



**CLINICAL STUDY ON TWO DIFFERENT KAALA BASTI SHEDULES WITH ARDHAMAATRIKA BASTI IN JANU SANDHIGATA VATA W.S.R. TO OSTEO-ARTHRITIS OF KNEE JOINT**  
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Submitted on- 30-10-23

Revised on- 04-11-23

Accepted on-05-11-23

**ABSTRACT:**

*Vata* which is prime among the *Tridosha*'s is the major factor responsible for all activities and manifestations of diseases in the body. *Sandhigata Vata* is one such disorder where locomotive functions are affected. Osteoarthritis is the most common form of arthritis characterized mainly by pain, bone swelling, and functional limitation of the joint. This condition is commonly present in knee joints. *Kaala Basti* comprises 10 *Anuvasana Basti* & 6 *Niruha Basti* which are given alternatively starting and ending with *Anuvasana Basti* which will take 16 days. There are references regarding the administration of *Anuvasana Basti* on the same day as *Niruha Basti*. Socially reduction in the total duration of the whole procedure is essential. So here an effort was made to rectify the same by adopting a modified *Kaala Basti* schedule of 10 days including 10 *Anuvasana* & 6 *Niruha Basti*. Both the schedules of the *Kaala Basti* adopted for this study provided highly significant relief in the signs and symptoms of the subjects of *Janusandhigata Vata*, but the comparison showed that *Ardhamaatrika Basti* as modified *Kaala Basti* schedule of 10 days showed better relief in comparison to *Ardhamaatrika Basti* as regular *Kaala Basti* schedule of 16 days.

**Keywords:** *Janusandhigata Vata*, Knee OA, Osteoarthritis, *Janu Sandhi*, *Ardhamaatrika Basti*, *Kaala Basti*, *Anuvasana Basti*, *Ksheerabala Taila*

## INTRODUCTION:

*Vata* which is prime among the *Tridosha's* is the major factor responsible for all activities and manifestations of diseases in the body.<sup>[1]</sup>

*Sandhigata Vata* is one such disorder where locomotive functions are affected. *Sandhigata Vata* is described as one of the main *Vatavyadhi* in *Ayurveda*. As the name suggests, *Sandhi* or joint (the *Shleshaka Kapha Sthana*) is affected by *Prakupita Vata* (*Vyana*), which leads to *Lakshana's* like *Vata Poorna Druti Sparsha, Shopha, Prasaaranakunchayoho Vedana, Sandhi Atopa, Sandhi Graha*, etc.<sup>[2]</sup>

Osteoarthritis is the most common form of arthritis characterized mainly by pain, bone swelling, and functional limitation of the joint. This condition is commonly present in knee joints. Due to its similarities in signs and symptoms can be very much correlated to *Janu Sandhigata Vata*. Osteoarthritis is caused by the breakdown and eventual loss of the cartilage of one or more joints leading to clinical features like pain, stiffness, crepitus, restricted movements, etc. It is a major social problem affecting weight-bearing joints often described as wear and tear arthritis.<sup>[3]</sup>

According to the World Health Organization, 9.6% of men and 18.0% of women aged over 60 years have symptomatic osteoarthritis worldwide. In India, more than 10 million

cases are seen per year and it is the most frequent joint disease with a prevalence of 22% to 39%.<sup>[4]</sup> Strong analgesic drugs that are available in the market have the risk of developing side effects such as nephrotoxicity and gastric problems. Even knee replacement surgery involves a lot of expenses that ordinary people cannot afford. Such limitations of current science provide evident scope for research work in *Ayurveda* in this state.

*Basti Karma* is classified as *Yoga Basti, Kaala Basti*, and *Karma Basti* based on the number of *Basti* administered. *Kaala Basti* comprises 10 *Anuvasana Basti* & 6 *Niruha Basti* which are given alternatively starting and ending with *Anuvasana Basti* which will take 16 days.<sup>[5]</sup> There are references regarding the administration of *Anuvasana Basti* on the same day as *Niruha Basti*.<sup>[6]</sup> The social shortening of the total duration of the entire procedure is essential. So here we tried to rectify the same by adopting a modified *Kaala Basti* schedule for 10 days including 10 *Anuvasana* and 6 *Niruha Basti*.

