



**A Comparative Study Of Janu Basti With Sahachar Tail&  
Agnikarma With Tamrashalaka In Janusandhigat Vata (Osteoarthritis  
Of Knee)**

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**ABSTRACT**

Osteoarthritis of knee is more prevalent in Indian population. This disease simulates to the Sandhigata Vāta (Osteoarthritis) . It is one of the degenerative Joint Disease characterized by breakdown of joint cartilage. Osteoarthritis is the 2<sup>nd</sup> most common disease in the world population i.e. 30%. Knee joint is the most affected site. The major risk factors associated with Knee joint are old age, obesity, occupational knee bending etc. which makes it an important cause of disability.

Different condition of Sandhigatavāta (Osteoarthritis) are better treated by different modalities explain by Ācārya Suśrūta. Ācārya Suśrūta has explained Vāyu entrapped in Snāyu( Muscle Tendons), Sandhi (Joint) & Asthi (Bone) which should be treated with **Snehan (Oleation), Swedan (Sudation), Upanāha (Poultice), Agnikarma (Therapeutic Burn), Bandha( Banadage) and Mardana (Massage)** (Su.Ci.4/8). Hence the present study was planned to evaluate efficacy of Jānubasti (retention of oil on knee) and Agnikarma (Therapeutic Burn) in Jānusandhigata Vāta (Osteoarthritis of Knee). Jānubasti with Sahachar Taila (retention of Barleria prionitis oil ) administered once a day up to 7 days for Group A on 50 pts. and Agnikarma with Tamraśalāka was done on maximum area of tenderness once a day up to 7 days for Group B on 50 pts. Symptoms of Jānusandhigata Vāta (Osteoarthritis of Knee) viz- Śula (Pain), Śoṭha (Swelling), Sparśashatva (pain during touch) , Ānkuncan Prasāranjanya Śula (Pain during extension and flexion of Knee) , Sandhispuṭan. (Crepitus) and Sakaṣṭacalan (Difficulty during

walking) were assessed. On statistical analysis within the group p value is <0.05 indicating significance of each treatment group. In between group assessment the p value is >0.05 indicating no significant difference between the two groups.

**Keywords:** Janubasti with Sahachartail(oleation of Barleria prionitis oil on knee joint externally )-Agnikarma with Tamrashalka (Therapeutic Burn with copper Rod)-Janusndhigatavata (Osteoarthritis of Knee)

### **Introduction:**

Prevalence of Osteoarthritis of knee is more common in India. No satisfactory, comprehensive & time bound treatment schedule for Jānusandhigata Vāta (Osteoarthritis of Knee) is available at present. Even other treatments have their own limitations in the management of this disease.

Other systems of medicine can provide either conservative or surgical treatments which are highly symptomatic and commonly associated with troublesome side effects. Whereas such type of conditions can be better treattable by the management and procedures like Snehan (oleation) and Agnikarma (Therapeutic Burn) mentioned in Sushruta Smhita (Su.Ci.4/8)<sup>4</sup>. These treatments are economical and they have long lasting effects and the chances of recurrence are less. Hence we have taken Jānubasti (Retention of oil on Knee joint) and Agnikarma (Therapeutic Burn) for this study.

### **Need and significance:-**

Sandhigata Vāta(Osteoarthritis) can be well treated with Sahachar Taila which has got Vāta Kaphaghna (Normalise the Vata and Kapha Dosha) along with Śothahara (reduces Swelling) and Śulahara (reduces pain) Properties (Ch.chi.28/144 -145)<sup>1</sup>.

Agnikarma with Tāmraśālākā (Therapeutic Burn with Copper Rod) have Vātaśamana (Balancing of Vata Dosha), Śulahara (reduces pain) and Śothahara (reduces Swelling) properties (S.Su. 12-2)<sup>4</sup>. Hence Jānubasti (retention of oil on Knee joint) and Agnikarma (Therapeutic Burn) can be used for the treatment of Jānusandhigata Vāta (Osteoarthritis of Knee).

### **Hypothesis :-**

Ho: There is no significant difference in the efficacy of Jānubasti with Sahachar Taila (retention of Barleria Prionitis oil on knee-joint externally) and Agnikarma with

Tāmraśālākā (Therapeutic burn with copper rod) in Jānusandhigata Vāta (Osteoarthritis of Knee).

H1: There is significant difference in the efficacy of Sahachar Taila (retention of Barleria Prionitis oil on knee-joint externally ) and Agnikarma with Tāmraśālākā (Therapeutic burn with copper rod) in Jānusandhigata Vāta (Osteoarthritis of Knee).

**Aim:-**

- To study the efficacy of Jānubasti with Sahachar Taila and Agnikarma with Tamraśālākā in Jānu Sandhigata Vāta.

**Objectives:-**

- To evaluate the efficacy of Jānu Basti with Sahachar Taila of Sahachar Taila (retention of Barleria Prionitis oil on knee-joint externally ) on Jānusandhigata Vāta (Osteoarthritis of Knee) symptoms viz- Śula (Pain), Śoṭha (Swelling), Sparśashatva (pain during touch) , Ānkuncan Prasāranjanya Śula (Pain during extension and flexion of Knee) , Sandhispuṭan. (Crepitus) and Sakaṣṭacalan (Difficulty during walking)
- To evaluate the Efficacy of Agnikarma with Tamraśālākā (Therapeutic burn with Copper rod) on Jānusandhigata Vāta symptoms viz- Śula (Pain), Śoṭha (Swelling), Sparśashatva (pain during touch) , Ānkuncan Prasāranjanya Śula (Pain during extension and flexion of Knee) , Sandhispuṭan. (Crepitus) and Sakaṣṭacalan (Difficulty during walking)
- To compare and determine the Efficacy of Jānu Basti with Sahachar Taila and Agnikarma with Tāmraśālākā in Jānusandhigata Vāta .

**Literary Review:**

This part includes: Literary review of Sandhigata Vāta was taken from various Samhitā like Brhatrayee and laghutrayee ,in which Niādan Panchak along with treatment were studied in detail (Ca.Ci.28/37 and Ma.Ni. 22/21)<sup>2</sup> and Osteoarthritis of Knee. Review of Jānubasti (Astang Hruday) and Agnikarama (S.Su. 12-2)<sup>4</sup>. In the Drug Review description concerning about properties of ingredients Sahachar Taila is mentioned (Ch.chi.28/144 - 145)<sup>1</sup>.

### **Material and Method:**

100 patients (Group A- Jānubasti- 50 patients and Group B-Agnikarma- 50 patients) of Jānusandhigata Vāta were randomly selected and allocated on the basis of clinical examination selected from OPD of Panchakarma Dept. BVMF Ayurveda Hospital, Pune-43.A Special case Performa containing details necessary for study was prepared. Sahachar Taila was purchased from Pune market (Agasti Pharmacy-Batch No.13068) and Standardization was done in Late Principal Bhide Lab. Pune. Tāmraśalākā was purchased from Pune market. Permission for this study was taken from Clinical Trial Registry of India and the trials were registered in CTRI. **CTRI/2015/01/005357.**

### **Inclusion Criteria:-**

- ✓ Patients having the signs and symptoms of JānusandhigataVāta Viz - Śūla , Śoṭha, Sparśaashatva ,Ākuncan Prasāraṇajnya Vedana ,Sandhisputan. and Sakaṣṭacalan .
- ✓ Patients between the age group of 30 -70 years.
- ✓ Patients of both the sex.
- ✓ Swedan Arha (Indication for sudation) patients ( for Jānu Basti & Agnikarma).

✓ Patient who were willing for the treatment.

### **Exclusion criteria:-**

- ✓ In Pregnant woman.
- ✓ Patients with Amavāta (Rheumatoid Arthritis )& Vātarakta (Gout).
- ✓ Jānu Sandhigatavāta due to Abhighāta (Accidental injury).
- ✓ Patients with systemic diseases like diabetes, hypertension Patients with major disorders that is traumatic, infective and neoplastic conditions of Knee, Congenital anomalies involving the knee joint, Viral infections like Polio Myelitis, Transverse Myelitis, Bacterial infections like TB Knee joint, Fibro-myalgia, Motor neuron diseases that interfere with the course of treatment were excluded from the study.
- ✓ Patients undergoing other modalities of treatment for Jānusandhigata Vāta were excluded.

