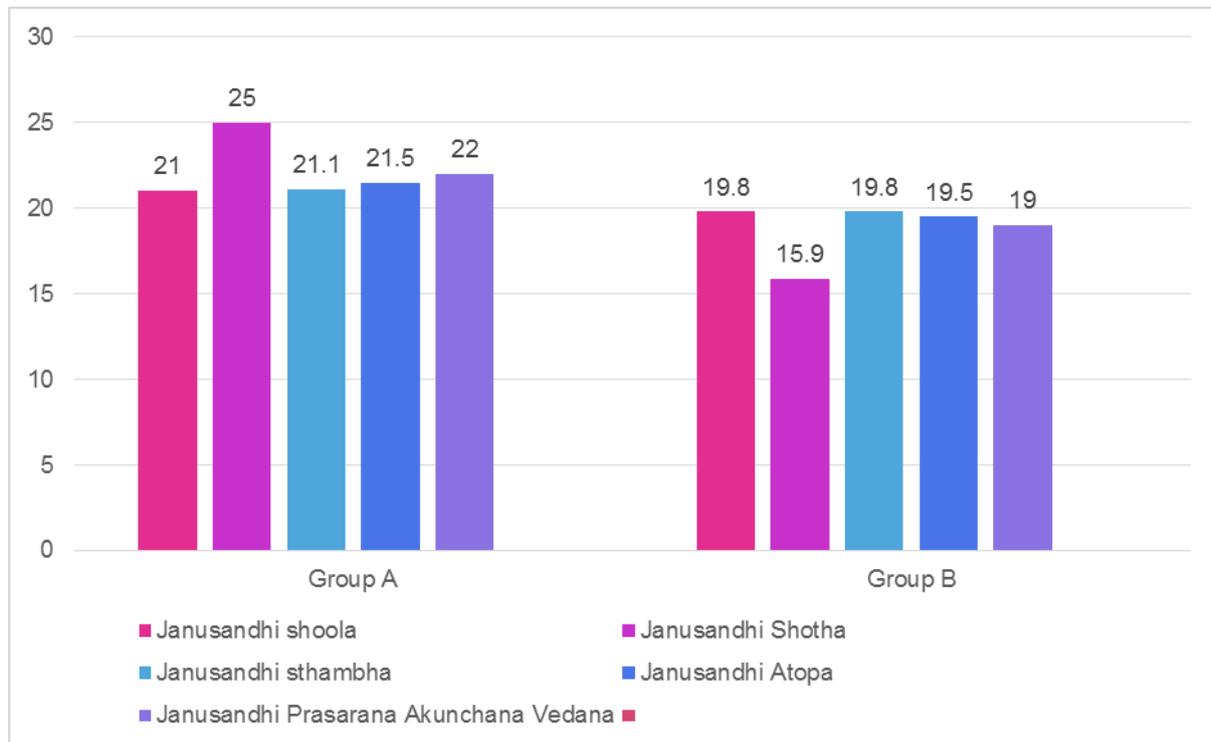


Fig. No. 01: Showing the effect of therapies on Subjective Criteria between the groups.

DISCUSSION

Mode of Action of Basti Karma

Panchatikta ksheera basti was chosen for the study considering Janusandhigata vata as an Asthiashrita Vyadhi. Sa ghrita Ksheera Basti using tikta rasa Dravya as the line of treatment for Asthiashrita Vyadhis. Basti dravyas by reaching upto nabhi, kati, parshva, kukshi pradesha churns up the fecal matter and doshas present there and at the same time by spreading its unctuous effect in the whole body, draws out the faeces and vitiated doshas with ease.^[3] This is the action of Basti which can be attributed to first Niruha Basti. The action on Pitta dosha which is dependent on Vata in pakvashaya can be attributed to second Niruha Basti. The third Niruha if given expels out morbid Kapha in pakvashaya, which is dependent on Vata. Thus the excess Pitta and Kapha doshas which have moved from their site to pakvashaya are eliminated by the administration in the form of consecutive bastis; just as cloth takes away the dye from the water mixed with kusumbha plant.^[4] Once all pakvashayagata doshas get cleared, vayu attains normalcy. Thus, it is clear that Basti is not given merely to draw out the impacted faeces from the colon but it is one of the routes of the drug administration for the systematic therapy of many diseases also. The veerya of Basti drugs reaches the apana vayu and nourishes it, then it acts on samana vayu, after nourishing samana vayu it nourishes the vyana vayu, there after it acts on udana vayu and prana vayu and nourishes them. When all these 5 types of vata get their normal state they promote health. Then, veerya of Basti drugs act on the pitta and kapha to bring them into normalcy and provide them nourishment. The veerya of the Basti drugs is carried to tiryak pradesha by vyana vayu to adho pradesha by