*Ardhamaatrika Basti* is a variety of *Basti* possessing half the dosage of maximum permissible dosage for *Niruha Basti*, hence the name. It can be administered daily even after having food, without any fear of

complications, even to *Sukumara*, *Vridhdha*, *Stree*, and those who have a fear of the procedures. It is indicated in *Vatarakta*, *Kshaya*, *Kasa*, *Kushta*, *Vishamajwara*, *Asmari*, *Moothrakrichra*, *Gulma*, *Pleeha*, and *Haleemaka*. It also possesses benefits as

*Vrushya Basti* increases the quality and quantity of *Shukra*. Moreover, *Ardhamaatrika Basti* is indicated in either *Vata*, *Pitta*, *Kapha*, or *Sannipata* disorders. It also improves the *Bala*, *Varna*, and *Agni* of the individual.<sup>[7]</sup>

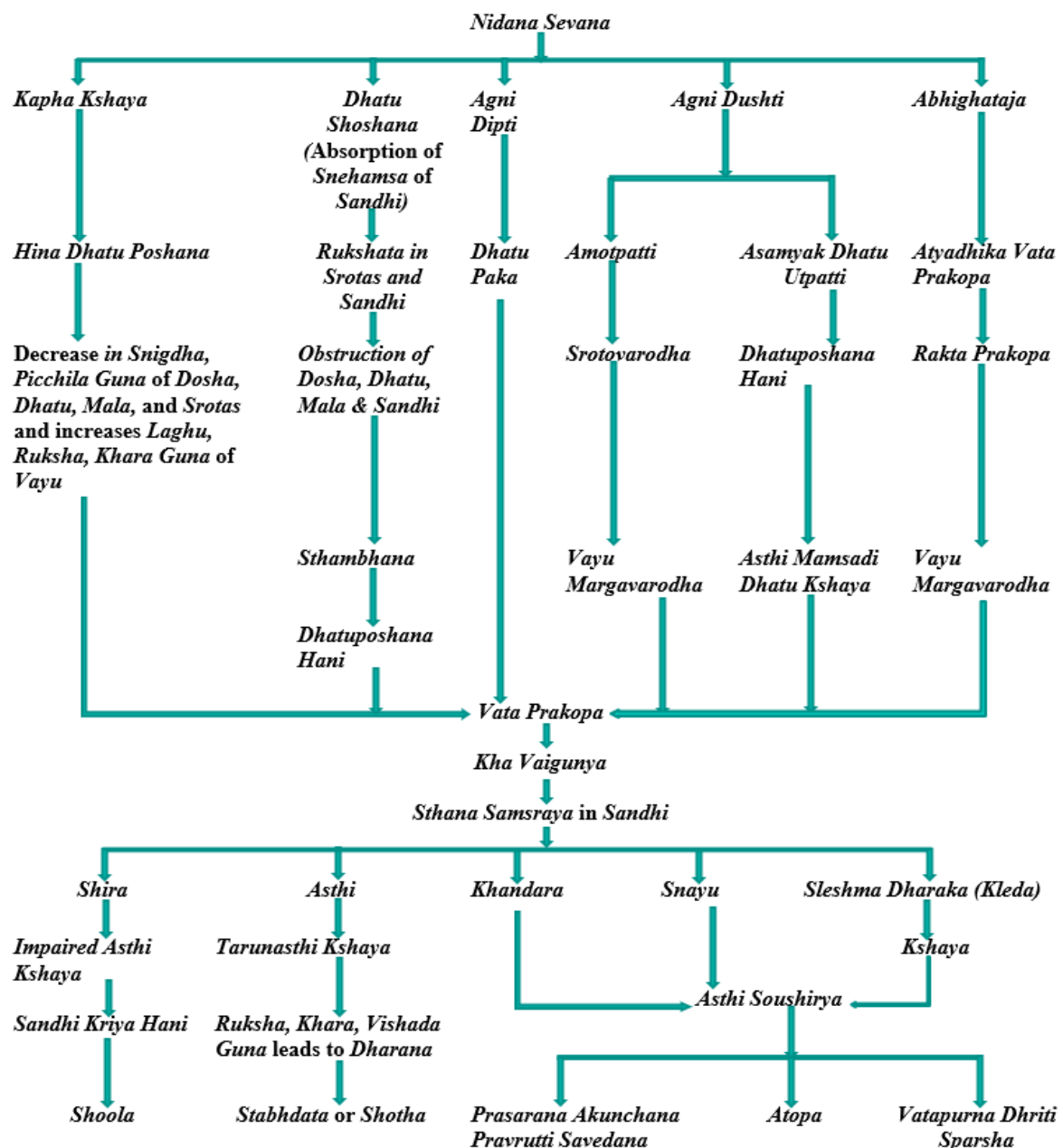
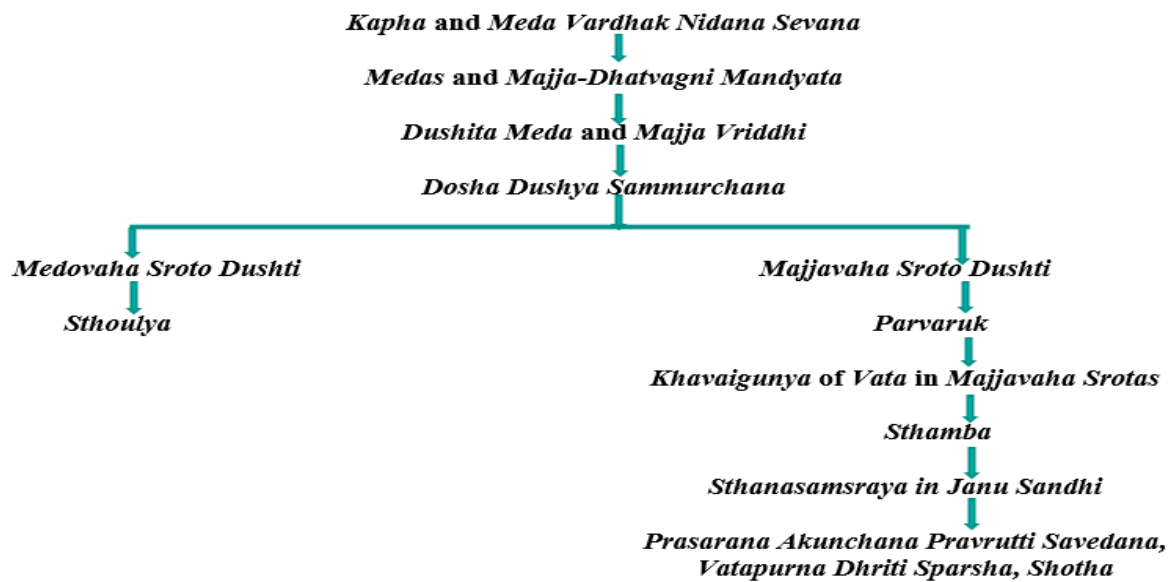