### **Supportive Laboratory Investigations:**

X – Ray of Knee joint Anterior – Posterior and Lateral View.

RA factor and ASO titer was carried out if necessary.

### **Standard Operative Procedure of Janubasti - Group (A)**

#### **Poorvakarma (Preoperative Procedure):**

- Collection of required material .i.e. Sahachar Tail, Maṣapiṣṭī, Steel rim, gas cylinder, stove, sponge, bowl.
- Cleaning surface area of the Jānusandhi with lukewarm water.
- Patient was sitting on the Abhyang table in comfortable position keeping the effected leg straight.

#### **Pradhānakarma (Operative):-**

- The steel rim was fixed with Maṣapiṣṭī on the anterior part of knee joint (Jānusandhi).
- Medicated lukewarm oil was poured with the help of sponge in the rim and oil filled up to the level of 2 Angula (6cm).
- Oil was kept for 30 minutes on Jānusandhi (Knee Joint).
- During the treatment temperature of the oil (45° C) was retained and replace with Luke warm oil.

#### **Paścāt Karma (Post-Operative):**

- After completion of treatment oil and rim / Maṣapiṣṭī (Black Gram Flour),was removed.
- Jānusandhi(Knee joint)was cleaned with lukewarm water.
- Patient was asked to avoid direct exposure to air

### **Standard Procedure of Agnikarma - Group (B) :**

#### **Poorvakarma (Pre-Operative):**

- Collection of required material i.e. Tāmraśālākā (Copper Rod) & source of Agni -gas stove, Go-ghrita(Cow's Ghee).
- Cleaning surface area of the Jānusandhi (Knee Joint) with lukewarm water.
- Points of maximum tenderness was examined and marked by pain on the knee joint.

#### **Pradhānakarma Post Operative:**

- Agnikarma (Therapeutic Burn)was done by red hot heated (4 minute) Tāmraśālākā (Copper Rod) on marked area of Knee joint directly.
- Agnikarma (Therapeutic Burn) was performed at the maximum tenderness site and up to the expected extent of the burn, which can cause the Samyak Dagdha Lakṣaṇa, (Proper burning Sign) without any Upadrava ( without any Side Effect).

**Paścāt karma( Post-Operative):**

- Go-ghrita(Cow’s Ghee) was applied over the Dagdha(Burn ) area.
- Patient was asked to avoid direct exposure to air.

**Observations and result:**

Total 110 Patients were enrolled for the study, in this research study work is divided in two groups i.e Group A- Jānubasti with Sahachar Taila, Group B-Agnikarma with Tāmraślākā . (10 pts were dropped out . Out of them 3 pts from group A, didn’t came for f/u and group-B -7 pts drop out due to they withdraw from the treatment). Complete Data of 100 Patients is analyzed. After the clinical study of all patients, occurrences of various incidences are shown in the form of charts and Table Nos. Incidence of Age, sex, diet, Prakṛtī (Constitution), occupational status, Knee involvement and symptoms with criteria are shown accordingly.

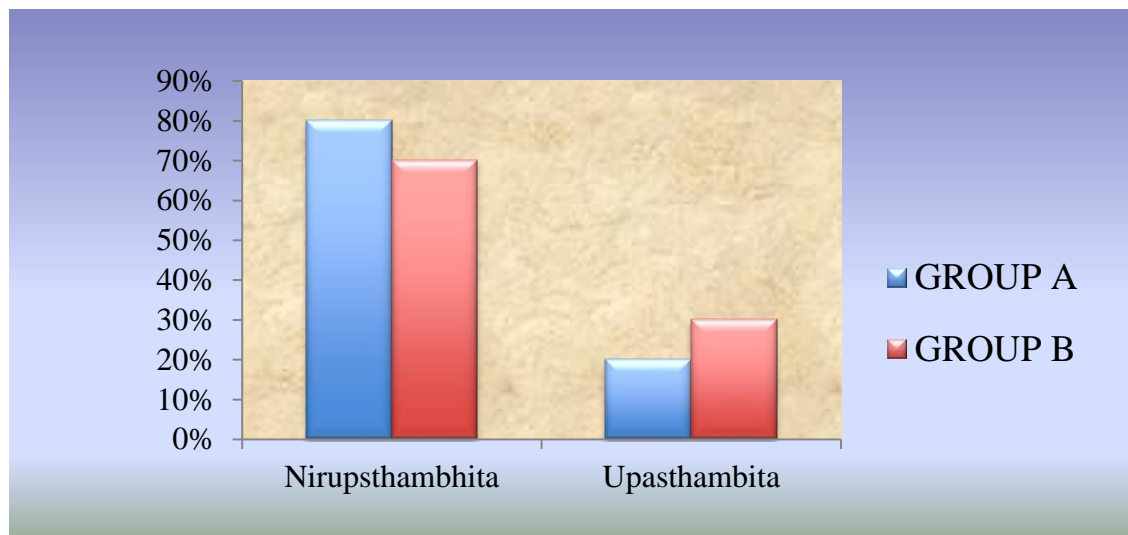
**Table No1: Demographical Data:**

<b>Demographical Data</b>	<b>Group –A</b>	<b>Group –B</b>
Age	50-60 yrs 36%	30-40 yrs 40%
Gender	Female -76 %	Female -66 %
Prakṛtī	VP-38%	VP-58%
Āhār (Diet)	Nonvegeterian -82%	Nonvegeterian -86%
Occupation	Housewives 56%	Housewives 54%
Marital status	Married- 100%	Married- 96%
Nidān	UJSV -94%	UJSV -82%

**Table No 2: Percentage wise distribution of patient according to Avasthā:**

Avastahā	GROUP A	GROUP B
	Percentage	percentage
Nirupsthambhita	80%	70%
Upasthambhita	20%	30%
Total	100%	100%

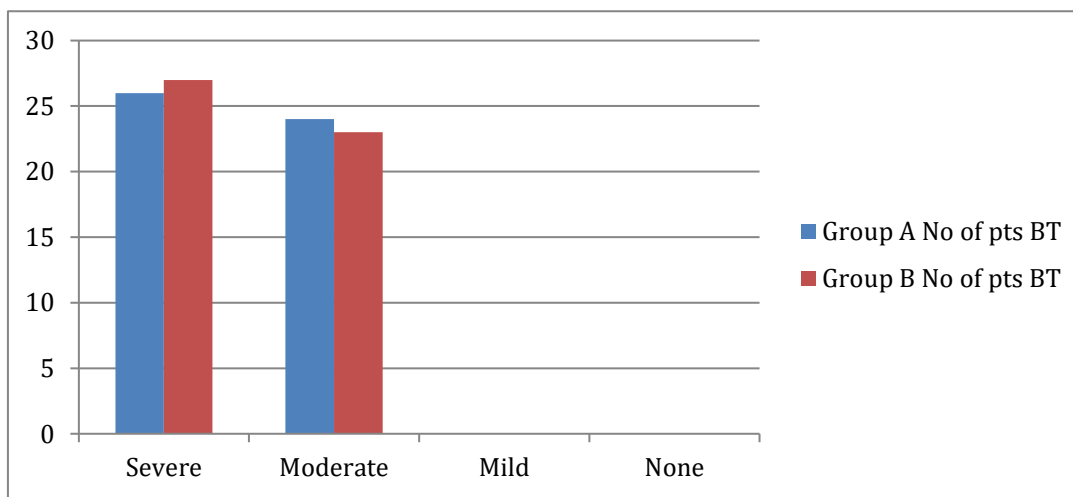
**Graph 1: Percentagewise distribution of patient according to Avasthā:**



**Table No 3: Assessment criteria before treatment of group A and Group B:**

Grade	Group A		Group B	
	No of pts. Before treatment	Percentage	No of pts. Before treatment	Percentage
Severe	26	52%	27	54%
Moderate	24	48%	23	46%
Mild	0	0%	0	0%
None	0	0%	0	0%

**Graph 2: Assessment criteria before treatment of Group A and Group B:**



### **Statically Analysis:**

- ✓ **For qualitative data:**(Subjective parameter- Śūla, Śoṭha and Sparśāsahatva)

The obtained information was analyzed statistically by using **Friedman test** and for comparison **mann whitney u** test was carried out.