apana vayu and to urdhwa pradesha by prana vayu. Just as the farm gets its nourishment by water supplied through channels, the whole body gets nourishment by the veerya of basti drugs carried by five types of vata through the srotas. While Niruha Basti clears all the passages and removes doshas, sneha of Anuvasana Basti spreads in minute channels very smoothly just like water flowing in unobstructed canals, thereby, promoting vitality of life, just as a tree fed with water at its roots, puts forth green leaves and healthy sprouts, and in due time grows into a big tree, with blossom and fruit, similarly does a man grow strong by means of nutritive action of Basti. According to contemporary, drugs when administered through the rectal route, it is absorbed by the rectum's blood vessels and flow into the circulatory system, which distributes the drug to other systems. Drugs that are administered rectally have a faster onset and higher bio availability. The rectal route by passes around two thirds of the first-pass metabolism as the rectum's venous drainage is two thirds systemic and one third portal. This means the drug will reach circulatory system with significantly less alteration and in greater concentrations. Also, the enteric nervous is embedded in the lining of the gastrointestinal system, beginning in the esophagus and extending down to the anus. Enteric Nervous System is capable of autonomous functions such as coordination of reflexes. Enteric nervous system has been described as a second brain for several reasons. It communicates with the central nervous system through the parasympathetic and sympathetic nervous systems. Basti karma acts directly over the Enteric Nervous and produces its systemic effect through rectal mucosa is rich in enteric neurons and blood vessels. The administration of basti formulation stimulates these neurons by

bioactive phytochemicals that interact with neurotransmitter receptors, TRP channels involved in gut brain signaling. This can modulate gut motility, visceral sensitivity and inflammatory pathways.

MECHANISAM OF JANU BASTI

Absorption of Veerya through skin

Acharya Sushruta in Shareera sthana explains out of four tiryak dhamanis, each divide gradually hundred and thousand times and thus becomes innumerable. These cover the body like network and their openings are attached to romakupa. Through them only veeryas of abhyanga, parisheka, avagaha, alepa enters the body after undergoing paka with Bhrajaka pitta in the skin.^[5] Acharya also explains in chikitsasthana as sneha used in avagaha produces shareera bala by saturating through siramukha, romakupa and dhamanias. Acharya Sushruta in sutrasthana explains, lepa like bahirparimarjana chikitsa gives results by entering into romakupa thereby circulating through swedavaha srotas. Acharya Vagbhata in Ashtanga Hridaya while explaining the function of bhrajaka pitta explained that - Bhrajakapitta will do pachana of drugs used in abhyanga, parisheka and lepa. Thus with the above references it can be said that drugs used in Janu basti procedure gets absorbed through skin and produce action according to the properties of the medicines Effect of luke warm oil: Janu basti does bahya swedana and snehana karma. Swedana has the function of shoolahara, sheetahara, sthambahara, gourava nigraha gunas. In janu sandhigata vata vyadhi, shoola and sthamba are the main lakshanas. Janu basti considered to have action on these lakshanas. The sthamba of sandhi is due to sheeta guna of vata, this sheeta guna is neutralized by ushna guna of medicine. As sneha dravya used as medium in case of Janu basti their action further facilitates in alleviating vata. Sneha dravyas has Drava, Sara, Snigdha, Picchila, Guru, Sheet, Mrudu and Manda guna predominantly. The application of Swedana by luke warm oil promotes local circulation and metabolic activities and also opens the pores of the skin to permit transfer of medicaments and nutrients towards the needed sites and elimination of vitiated dosha and malas through skin. Moreover Sneha dravyas has similar properties that of Kapha dosha. Thus, in one hand sneha dravya neutralizes vata dosha and on the other hand nourishes the sthanika kapha dosha. This helps in samprapthi vighatana. Effect of Swedana therapy: When heat is applied to the body, it is distributed to adjacent parts according to heat flow and blood flow. The distribution of heat depends on the size of the heated area, the depth of absorption of specific radiation, the duration and intensity of heating and the method by which it is applied. Metabolic rate increases by 13% for every 1- degree Celsius rise of temperature. This means that the cell requires more oxygen and nutrients accordingly there is an increased production of metabolites or waste products. Essentially, the application of heat will cause the local blood vessel to dilate, impart due to local reflexes causing the relaxation of smooth muscle. This in turn results in an increased

blood flow, so enhancing the oxygen and nutrient supply to the area. The effect of topical heat application may penetrate to a depth of 2cm depending on the temperature of the appliance and duration. Thermoreceptors are sensory nerve endings that detect temperature changes. In joints, especially during inflammation these receptors are hypersensitive due to inflammation, trigger nociceptors (pain receptors) cause burning, aching, and stiffness so any external therapy that modulates thermoreceptor activity can reduce pain perception and inflammation. The warm oil pooling directly over the joint provides sustained local heat by activates thermoreceptors (TRPV1-type), initially causing stimulation but leading to desensitization of nociceptors reduction in pain signaling and gate control theory of pain inhibition. This thermal desensitization has a neuromodulatory effect, reducing the local nerve endings. This dismantle the effect on thermoreceptors.