Figure No: 1 Schematic representation of *Samprapti* in *Dhatushaya Janya Sandhigata Vata*



**Figure No: 2 Schematic representation of Samprapti in Avarana Janya Sandhigata Vata**

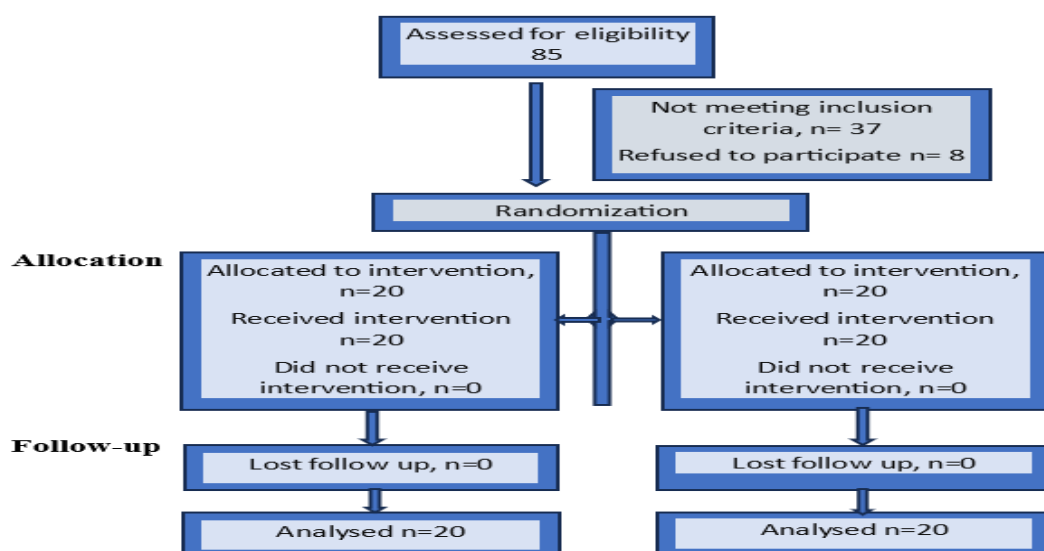
## MATERIALS AND METHODS

A comparative clinical study including 40 subjects meeting the diagnostic and inclusion criteria of *Janusandhigata Vata* (Knee OA) was selected for the study and randomly divided into two equal groups A (regular *Kaala Basti*) and B (modified *Kaala Basti*). Subjects were diagnosed based on clinical signs and

symptoms including *Sandhi Shoola*, *Sandhi Shotha*, *Prasaaranaakunchanayoho Savedanapravrutti*, and *Sandhi Atopa*.