- ✓ **For quantitative data:** (Objective parameter-,Ānkuncan- Prasāranjanya Vedana ,Sandhispuṭan. and Sakaṣṭacalan)

For the assessment of the results guideline laid down by classical text of Ayurveda as well as parameters suggested the results obtained were statistically analyzed and Mean, S.D., S.E. z value and P value were calculated by using the **repeated measures of ANOVA** and for comparison **two sample t test** was carried out.

Note: As sample size was greater than 30 the answers are same as z test by software.

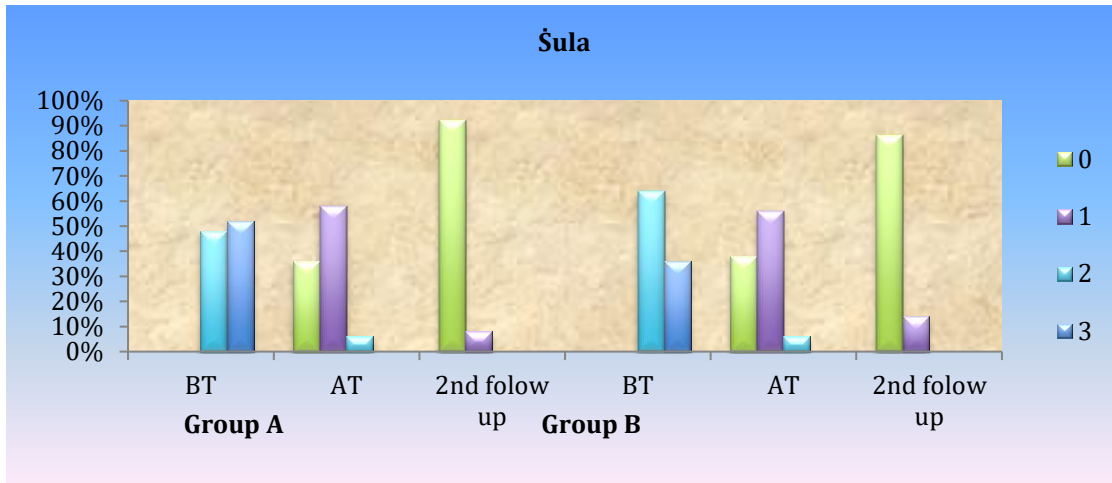
### **I.Efficacy of Jānubasti and Agnikaram In Jānusandhigata Vāta :**

**Table No 4: Efficacy of Jānubasti and Agnikarama on Śūla:**

<b>Gr ade</b>	<b>Group A (Jānubasti)</b>						<b>Group B (Agnikarama)</b>					
	BT		AT		2nd follow up		BT		AT		2nd follow up	
	No. of patients	Perc enta ge	No. of patients	Perc enta ge	No. of patients	perce ntage	No. of patients	Perce ntage	No. of patients	perce ntage	No. of patients	perce ntage
0	0	0%	18	36%	46	92%	0	0%	19	38%	43	86%
1	0	0%	29	58%	4	8%	0	0%	28	56%	7	14%
2	24	48%	3	6%	0	0%	32	64%	3	6%	0	0%
3	26	52%	0	0%	0	0%	18	36%	0	0%	0	0%
<b>Tot al</b>	<b>50</b>	<b>100 %</b>	<b>50</b>	<b>100 %</b>	<b>50</b>	<b>100 %</b>	<b>50</b>	<b>100 %</b>	<b>50</b>	<b>100 %</b>	<b>50</b>	<b>100 %</b>



**Graph 3: Efficacy of Jānubasti (Group A ) and Agnikarama ( Group B) on Śula.**



**Table No 5: Efficacy of Jānubasti and Agnikarma on Śula BT, AT and after 2<sup>nd</sup> F/u**

Śula		Mean Rank	Chi sq.	DF	P value
Group A	AT	3	92.16	2	0
	BT	1.79			
	2 <sup>nd</sup> Follow up	1.21			
Group B	AT	3	88.95	2	0
	BT	1.76			
	2 <sup>nd</sup> Follow up	1.24			

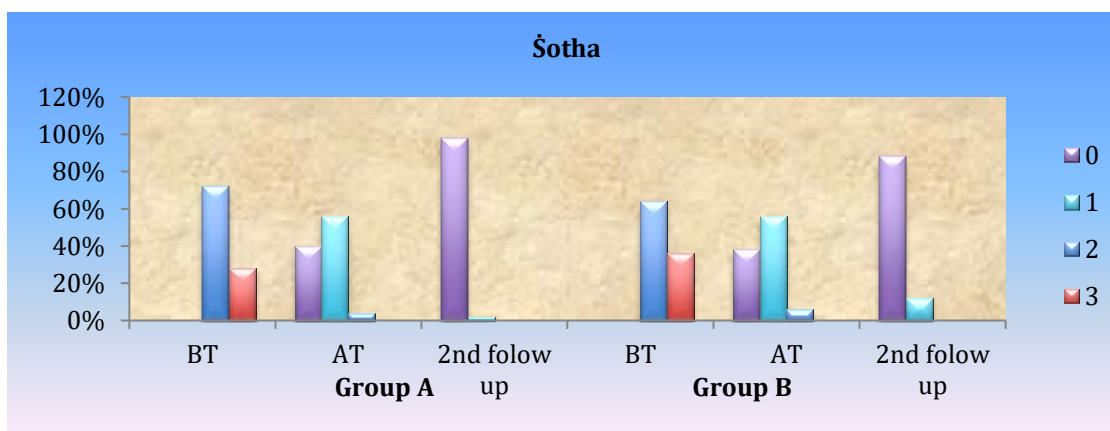
This analysis of indicated that there, were highly significant improvement observed in Group A as well as Group B on Śula in Jānusandhigata Vāta. However there was significant difference in after treatment and 2<sup>nd</sup> follow up in Jānusandhigata Vāta, for improvement observed in both group.

**Table No 6: Efficacy of Jānubasti (Group A) and Agnikarma( Group B) on Śoṭha.**

Grade	Group A	Group B
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	BT		AT		2nd follow up		BT		AT		2nd follow up	
	No. of patients	Perc entage	No. of patients	Perc entage	No. of patients	Perce ntage	No. of patients	Perc entage	No. of patients	Perc entage	No. of patients	Perc entage
0	0	0%	20	40%	49	98%	0	0%	17	38%	44	88%
1	0	0%	28	56%	1	2%	3	0%	31	56%	6	12%
2	36	72%	2	4%	0	0%	38	64%	2	6%	0	0%
3	14	28%	0	0%	0	0%	9	36%	0	0%	0	0%
<b>Total</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>

**Graph 4: Efficacy of Jānubasti (Group A) and Agnikarma (Group B) on Śoṭha:**



**Table No 7: Efficacy of Jānubasti (Group A) and Agnikarma (Group B) on Śoṭha BT, AT and after 2<sup>nd</sup> F/u :**

Śoṭha	Mean Rank	Chi sq	DF	P value

Group A	BT	3	93.196	2	0
	AT	1.79			
	2 <sup>nd</sup> Follow up	1.21			
Group B	BT	2.96	88.773	2	0
	AT	1.82			
	2 <sup>nd</sup> Follow up	1.22			