MECHANISM OF ATASI UPANAHA

Atasi upanaha was administered as saagni sweda variety, here the patients were subjected to atasi upanaha churna by making luke warm paste of the ingredients of Atasi Upanaha. In order to accentuate the Vataghna effect, to nourish the depleted dhatus and to restore the normal functioning of the joint. The average quantity of Upanaha dravya per joint varied from 60gms to 90 gms. It was applied on cora cloth in the consistency of 1 cm thickness and was covered using Eranda patras. By considering the difficulty in procuring Charmapatta and by considering the patient's difficulty in accepting it, Eranda Patra was selected to wrap the applied paste. In the absence of Charma patta,^[6] one can make use of any Vatahara Patra which was better served by Eranda Patra. On an average 4 patras were required per joint to cover the applied paste. Over this, Bandaging was done using Cora Cloth. Upanaha was left to retain for a period of 12 hours overnight and was removed on the next day morning.^[7] The same procedure was done for period 8 consecutive days. Here, while applying the paste over the affected joint, difficulty was faced due to sticky nature because of oil, Upanaha paste was not easily adhering over the affected joint and most of the patients find it difficult to retain Upanaha for entire night as it was sliding down from the joint because of the slippery surface caused by adding Oil. Drug Delivery through the Skin: The stratum corneum serves as the primary barrier to the absorption of external substances through the skin. The rate of percutaneous absorption is directly influenced by the drug's concentration in the vehicle, its partition coefficient, diffusion coefficient, and the thickness of the stratum corneum. Several physiological factors impact skin absorption, including hydration, occlusion, age, skin integrity (intact or disrupted), temperature, and the anatomical site of application. Among various vehicles, anhydrous preparations-either water-insoluble or fat are commonly used. Fatty substances are more occlusive than water-soluble ones, as they limit trans-epidermal water loss and help maintain hydration of the stratum corneum. Drug

absorption is largely dependent on its lipid solubility due to the lipid-rich nature of the epidermal barrier. In contrast, the dermis is more permeable to various solutes. Suspending a drug in an oily vehicle can enhance its absorption, particularly because hydrated skin is more permeable than dry skin. The application of heat, medicated substances, and massage can support the elimination of harmful substances through the skin. Specifically, heat treatments such as Swedana improve local blood circulation and metabolic activity, and help open skin pores, thereby facilitating the transfer of medicaments and nutrients. Heat therapy aids in directing metabolic processes toward affected sites and facilitates the elimination of vitiated Dosha and Mala through the skin via perspiration. Physiological Effects of Heat: Applying heat to body tissues produces several physiological effects, including increased metabolic activity, enhanced blood flow, stimulation of neural receptors in the skin and tissues, and various indirect benefits. Increased Metabolism: The highest increase in metabolism occurs in the superficial tissues where heat is most intense. This elevated metabolic activity leads to a greater demand for oxygen and nutrients, along with an increased production of metabolic waste. Enhanced Blood Supply: As metabolism rises, more waste products and metabolites are produced. These metabolites act on the walls of capillaries and arterioles, causing them to dilate. Heat also directly induces vasodilation, especially in superficial tissues. Additionally, stimulating superficial nerve endings can trigger reflex vasodilation of arterioles. The resulting increase in blood flow helps deliver oxygen and nutrients while efficiently removing waste products from the area.

CONCLUSION

Janusandhigata Vata is commonly identified with Osteoarthritis of the knee joint, presenting with symptoms such as Sandhi shoola, Sandhi shotha, Sandhi stambha, Sandhi atopa, Sandhi prasarana Akunchana Vedana. The Janusandhi is the most frequently affected joint, as it bears the entire body weight. Acharya Charaka mentioned the significance of Snehana and Swedana as one among the Samanya Chikitsa of Vatavyadhi. The Management of vatavyadhi requires the effect of Snigdha swedana. Hence, in the study Snigdha swedana in form of Janu basti and saagni snigdha swedana in form of Atasi upanaha and in both groups Panchatikta ksheera basti were employed. As an open label randomized comparative clinical study with before treatment and after treatment was designed for 40 subjects of either sex diagnosed as Janusandhigata vata w.s.r to Osteoarthritis of Knee Joint were randomly diagnosed and assigned into two groups comprising of 20 subjects in each. In Group A: Janubasti with Panchatikta ksheera basti and in Group B: Atasi Upanaha with Panchatikta ksheera basti was done. Both conducted for a period of 8 consecutive days. The majority of participants had a chronicity of 1–2 years, indicative of the early degenerative phase where Avarana Lakshanas tend to predominate. Upon analyzing the therapeutic outcomes through mean rank comparison,

Group B (Atasi Upanaha + Panchatikta Ksheera Basti) demonstrated slightly superior results compared to Group A. This may be attributed to relatively lower chronicity and a BMI in Group B participants, suggesting the early Avaranajanya stage of pathology, which may respond more effectively to the Ruksha-Snigdha and Shothahara properties of Atasi Upanaha. Based on these findings, it can be concluded that Group B provides a more favorable outcome in managing early-stage Janusandhigata Vata, particularly in individuals with overweight BMI. However, to substantiate these findings, further studies with a larger sample size, longer treatment duration, and categorization based on BMI and chronicity are recommended. This would help better understand the synergistic effects of the interventions and optimize treatment in a better way.

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