**Study design:** randomized, open-labeled, double-arm clinical study.

**Randomization Method:** Simple random sampling



**Fig.No.3: Consort Flow Diagram**

**DIAGNOSTIC CRITERIA:**

Signs and symptoms mentioned in *Ayurveda* for *Sandhigata Vata* along with signs and symptoms for osteoarthritis in modern science will be the main criteria for diagnosis.

1. *Sandhi Shula* - Pain in joints
2. *Sandhi Shotha* - Joint swelling
3. *Prasaaranaakunchanayoho savedana pravrutthi* - Pain during flexion and extension of knee joints
4. *Sandhi Atopa* - Crepitus

**INCLUSION CRITERIA**

1. Subjects presenting with classical symptoms of *Janu Sandhigata Vata* like *Vatapurna Dhritivat Sparsha*.
2. Subjects of either sex and age group between 40 – 80 years.
3. Subjects who are fit for *Basti Karma*.

**EXCLUSION CRITERIA**

1. Subjects with any congenital bony deformity.
2. Subjects unfit for *Basti Karma*.

3. Subjects below 40 and above 80 years of age.
4. Subjects of *Amavata/Vatarakta, Janu Sandhigata Vata* due to *Abhigata*.
5. *Janu Sandhigata Vata* secondary to endocrine dysfunction, septic arthritis, etc.

**KARMA**

- **Group A:** *Ardhamaatrika Basti* in *Kaala Basti* pattern in a regular schedule.
- **Group B:** *Ardhamaatrika Basti* in *Kaala Basti* pattern in the modified schedule.

For *Anuvasana, Ksheerabala Taila* was used for both groups.

**Table No.1 showing the Ingredients of Ardhamaatrika Basti for Group A and Group B**

Ingredients	: Quantity
<i>Makshika</i>	: 96 ml
<i>Saindhava Lavana</i>	: 12 gm
<i>Ksheera Bala Taila</i>	: 96 ml
<i>Satahva Kalka</i>	: 12 gm
<i>Dashamoola Kwata</i>	: 384 ml

**Table No.2 Showing *Ardhamaatrika Basti* in regular *Kaala Basti* schedule Group A:**

Day <sub>1</sub>	Day <sub>2</sub>	Day <sub>3</sub>	Day <sub>4</sub>	Day <sub>5</sub>	Day <sub>6</sub>	Day <sub>7</sub>	Day <sub>8</sub>	Day <sub>9</sub>	Day <sub>10</sub>
A <sub>1</sub>	AM <sub>1</sub>	A <sub>2</sub>	AM <sub>2</sub>	A <sub>3</sub>	AM <sub>3</sub>	A <sub>4</sub>	AM <sub>4</sub>	A <sub>5</sub>	AM <sub>5</sub>

Day <sub>11</sub>	Day <sub>12</sub>	Day <sub>13</sub>	Day <sub>14</sub>	Day <sub>15</sub>	Day <sub>16</sub>
A <sub>6</sub>	AM <sub>6</sub>	A <sub>7</sub>	A <sub>8</sub>	A <sub>9</sub>	A <sub>10</sub>

AM- Ardhamaatrika Basti A – Anuvasana Basti

**Follow-up:**

- On the 33<sup>rd</sup> day for the regular *Kaala Basti* schedule.
- On the 21<sup>st</sup> day for the modified *Kaala Basti* schedule

Assessment of the condition was done based on detailed Performa adopting standard scoring methods of subjective and objective parameters and was analysed statistically using paired t test and Mann-Whitney test.