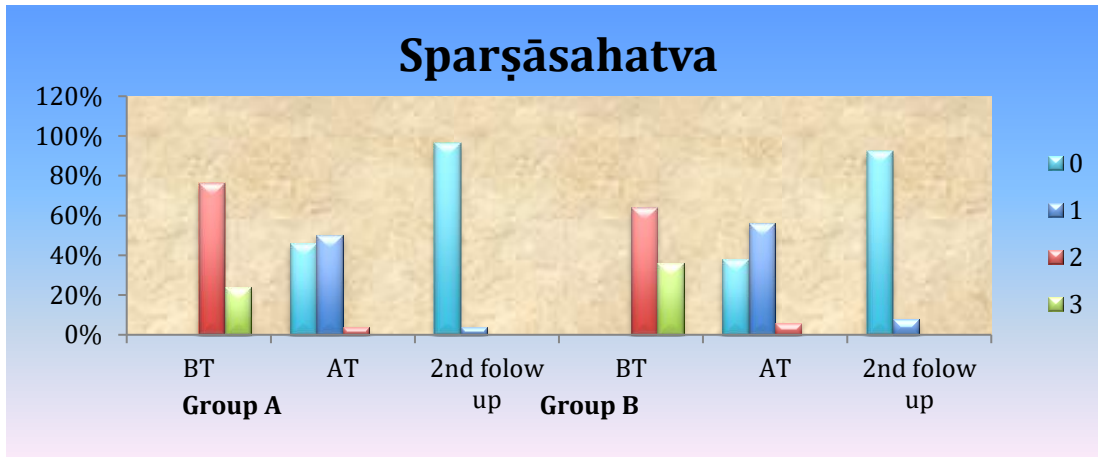
I.e. Results of this analysis indicated that there, was highly significant improvement observed in Group A as well as Group B on Śoṭha in Jānusandhigata Vāta. However there was significant difference after treatment and 2<sup>nd</sup> follow up in Jānusandhigata Vāta, for improvement observed in Group A as well as Group B.

**Table No 8: Efficacy of Jānubasti (Group A) and Agnikarma (Group B) on**

**Sparṣāsahatva:**

Grade	Jānubasti (Group A)						Agnikarma (Group B)					
	BT		AT		2nd follow up		BT		AT		2nd follow up	
	No. of patients	Percentage	No. of patients	Percentage	No. of patients	Percentage	No. of patients	Percentage	No. of patients	Percentage	No. of patients	Percentage
0	0	0%	23	46%	48	96%	0	0%	19	38%	46	92%
1	0	0%	25	50%	2	4%	0	0%	25	56%	4	8%
2	38	76%	2	4%	0	0%	39	64%	6	6%	0	0%
3	12	24%	0	0%	0	0%	11	36%	0	0%	0	0%
<b>Total</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>	<b>50</b>	<b>100%</b>

**Graph 5 :Efficacyof Jānubasti (Group A) and agnikarma (Group B) on Sparṣāsahatva:**



**Table No 9: Efficacy of Jānubasti and Agnikarma BT,AT and After 2<sup>nd</sup> f/u :**

Sparṣāsahatva		Mean Rank	Chi sq	DF	P value
Group A	Pre	3	100	2	0
	Post	1.5			
	2 <sup>nd</sup> Follow up	1.5			
Group B	Pre	3	93.49	2	0
	Post	1.81			
	2 <sup>nd</sup> Follow up	1.19			

Results of this analysis indicated that there, were highly significant improvement observed in Group A as well as Group B on **Sparṣāsahatva** in Jānusandhigata Vāta. However there was significant difference, after treatment and After 2<sup>nd</sup> f/u in Jānusandhigata Vāta, for improvement observed in Group A as well as Group B .

**Table No 10 : Efficacy of Group A and Group B on Âkunchanjanya Vadanā - RTknee :**

**1. Efficacy of Jānubasti (Group A) on Âkunchanjanya Vadanā of RT Knee.**

Source	DF	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	49548.3	49548	372.5	0.94	0.6
follow up	2	121809	15325	7662.5	19.4	0
Error	14	5541.7	5541.7	395.8		
Total	149	176899				

Here, SSb (Sum of square block) was 121809 and SSe (Sum Square error) was 5541.7 The p-value was .000 and thus we reject the null hypothesis and conclude that there was significant difference in after treatment and after 2<sup>nd</sup> follow up.

**Table No 11: Efficacy Agnikarama (Group B) on Âkunchanjanya Vadanā of Rt Knee:**

Source	DF	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	74216	74216	558	8.68	0
follow up	2	55801.3	9100	4550	70.8	0
Error	14	900	900	64.3		
Total	149	130917				

I.e. Results of this analysis indicated that there, were highly significant improvements observed in Group A as well as Group B on Âkunchanjanya Vadanā in JānusandhigataVāta

However significant difference in after treatment and after 2<sup>nd</sup> follows up and in Jānusandhigata Vāta, for improvement observed in Group A as well as Group B .

**Table No 13: Efficacy of Jānubasti and Agnikarma on Âkunchanjanya Vadanā of LT knee**

**2. Effect of Jānubasti on Âkunchanjanya Vadanā of LT Knee :**

Source	DF	Seq SS	adj SS	adj MS	F	P value
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Patient No.	133	52625.3	52625	395.7	0.77	0.8
follow up	2	118384	12433	6216.7	12.1	0
Error	14	7166.7	7166.7	511.9		
Total	149	178176				

Here, SSb (Sum of square block ) was 118384 and SSe (Sum of square error) was 7166.7. The p-value was 0.000 and thus we reject the null hypothesis and conclude that there was significant difference in follow up of treatment.

**Table No 14: Efficacy of Agnikarma on Ākunchanjanya Vadanā of LT Knee:**

Source	DF	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	54758	54758	411.7	6.4	0
follow up	2	77601.3	9100	4550	70.8	0
Error	14	900	900	64.3		
Total	149	133259				

I.e. Results of this analysis indicated that there, was highly significant improvement observed in Group A as well as Group B on Ākunchanjanya Vadanā in Jānusandhigata Vāta. However significant difference is after treatment and after 2<sup>nd</sup> follow up in Jānusandhigata Vāta, for improvement observed in Group A as well as Group B .

**Table No 16 : Efficacy of Jānubasti and Agnikarma on Prasāraṅjanya Śūla of RT knee:**

**1. Effect of Jānubasti on Prasāraṅjanya Śūla of RT knee:**

Source	DF	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	197260	197260	1483	1.21	0.4
follow up	2	94625	18925	9462	7.73	0
Error	14	17142	17142	1224		
Total	149	309027				

Here, SSb(sum of square block) was 94625 and SSe (sum of square error ) was 17142 The p-value was 0.000 and thus we reject the null hypothesis and conclude that there, was significant difference in After 2<sup>nd</sup> follow up .

**Table No 17: Efficacy of Agnikarma on Prasāraṅjanya Śūla of RT knee:**

Source	DF	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	151507	151507	1139	0.5	1
follow up	2	109409	3433	1717	0.75	0.5
Error	14	31967	31967	2283		
Total	149	292883				

I.e. Results of this analysis indicated that there, were highly significant improvement observed in Group A as well as Group B on **Prasāraṅjanya Śūla** in JānusandhigataVāta. However there was significant difference is After treatment and after 2<sup>nd</sup> follow up in Jānusandhigata Vāta, for improvement observed in Group A but no significant difference in treatment and after 2<sup>nd</sup> follow up Jānusandhigata Vāta, for improvement observed in Group B.

**Table No 17: Efficacy of Jānubasti and Agnikarma on Prasāraṅjanya Śūla of LT knee:**

**3.Efficacy of Jānubasti on Prasāraṅjanya Śūla of LT Knee:**

Source	DF	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	203861	203861	1533	1.3	0.3
follow up	2	87568	12133	6067	5	0
Error	14	17067	17067	1219		
Total	149	308496				

Here, SSb (Sum of square block) was 87568 and SSe (sum of square error) was 17067. The p-value was 0.001 and thus we reject the null hypothesis and conclude that there, was significant difference in After treatment and After 2<sup>nd</sup> follow up.

**Table No 18: Efficacy of Agnikarama on Prasāraṅjanya Śūla of LT knee.**

Source	DF	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	129941	129941	977	0.4	1
follow up	2	132729	3433	1717	0.8	0.5
Error	14	31967	31967	2283		

Total	149	294637				
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I.e. Results of this analysis indicated that there, were highly significant improvements observed in Group A as well as Group B on **Prasāraṅjanya Śūla** in Jānusandhigata Vāta. However there was significant difference in After treatment and After 2<sup>nd</sup> follow up in JānusandhigataVāta, for improvement observed in Group A but no significant difference in 2<sup>nd</sup> follow up and post treatment in JānusandhigataVāta, for improvement observed in Group B.

**Table No20: Efficacy Of Jānubasti and Agnikarma On Sandhisputana:**

**4. Effect Of Jānubasti on Sandhisputana:**

Source	Df	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	22053.2	22053.2	165.8	1.62	0.152
follow up	2	79974.8	13286.6	6643.3	64.97	0
Error	14	1431.4	1431.4	102.2		
Total	149	103459.4				

Here, SS<sub>b</sub> (sum of square block) was 79974.8 and SS<sub>w</sub> (sum of square error) was 1431.4. The p-value was 0.000 and thus we reject the null hypothesis and conclude that there, was significant difference in After treatment and 2<sup>nd</sup> follow up.

**Table No 21 : Effect Of Agnikarma on Sandhisputana:**

Source	Df	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	22424	22424	168.6	1.17	0.393
follow up	2	65997.4	13587.6	6793.8	47.03	0



Error	14	2022.4	2022.4	144.5		
Total	149	90443.8				

I.e. Results of this analysis indicated that there, were highly significant in improvement observed in Group A as well as Group B on **Sandhisputana** in JānusandhigataVāta . However significant difference in 2<sup>nd</sup> follows up and post treatment in JānusandhigataVāta, for improvement observed in Group A as well as Group B .

**Table No 23: Efficacy of Jānubasti and Agnikarma On Sakaṣṭacalan:**

**4.Efficacy of Jānubasti on Sakaṣṭacalan:**

Source	Df	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	8230	8230	61.88	1.24	0.341
follow up	2	37049.33	3700	1850	37	0
Error	14	700	700	50		
Total	149	45979.33				

Here, SSb (sum of square block) was 37049.33 and SSe (sum of square error) was 700 The p-value was 0 .000 and thus we reject the null hypothesis and conclude that there was significant difference in After treatment and after 2<sup>nd</sup> follow up of treatment.

**Table No 24. Efficacy Agnikarma on Sakaṣṭacalan:**

Source	Df	Seq SS	adj SS	adj MS	F	P value
Patient No.	133	9535.67	9535.67	71.7	0.95	0.595
follow up	2	31025.33	2608.33	1304.17	17.25	0
Error	14	1058.33	1058.33	75.6		
Total	149	41619.33				

I.e. Results of this analysis indicated that there, were highly significant improvement observed in Group A as well as Group B on **Sakaṣṭacalan** in Jānusandhigata Vāta. However significant difference in after treatment and After 2<sup>nd</sup> follow up in JānusandhigataVāta, for improvement observed in Group A as well as Group B.

**Symptoms wise statistically significant effect of Jānubasti and Agnikarma:**

**Śula (Pain):** As seen previously the reduction in Vedana (Pain) is statistically significant on 7<sup>th</sup> day as well as on 30<sup>th</sup> day .Also mean rank is not decreased from 7<sup>th</sup> day to 30<sup>th</sup> day in both Treatment i.e Jānubasti and Agnikarma . Suggesting that Jānubasti with Sahachar taila and Agnikarma with Tamraśalāka reduces Śula significantly and its efficacy has considerable sustainability even after the end of treatment.

**Śoṭha (Swelling):** The average reduction in the śoṭha was found .along with the statically analysis, indicate that the reduction in śoṭha is significant. Also its Efficacy not only sustains but gets better even when the after treatment in both groups.

**Spraśāsahatava (pain during touch):** In the trial reduction in this symptoms was seen in after treatment in both group. Data was highly significant even after the 2<sup>nd</sup> f/u.

**Prasāraṇa-Ānkuncanjanya Śula (pain during extension and flexion) :** Reduction in this symptoms is highly significant on 7<sup>th</sup> day as well as 30<sup>th</sup> day. Also mean rank remains constant from After treatment and after 2<sup>nd</sup> f/u in both group. The range of motion of both knee joint is back to normal after treatment, its due to properties of sahchar taila and Agnikarma.

**Sandhispuṭan (Crepitus):** Statistically showing significant result in both treatments while by observing, there is no reduction in this symptoms was seen. As crepitus is caused due to degeneration of the structures in the knee joint hence it is quite difficult to correct the degeneration in such short period .So due to this reason the crepitus remain unchanged.

**Sakaṣaṭacalan (Difficulty during walking) :** It is rate at which a patient is able to walk the distance of 21 meters . It is calculated in seconds and found to be increased if knee joint are involved in some kind of disorder. The average reduction in the walking time is decreased after treatment as well after 2<sup>nd</sup> f/u. These values are found highly significant. It can be stated that Jānubasti with Sahachara Taila and Agnikarama with Tāmraśalākā provides good overall relief in Jānusandhigata Vāta., which reflected in the faster walking by patients i.e. reduction in walking time.

● **Overall Efficacy of Therapy:**

Total Efficacy of therapy was assessed as:

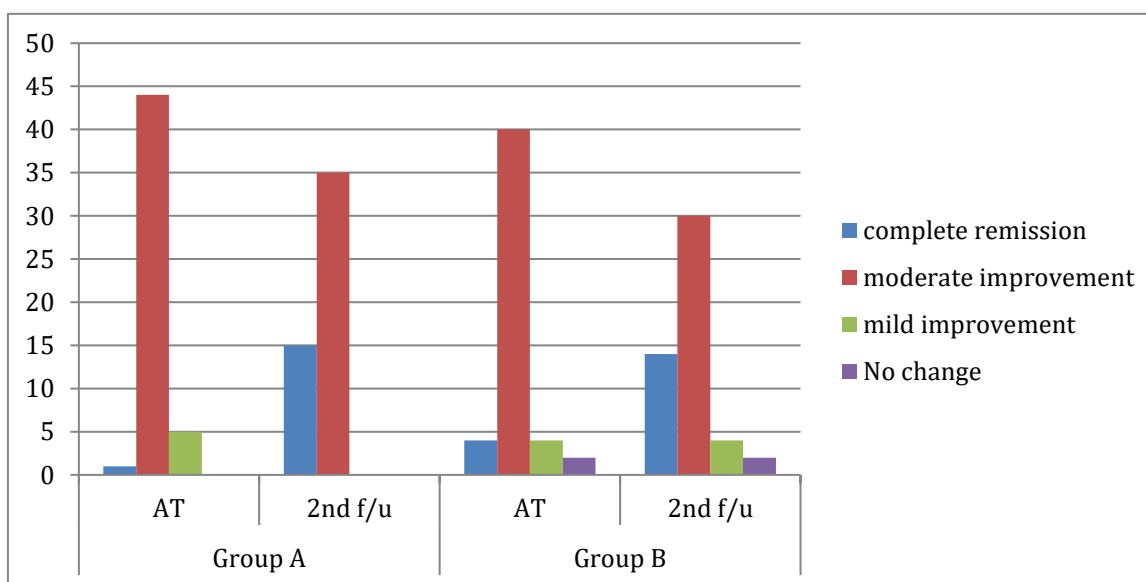
- ✓ Complete remission – 0 Grade
- ✓ Moderate improvement- 1-7 Grade
- ✓ Mild improvement – 8-15 Grade

✓ Unchanged – 16-21 Grade

**Table No 25: Overall Efficacy of therapy.**

Gradation	Group A				Group B			
Grade	AT	Percentage	2nd f/u	percentage	AT	Percentage	2nd f/u	Percentage
complete remission	1	2%	15	30%	4	8%	14	28%
moderate improvement	44	88%	35	70%	40	80%	30	60%
mild improvement	5	10%	0	0%	4	8%	4	8%
No change	0	0%	0	0%	2	4%	2	4%

**Graph 6: Overall Efficacy of therapy :**



- In Jānubasti Gr. 2% after treatment and 30% after 2<sup>nd</sup> f/u had complete remission with 100% relief, 88% after treatment and 70% after 2<sup>nd</sup> f/u had moderate improvement, 10 % had mild improvement.