**Assessment Criteria:**

**Table No.4 Showing Subjective Parameters of Janusandhigata Vata**

Subjective parameters	Assessment criteria	Score	BT	AT	AF
<b><i>Sandhishoola</i></b> <b>(Prasarana Akunchanayoho Savedana Pravruithi)</b>	No complaint	0			
	Reveals on enquiry (mild)	1			
	Complaints frequently when moves joints (moderate)	2			
	Continuous pain (severe)	3			
<b><i>Sandhigraha</i></b>	Absent	0			
	Persists for 10minute	1			
	Persists for 10 to 20minute	2			
	Persists for 20 to 30minute	3			
	Persists for more than 30minute	4			

**Table No.5 Showing Objective Parameters of Janusandhigata Vata:**

Objective parameters	Assessment criteria	Scores	BT	AT	AF
<b><i>Sandhishotha</i></b>	No complaints	0			
	Slightly obvious	1			
	Cover well over the bony prominence	2			
	Much elevated	3			

<b>Sandhi Atopa</b>	None	0			
	Felt on clinical examination of joints	1			
	Heard on clinical examination of joints	2			
<b>Sandhi Gati samarthata</b>	Full range of movement	0			
	>75% and < full range of joint motion	1			
	50 – 75 % of the full range of joint motion	2			
	Up to 50% of the full range of joint motion	3			
	No movement	4			
<b>Sparsha Asahishnuta (Tenderness)</b>	No tenderness	0			
	Tender but bearable	1			
	Tender but winced	2			
	Tender winced and withdraw	3			
<b>Walking time require to cover distance of 20 meters</b>	Up to 20 seconds	0			
	21 – 30 second	1			
	31 – 40 second	2			
	41 – 50 second	3			
	51 – 60 second	4			

**Table No.6 Showing WOMAC Index of Osteo-Arthritis<sup>[8]</sup>**

<b>WOMAC (Western Ontario And McMaster Universities) Index of Osteo-Arthritis</b> <b>None- 0, Slight- 1, Moderate- 2, Severe- 3, Extreme- 4</b>			<b>BT</b>	<b>AT</b>	<b>AF</b>
<b>Pain</b>	Walking	0,1,2,3,4			
	Stair climbing	0,1,2,3,4			
	Nocturnal	0,1,2,3,4			
	Rest	0,1,2,3,4			

	Weight-bearing	0,1,2,3,4			
<b>Stiffness</b>	Morning stiffness	0,1,2,3,4			
	Stiffness occurring later in the day	0,1,2,3,4			
<b>Physical function</b>	Descending stairs	0,1,2,3,4			
	Ascending stairs	0,1,2,3,4			
	Rising from sitting	0,1,2,3,4			
	Standing	0,1,2,3,4			
	Bending to floor	0,1,2,3,4			
	Walking on flat surface	0,1,2,3,4			
	Getting in and out of car	0,1,2,3,4			
	Going shopping	0,1,2,3,4			
	Putting on socks	0,1,2,3,4			
	Lying in bed	0,1,2,3,4			
	Taking off socks	0,1,2,3,4			
	Rising from bed	0,1,2,3,4			
	Getting in or out of bath	0,1,2,3,4			
	Sitting	0,1,2,3,4			
	Getting on or off toilet	0,1,2,3,4			
	Heavy domestic duties	0,1,2,3,4			
	Light domestic duties	0,1,2,3,4			
<b>Interpretation:</b>					
<ul style="list-style-type: none"> <li>• Minimum Score: 0</li> <li>• Maximum Score: 96</li> </ul>					

**Table No.7 Showing Range of movement of the knee joint in degrees with goniometry:**

ROM	BT	AT	AF
<b>Flexion</b>			

<b>Extension</b>			
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**Sample Size of Estimation:**

40 subjects fulfilling the diagnostic and inclusion criteria of Janusandhigata Vata were selected for the study and randomly divided



into two equal groups A (Regular Kaala Basti) and B (Modified Kaala Basti) consisting of 20 subjects each using a random selection method. 20 subjects in group A (16 days) were treated as 1<sup>st</sup>, 3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 9<sup>th</sup>, 11<sup>th</sup>, 13<sup>th</sup>, 14<sup>th</sup>, 15<sup>th</sup>, and 16<sup>th</sup> day of Anuvasana Basti of 100ml Ksheerabala Taila after food and on the 2<sup>nd</sup>, 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> days of Ardhamaatrika Basti in the morning on an empty stomach. while 20 subjects in group B (10 days) received treatment as Anuvasana Basti of Ksheerabala Taila every day after food

and on the 2<sup>nd</sup> to 7<sup>th</sup> day Ardhamaatrika Basti in the morning on an empty stomach.