- In Agnikarma Gr. Gr. 8% after treatment and 28% after 2<sup>nd</sup> f/u had complete remission with 100% relief, 80% after treatment and 60% after 2<sup>nd</sup> f/u had moderate improvement, 8 % had mild improvement. 2% had no change found in all symptoms of Jānusandhigata Vāta.
- The external Snehana Swedana therapies are extensively practiced in Sandhigata Vāta. The present clinical study has been conducted to **Evaluate the Efficacy of Jānu Basti With Sahachar Tail & Agnikarma With Tamraśalāka In Jānu Sandhigata Vāta.** The Efficacy of therapy is being discussed here on individual signs and symptoms of Jānusandhigata Vāta.
- Statistically highly significant reduction in Śula (pain) Sandhisputhan and walking Time signifies that Jānubasti with Sahachar Taila brings considerable overall relief in the presentation of this disease.
- Agnikarma therapy is helpful in management of local pathological disease. Agnikarma procedure proves to be one of the easiest ways to reduce the symptoms of Jānusandhigata Vāta.
- Agnikarma had a significant effecting relieving from acute as well as chronic Pain and swelling.
- No any adverse Efficacy was found during the trial period.
- Jānusandhigata Vāta is more common in females as well as in the people of age group 41 to 60 years.
- Sahachar Tail Jānubasti brings about Vātaśaman Properties , Bruhana as well as Pāchan with its qualities , thus suggesting the breaking of pathogenesis in Jānu Sandhigata Vāta.
- Agnikarama can be cures all the Vātaj and Kaphaj disorders as Ushna Guna of Agnikarma is apposite to that of Vāta Kapha Doṣas. According to Ayurveda every Dhātu ,have its own Dhāt>wagni ,when it becomes low, disease begins to manifest. In this condition, Agnikarama works giving external heat therapy by increasing Dhat>wagni which helps to digest aggravated Doṣas and hence cures the disease<sup>7</sup>.

## **II Comparative Study of Jānubasti and Agnikarma in Jānusandhigata Vāta :**

**Table No 26: Comparative Efficacy of Jānubasti and Agnikarma on Śula in Jānusandhigata Vāta :**

Śula	N	Mean of ranks	Sum of Ranks	Mann Whitney U test	Z value	p value
Group A	50	50.97	2548.5	1226.5	-0.185	0.853
Group B	50	50.03	2501.5			

There, was no statistically significant difference in improvement on Śula ,found in Jānusandhigata Vāta. i.e. efficacy of Group A was same as efficacy of Group B on Śula in Jānusandhigata Vāta.

**Table No 27. Comparative Efficacy of Jānubasti and Agnikarma on Śoṭha in Jānusandhigata Vāta:**

Śoṭha	N	Mean of ranks	Sum of Ranks	Mann Whitney U test	Z value	p value
Group A	50	49.06	2453	1178	-0.575	0.565
Group B	50	51.94	2597			

Here p value is  $>0.005$ , there, was no statistically significant difference in improvement on Śoṭha , found in Jānusandhigata Vāta. i.e. efficacy of Group A was same as efficacy of Group B on Śoṭha in Jānusandhigata Vāta.

**Table No 28: Comparative Efficacy of Jānubasti and Agnikarma on Sparśāsahatva in Jānusandhigata Vāta :**

Sparśāsahatva	N	Mean of ranks	Sum of Ranks	Mann Whitney U test	Z value	p value
Group A	50	47.5	23752675	1100	-1.1	0.248
Group B	50	53.5	2501.5			

There, was no statistically significant difference improvement on **Sparśāsahatva**, found in Jānusandhigata Vāta. i.e. efficacy of Group A was same as efficacy of Group B on **Sparśāsahatva** in Jānusandhigata Vāta .

**Table No 29: Comparative Efficacy of Jānubasti and Agnikarma on Ākunchanajanya Vadanā of RT knee in Jānusandhigata Vāta:**

Ākunchanajanya Vadanā of RTknee	Mean	SD	Std error mean	t value	Z value	p value
Group A	122	12.61	1.78	1.63	0.766	0.204
Group B	119.2	22.97	3.19			

Here, p values were >0.05 Hence There, was no statistically significant difference in improvement on **Ākunchanajanya Vadanā** in Jānusandhigata Vāta. I.e. efficacy of Group A was same as efficacy of Group B in JānusandhigataVāta.

**Table No 30 : Comparative Efficacy of Jānubasti and Agnikarma on Ākunchanajanya Vadanā of LT knee in Jānusandhigata Vāta:**

Ākunchanajanya Vadanā of LT knee	mean	SD	Std error mean	t value	Z value	p value
Group A	122.4	12.86	1.81	0.98	1.46	0.325
Group B	117.2	21.47	3.03			

Here, p values were >0.05 Hence There, was no statistically significant difference in improvement on **Ākunchanajanya Vadanā** in JānusandhigataVāta. i.e. efficacy of Group A was same as efficacy of Group B in Jānusandhigata Vāta.

**Table No 31: Comparative Efficacy of Jānubasti and Agnikarma on Prasaranjanya Vadanā of RT knee Jānusandhigata Vāta .**

<b>Prasāraṅjanya Vadanā of LT Knee</b>	<b>Mean</b>	<b>SD</b>	<b>Std error mean</b>	<b>t value</b>	<b>Z value</b>	<b>p value</b>
Group A	59	16.3	6.56	0.272	-0.362	0.603
Group B	62.4	47.5	6.72			

Here, p values were  $>0.05$  Hence There, was no statistically significant difference in improvement on **Prasāraṅjanya Vadanā** in JānusandhigataVāta. I.e. efficacy of Group A was same as efficacy of Group B in JānusandhigataVāta.

**Table No 32: Comparative Efficacy of Group A and Group B on Prasāraṅjanya Vadanā LT knee Jānusandhigata Vāta:**

<b>Prasāraṅjanya Vadanā of LT Knee</b>	<b>Mean</b>	<b>SD</b>	<b>Std error mean</b>	<b>t value</b>	<b>Z value</b>	<b>p value</b>
Group A	61.2	47.5	6.72	2.94	0.846	0.089
Group B	53.6	42.1	5.95			

Here, p values were  $> 0.05$  Hence There, was no statistically significant difference in improvement on **Prasāraṅjanya Śula** in Jānusandhigat Vāta. i.e. efficacy of Group A was same as efficacy of Group B in Jānusandhigata Vāta.

**Table No 31: Comparative Efficacy of Group A and Group B on Sandhisputana in Jānusandhigata Vāta :**

<b>Sandhisputana</b>	<b>mean</b>	<b>SD</b>	<b>Std error mean</b>	<b>F</b>	<b>t value</b>	<b>p value</b>
Group A	29.38	11.96	1.69	1.36	3.43	0.246
Group B	21.24	11.76	1.66			

Here, p values were  $>0.05$  Hence There, was no statistically significant difference in improvement on Sandhisputana in JānusandhigataVāta. i.e. Efficacy of Group A was same as Efficacy of Group B in Jānusandhigata Vāta.

**Table No 32: Comparative Efficacy of Jānubasti and Agnikarma on Sakaṣṭacalan in Jānusandhigat Vāta:**

<b>Sakaṣṭacalan – in second</b>	<b>Mean</b>	<b>SD</b>	<b>Std error mean</b>	<b>F</b>	<b>t value</b>	<b>p value</b>
Group A	15.2	6.14	0.86	0.598	-1.65	0.441
Group B	17.6	8.22	1.16			

Here, p values were  $>0.05$  Hence There, was no statistically significant difference in improvement on **Sakaṣṭhacalan** in JānusandhigataVāta. i.e. Efficacy of Group A was same as Efficacy of Group B in Jānusandhigata Vāta.

**Treatment And Results:**

The clinical study was done on 100 patients (50 in each Group) coming under inclusive criteria. Sahachara Taila Jānu basti (200ml) for 7days daily in group A & Agnikarma with Tamraśalākā on maximum tenderness on anterior part of Knee joint continuous for 7 days in group B were given. In group A Sahachara Taila Jānu basti was administered for 7 days and no any complication were observed during treatment, marked improvement was seen after 7 days of treatment. There was no relapse of symptoms till second follow up. By using Wilcoxon Sign Rank Test the p value is  $<0.0001$ , indicating highly significance of Sahachara Taila Jānu Basti in Śula (Pain), Śoṭha, Sparśāsātva. By using paired t test Extension and flexion (of both knee joint), Sandhisputan and Sakaṣatacalan were highly significant p value 0.0001 .

Agnikarma was found highly effective in Shula ,Śoṭha and Sparśāsahatva. By using Wilcoxon Sign Rank Test the p value is  $<0.0001$ , indicating highly significance of Agnikarma. By using paired t test Extension and flexion (of both knee joint), Sandhisputan and Sakaṣatacalan were highly significant p value  $<0.0001$  .

**A Comparative Study of Jānubasti and Agnikarma In Jānusandhigata Vāta:**



The data collected from both groups were analyzed with **Mann Whitney U test** to know the relation between the groups. The results were not significant in any of the parameters with  $p > 0.05$ .

Hence, Null hypothesis is accepted

i.e. Efficacy of Jānubasti with Sahachar Taila = Efficacy of Agnikarma with Tāmraśālākā  
Jānubasti can be equally performed to that of Agnikarma in relieving the signs and symptoms of Jānu sandhigata Vāta.

## **DISCUSSION:-**

### **Discussion on Jānu Sandhigata Vāta :**

Among the Tridoṣas Vāta being the prime plays a very important role in the formation of Vyādhi as it is the one which carries the two Doṣa all over the body. Vāta moves all over the body which can be attributed to its Cala Guna. When the Prakupita Vāta moves all over the body it finds a suitable place for lodgment, which may be Dhātu, Upadhātu, Āśaya, Avayava or Mala. Due to consumption of Vāta Ahar Vihar, the aggravated Vāta while moving throughout the body lodge in Khavaigunya Yukta Srotas. After getting lodged at those parts it impairs the functions of that particular structure and produces vyādhi<sup>18</sup>.

In Ayurveda Sandhi is the place where two or more structures unite together. In the present context Sandhi can be considered as union of two or more bones. Along with bones there are many other structures which combine together to form a Sandhi. Asthi, Snāyu and Peṣī all combine together to bring stability in the Sandhi. Śleṣaka Kapha present in the joint helps in lubrication and provides nutrition to the joint<sup>9</sup>.

Sandhigata Vāta is described in all Samhītā and Sangraha Grantha under Vāta Vyādhi and when Jānu Sandhi is involved it may be called as Jānu Sandhigata Vāta. It specially occurs in Vriddhāvastha where Dhātu kṣaya takes place which leads Vāta Prakopa. Vāta and Asthi have Asrya-Ashrayi Sambanha which means Vāta takes Shelter in Asthi. Prakupita Vāta reduce the Sneha from Jānu Sandhi by its opposite qualities to Sneha. Due to diminution of Sneha, Khavaigunya occurs in Asthi and the Sandhi which is responsible for the production of Sandhigata Vāta<sup>10</sup>.

Symptoms of Sandhigata Vāta as described by various Ācharya are Sandhi Śūla, Sandhi Śoṭha, Sandhi Atopa, Ankuncana Prasāraṅjanya Vedanā, Sandhispuṭan and Sakaṣṭa Calan occurs due to Vāta Prakopa. A special type of Śoṭha i.e. Vāta Purn Dṛiti Sparśa is mentioned which indicates Vāta dominant Śoṭha. Ankunchana Prasāraṅjanya Vedana and Hanti Sandhi occurs due to Kaphakshaya and Vāta Prakopa. In the Samprāptī of Sandhigata Vāta, Prakupita Vāta takes shelter in Sandhi where Khavaigunya and Rikta Srotas is already present. Then Doṣa Duṣya Sammurccanā takes place in Sandhi and the disease Sandhigata Vāta appears with its symptoms<sup>11</sup>.

By nature all the Vāta Vyādhi are difficult to cure and they are said as Mahagada. Sandhigata Vāta being Madhyamārag Vyādhi is Kaṣṭha Sādhyā. So being Vāta Vyādhi, Jānu Sandhigata Vāta is Kaṣṭha Sādhyā, Madhyam Rogmārga, involving Marma Asthi Sandhi, Vitiation of Asthi and Majjā, Dhātu kṣaya and occurs in Vriddāvasthā, All These factors also make it Kaṣṭha Sādhyā. Jānusandhigata Vāta is a disease where the painful restricted movements of the Knee joint are seen. It has been described as one of the disorders caused by vitiated Vāta<sup>12</sup>. According to Caraka and Suśrūta has explain the Jānusandhigata Vāta is due to Vātaprakopka Āhāra Vihār. Due to these causes, Vāta & Kapa both gets vitiated and causes leads Jānusandhigata Vāta (Dhatuṣyatmak and Mārgāvardhajanya)<sup>16</sup>. In the Samprāptī of Sandhigata Vāta, Prakupita Vāta takes shelter in Sandhi where Khavigunya and rikta Srotas is already present. Doṣa Duṣya Samurccanā takes place in Sandhi and the disease Sandhigata Vāta appears with Symptoms. Thus vitiated vāta along with Kapha produces Śūla, Śoṭha, Atopa, Sakaṣṭacalan, Ākuncanjanya and Prasāraṅjanya Vedanā in localized part.

Ācarya Caraka has mentioned repeated use of Snehan and Swedan, Basti and Mrudu Virechan for the treatment of Vāta Vyādhi<sup>17</sup>. Caraka has not mentioned the treatment of Sandhigata Vāta separately. Ācarya Suśrūta has described specific treatment of Sandhigata Vāta first time i.e. Snehana, Upanāha, Agnikarma, Bandhan and Unmardan.

Modern science also accepts that swelling is found in early stage of Osteoarthritis, which is suggestive of vitiation of Kapha. If this stage is not treated properly the disease turns in to kevala Vātika Vikāra. There are many clinical conditions described in modern medical texts, which involves the Knee joint, among which the most common condition is Osteoarthritis of Knee. In i.e. 80% the pathology is found in the Knee joint. The factors

like old age, Obesity, trauma, occupational Knee bending , poor posture , continues Standing , excessive work ,travelling etc. lead to the degeneration of bones and related joint structure resulting arthritic changes in the Knee Joints. Due to degeneration and osteophyte changes in knee joint leads to the Knee joint Pain ,restriction of the movements of the Knee joint. Due to this pathogenesis of knee joint Produce symptoms like pain, Swelling Crepitus , difficulty during walking<sup>23</sup>.

Osteoarthritis is a degenerative type of arthritis which mainly occurs in old age. Degeneration takes place in the joint which makes the individual disabled or handicapped .Degeneration occurs continuously in most of the patients which makes the person disabled lifelong<sup>21</sup> .It is a chronic degenerative disorders of multi factorial etiology characterized by loss of articular cartilage and periarticular bone remodeling .It involves the entire joint including the nearby muscles ,underling bone, ligament , synovium and capsule. The risk factors for osteoarthritis are old age ,obesity, in Female ,major trauma ,stress, genetic factors, prior inflammatory joint disease and metabolic or endocrine disorder. It is believed that once the disease osteoarthritis has taken place, then it is very difficult to reverse or block the disease process<sup>22</sup>. Till date ,no treatment is available that can reverse or slow or block the disease process. Modern Science has only palliative and joint replacement treatment for osteoarthritis.

**Jānusandhigata Vāta** is a disease caused by Vāta Vrudhi and Kapha Kṣaya ,Snehan Swedan were the ideal line of treatment .The Snehan and Swedan due to their antagonist properties acts the qualities of Vrudha Vāta and help in mitigating the Vāta Doṣa. Snehan also helps in bringing back the Kapha Doṣa normalcy.