#### OBSERVATIONS:

40 subjects of Janusandhigata Vata were registered for the series. They were treated in two groups viz. Ardhamaatrika Basti as Kaala Basti schedule of 16 days (Group A) & Ardhamaatrika Basti as Kaala Basti schedule of 10 days (Group B). The age, sex, religion, occupation, education, etc., noted in the subjects of this series were recorded.

**Table No.8 Showing Observation on Retention Time of Basti**

	Ardhamaatrika Basti		Anuvasana Basti	
	Maximum mean Retention Time	Minimum mean Retention Time	Maximum mean Retention Time	Minimum mean Retention Time
<b>Group A</b>	13.33 minutes	5 minutes	9.9 hours	4.915 hours
<b>Group B</b>	19.16 minutes	6 minutes	17.5 hours	2.73 hours

#### RESULTS:

**Comparative effect of both treatments on signs and symptoms:**

There is no statistically significant difference in all signs and symptoms between group A and group B (BT-AT) as shown in the table.

**Table No.9 Showing Statistical table of comparison between Group A and Group B (BT-AT)**

Parameter	Sum of ranks	Mean of ranks	SD	U-value	Z-value	p-value	Remarks
Weight	820	20.5	36.96	148.5	1.37	0.167	N.S
Sandhi Shoola	820	20.5	36.95	183	-0.44	0.65	N.S
Sandhi Graha	820	20.5	36.96	183.5	0.43	0.66	N.S
Sandhi Shotha	820	20.5	36.96	175	-0.66	0.50	N.S
Sandhi Atopa	820	20.5	36.96	180	0.52	0.59	N.S
Sandhi Gati-samarthata	820	20.5	36.96	175.5	-0.64	0.51	N.S
Sparsha Asahishnuta	820	20.5	36.96	157.5	-1.13	0.25	N.S

Distance of walking		820	20.5	36.96	192	0.20	0.84	N.S
WOMAC		820	20.5	36.96	165.5	-0.91	0.35	N.S
ROM (RT)	Flexion	820	20.5	36.96	187	0.33	0.72	N.S
	Extension	820	20.5	36.96	136.5	-1.70	0.089	N.S
ROM (LT)	Flexion	820	20.5	36.96	185.5	0.37	0.70	N.S
	Extension	820	20.5	36.96	192.5	-0.18	0.84	N.S

**Table No.10 Showing Statistical table of comparison between Group A and Group B (BT-AF)**

Parameter		Sum of ranks	Mean of ranks	SD	U-value	Z-value	p-value	Remarks
Weight		820	20.5	36.96	136	1.71	0.085	N.S
Sandhi Shoola		820	20.5	36.96	187	0.33	0.72	N.S
Sandhi Graha		820	20.5	36.96	186	0.36	0.71	N.S
Sandhi Shotha		820	20.5	36.96	190.5	-0.24	0.81	N.S
Sandhi Atopa		820	20.5	36.96	120	2.15	0.031`	S
Sandhi Gati samarthata		820	20.5	36.96	180.5	-0.51	0.61	N.S
Sparsha Asahishnuta		820	20.5	36.96	142	-1.55	0.11	N.S
Distance of walking		820	20.5	36.96	178.5	0.56	0.56	N.S
WOMAC		820	20.5	36.96	199.5	0	1	N.S
ROM (RT)	Flexion	820	20.5	36.96	168	-0.85	0.39	N.S
	Extension	820	20.5	36.96	132	-1.82	0.067	N.S
ROM (LT)	Flexion	820	20.5	36.96	178	0.581	0.561	N.S
	Extension	820	20.5	36.96	182	-0.47	0.638	N.S

**Comparison effect of therapy on the relief rate of 20 subjects of Group A and Group B:** percentage is 43.27% and 51.63% after treatment and follow-up, respectively.

Group A's improvement percentage is 39.87% and 49.13% after treatment and follow-up, respectively. Group B's improvement

**Table No.11 Showing Relief rate of Group-A**

Parameter	Relief rate (BT-AT)	Relief rate (BT-AF)
<i>Sandhi Shoola</i>	66.65%	83.33%
<i>Sandhi Graha</i>	51.25%	55%
<i>Sandhi Shotha</i>	72.49%	80%
<i>Sandhi Atopa</i>	32.5%	67.5%
<i>Sandhi Gati samarthata</i>	35.83%	40.83%
<i>Sparsha Asahishnuta</i>	70%	75%
Walking Time	59.58%	70.83%

WOMAC		46.85%	76.15%
ROM	Flexion	9.22%	11.26%
	Extension	30%	32.5%
ROM	Flexion	6.64%	8.28%
	Extension	34.16%	34.16%
Weight		3.17%	3.84%

**Table No.12 Showing Relief rate of Group-B**

Parameter		Relief rate (BT-AT)	Relief rate (BT-AF)
<i>Sandhi Shoola</i>		74.99%	88.33%
<i>Sandhi Graha</i>		61.25%	65%
<i>Sandhi Shotha</i>		80%	90%
<i>Sandhi Atopa</i>		35%	40%
<i>Sandhi Gatiasamarthata</i>		36.66%	47.5%
<i>Sparsha Asahishnuta</i>		74.16%	88.33%
Walking Time		54.16%	59.99%
WOMAC		50.66%	79.32%
ROM	Flexion	9.79%	13.67%
	Extension	49.16%	55.83%
ROM	Flexion	5.82%	7.19%
	Extension	28.33%	33.33%
Weight		2.49%	2.69%

**Comparison effect of therapy on the relief rate of 20 subjects of Group A and Group B:**

The percentage of improvement in Group A is 39.87% and 49.13% after treatment and after follow up respectively. The percentage of improvement in Group B is 43.27% and 51.63% after treatment and after follow-up respectively.

**Effect of therapy on individual total symptom scores of 20 subjects of Group A and Group B:**

The total symptom scores before treatment and after treatment in 20 Subjects of Group A was 121. The therapy provided 67.97% relief in the total symptoms score.

The total symptom scores before treatment and after treatment in 20 Subjects of Group B was 129. The therapy provided 70.87% relief in the total symptoms score.

**DISCUSSION:**

Some authors believe that OA is not simply a disease caused by aging or metabolic joint stress, but rather a metabolic disorder that contributes to the initiation and progression of the disease process. Obesity leads to increased load on the weight-bearing joint, which may be the most important mechanical benefit. Knee adduction torque may be an important mechanical variable associated with the development of Knee OA. There is evidence that in obese people, the articular cartilage may not be able to respond to higher levels of absolute knee adduction torque during walking compared to normal-weight individuals.<sup>[9]</sup>

The present clinical study was conducted on 40 subjects of *Janusandhigata Vata*, who were treated in two groups, both received *Ardhamaatrika Basti* as *Niruha* and *Ksheerabala Taila* as *Anuvasana*. In Group A-*Kaala Basti* schedule of 16 days and Group B-*Kaala Basti* modified schedule of 10 days was given.

The subjects were assessed before treatment for the severity of their symptoms. Thereafter 16 days and 10 days course of *Basti* was given. During the follow-up period, no treatment or internal medicines were given. The follow-up was taken on the 33<sup>rd</sup> day in Group A and the 21<sup>st</sup> day in Group B.

### **Probable mode of action of *Ardhamaatrika Basti*:**

**Dravya:** *Basti* as *Shodhana Karma* is most important in pacifying *Vata* as it directly acts on the origin of *Vata*. *Ardhamaatrika Basti* also acts by *Veerya* of the components present. Ingredients of *Ardhamaatrika Basti* include *Makshika*, *Saindhava*, *Ksheerabala Taila*, *Kalka Dravya* of *Shatahva Choorna*, *Kwatha Dravya* like *Bilwa*, *Agnimantha*, *Shonaka*, *Paatala*, *Gambhari*, *Shalaparni*, *Prishnaparni*, *Brihati*, *Kantakari* and *Gokshura*. The action of the components can be explained as follows.

**Saindhava:** The *Sukshma* and *Tikshna Guna* of *Saindhava* help to pass the drug molecules into the systemic circulation through the mucous membrane. So, it helps *Basti Dravya* to reach the molecular level. Due to its irritating properties, it also helps in the elimination of waste. It is capable of liquefying viscid matter and breaking it into small particles.

**Makshika:** It has the properties of *Kapha Pitta Hara*, *Chedana*, *Sandhana*, *Deepana*, *Lekhana*, *Sookshmanusari*, and *Yogavahi*, due to *Yogavahitwa* (catalytic effect) and *Sookshma Marganusrithwa* (power to penetrate the minute Srotas of the body) helps honey to play a major role in the action performed by *Niruha*.

**Ksheerabala Taila:** In this *Basti*, *Ksheerabala Taila* was mixed with *Makshika* and *Saindhava* solution which help in making a uniform mixture. It has properties of *Shoolahara* and *Shothahara* and also nourishes and strengthens all *Dhatu*.

**Kalka Dravya:** Kalka Dravya containing *Shatahva Choorna* which has the properties of *Vatakaphahara* and *Shoolahara* helps to improve the condition. It also helps in the digestion and transfer of *Basti* phytochemicals into the system.

**Kwatha Dravya:** *Kwatha Dravya* includes drugs like *Bilwa*, *Agnimantha*, *Shonaka*, *Paatala*, *Gambhari*, *Shalaparni*, *Prishnaparni*, *Brihati*, *Kantakari* and *Gokshura* which have *Vatakaphahara*, *Vatapittahara* and *Tridosahara* properties.

#### **Discussion on the Overall effect of Ardhamaatrika Basti:**

The overall properties of the drugs used in this *Basti* pacifies *Tridosha*, acts as *Balya* and *Shoolahara* thus alleviates disease. There was a highly significant change observed in both the groups clinically and statistically after the treatment and during follow-up.

*Basti Dravya* when administered reaches up to the micro and macro level due to its *Virya* (potency) helps first to disrupt the pathogenic process and carries out the morbid matter toward *Pakwashaya* for the elimination. Thus,

it works as a curative as well as a purification measure.

#### **Discussion on the comparative effect of Group A and Group B:**

After treatment in both Group A and Group B criteria like *Sandhi Shoola*, *Sandhi Shotha*, *Sparsha Asahishnuta*, Distance of walking, WOMAC, and Weight were shown highly significant results. And criteria like *Sandhi Graha*, *Sandhi Atopa*, and ROM were shown Statistically significant results. During follow-up on the 33<sup>rd</sup> day (Group A) and 21<sup>st</sup> day (Group B) all the above-mentioned criteria were found to be statistically highly significant in both groups except *Sandhi Graha*, *Sandhi Gati-samarthata*, and ROM. The comparison between the groups showed that all the criteria were statistically insignificant after treatment and after follow-up except *Sandhi Atopa* which showed a statistically significant effect after follow-up.

#### **Discussion on Result:**

*Sandhi Shoola*, *Sandhi Atopa*, etc. are produced mainly by *Vata Prakopa* and *Basti Karma* is one of the best treatments of *Vata*. *Ardhamaatrika Basti* comprises mainly *Dashamoola Kwatha* and *Ksheerabala Taila* which directly act upon *Vata* and *Kapha Dosha*, and hence will help in getting improvement on conditions. As both groups received the same treatment there were no

significant changes seen with statistical analysis. But clinically, the group that received the *Ardhamaatrika Basti* as a modified *Kaala Basti* schedule (10 days) has shown more improvement in subjective and objective parameters.

**Dropout and Complications:** A total of 40 subjects were registered for the study, all subjects completed the study but 1 subject complained of giddiness & discomfort after the first *Niruha* which got subsided after 1 hour with a light diet, liquid consumption, and complete rest.

#### CONCLUSION:

The modified *Kaala Basti* schedule of *Ardhamaatrika Basti* showed better results in terms of retention of *Basti Dravya* i.e., In *Niruha Basti* Average retention time is 9.74 minutes, and in *Anuvasana Basti* average retention time is 12.72 hours.

Both the schedules of the *Kaala Basti* adopted for this study provided highly significant relief in the signs and symptoms of the subjects of *Janusandhigata Vata*, but the comparison showed that *Ardhamaatrika Basti* as modified *Kaala Basti* schedule of 10 days showed better relief in comparison to *Ardhamaatrika Basti* as regular *Kaala Basti* schedule of 16 days.

As both groups received the same treatment there were no significant changes seen with

statistical analysis. But clinically, the group received the *Ardhamaatrika Basti* as modified *Kaala Basti* schedule (10 days) has shown more improvement in subjective and objective parameters.

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#### CITE THIS ARTICLE AS

Nikhita Kalburgi, Harish Kulkarni. Clinical Study on Two Different Kaala Basti Schedules with Ardhamaatrika Basti In Janu Sandhigata Vata W.S.R. To Osteo-Arthritis of Knee Joint. *J of Ayurveda and Hol Med (JAHM)*. 2023;11(11):17-31

**Conflict of interest:** None

**Source of support:** None