Keeping an eye on this ideology the present study was planned in Sahachar Taila was in the form of Jānubasti and Agnikarma with Tāmraśalākā. Sahachar taila Jānubasti act as both snehan and Swedan.

**Snehan by Jānubasti** - Abhyanga directly acts on muscles and makes them strong. The root of Mamsavaha Srotas is Snayu(ligaments), Tvacā (skin) and Raktavāhinī (blood vessels). So here, Abhyanga is done over Tvacā and Snāyu and also it involves Raktavāhinī. So here, direct benefit is achieved at Mamsavaha Srotas. Abhyanga nourishes deeper Dhātu s also. Here, one thing we can say that Abhyanga makes the muscles strong and thus get the stable joint.

**Swedana(fomentation):** Swedana is Sandhichestakar (improvises the movements of joints), Srotoshuddhikar (clears up the micro channels), Agni Deepaka, KaphaVāta nirodhan(antagonist of Kapha). It decreases Sthambha(stiffness). Heat administration by Swedana may produce hypno analgesic effect by diverted stimuli<sup>15</sup>.

In SandhigataVāta , Sanga type of Srotoduṣṭī is present Swedana, by doing Srotośudhi, this Sanga(obstruction) is relieved.

**Agnikarma :** Properties of Agni are sukṣma,laghu ,tikṣṇa , uṣṇa guṇa and Âśukāri. It works on both Vāta and kapha dosa. It works on Vāta by its uṣṇa and tikṣṇa guṇa and on the kaphadoṣa by laghu, sukṣma, tikṣṇa and uṣṇa guṇa. It works deep in the tissue because of its power of penetration to deep tissue by virtue of laghu, sukṣma and thikṣṇa guṇa. Besides working on the Doṣa agni it also destroys the dead tissue on wound surface by its mechanical burn causing thermal injury. In this way it promotes the healing in chronic non healing wounds<sup>13</sup>.

### **Discussion on procedure of Jānubati:**

In the present the following observation were analyzed;

#### 1. Quantity of oil required

It was observed during the study that for bilateral Kneea minimum of 150-200 ml of oil was required for three days including the wastages and again for next four days fresh oil of 150-200ml was used. Hence on an average of total oil 400-500ml oil needed for smooth conduction of the procedure for 7days.

#### 2. Quantity of flour

During the study it was observed that a maximum māṣapiṣṭī for both knee An average of 300 gm of flour is required. The dough once used can be preserved or can be reused. Nearly 1kg of flour was sufficient to carry out the procedure.

#### 3. Height of Jānubasti Pit

As Jānu is an irregular area the basti has to be constructed with due to care and try to accommodate larger surface area as possible. Hence, it is advised and easy to use a still rim for support. On an average the pit should 3-4 inch height to submerge the whole of jānu.

#### 4. Temperature of oil:

One has to be very cautious while maintain temperature of the oil as it may causes scald when hot oil is poured. It is advised to pour the oil along the wall of the basti rather than pouring it directly on the skin. On an average a temperature of 40-45° C was well tolerated by the patients. During the period of 30 minutes the oil was replaced for times.

5. Duration of the procedure:

In the present study the duration of procedure was fixed to 30 min looking at the convenience of the patients as it very difficult to stay in the same position for long time. The procedure was done once in a daily as it was difficult to convince the patient to stay IPD.

**Discussion on procedure of Agnikarma:**

The following observation were analyzed;

1. Temperature of Tāmraṣalākā:

Tāmraṣalākā was heated for 5minute it becomes red hot. Agnikarma were done marked maximum tenderness site and up to the expected extent of the burn, which can cause the Samyak Dagdha Lakṣaṇa, without any Upadrava.

2. Binduvat seating:

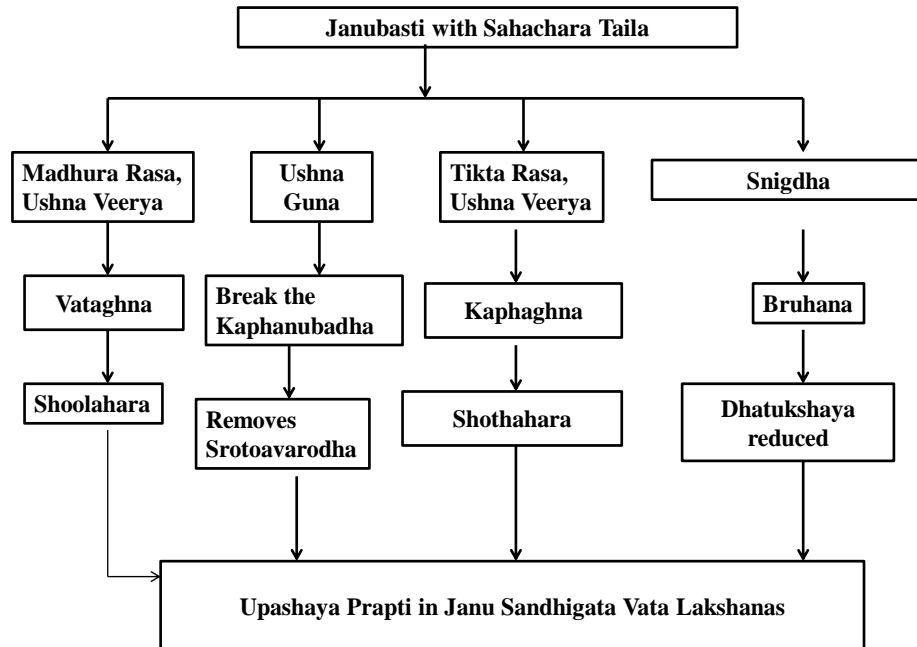
Agnikarma was done 5-6 Binduvat seating per day . Distance between each bindu was kept 5 mm constant. Total maximum area tenderness of knee joint was covered in 7 days.

3. Duration of Agnikarma Procedure:

In the present study the duration of procedure was fixed for one binduvat seating within 5-10 sec. looking at the convince of the patients as it is very difficult to bare Daghdha .

**Mode of action of Jānubati and Agnikarma in Jānusandhigata Vāta:**

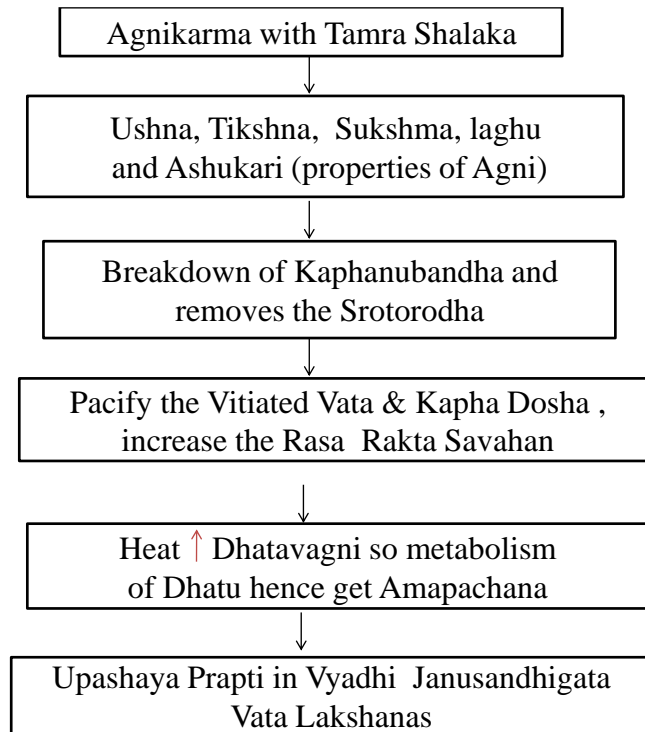
**I. Mode of action of Jānubati :**



- “Sahacharam” means walking along with. As Sahachar Taila is having specific property like (Madhur & Tikta Rasa, Katu vipāk & Uṣṇa Viryātamak)<sup>14</sup> Gati viśeṣatvam (helps to move) it can be given in condition like the disease having difficulty in walking, pain, swelling, Tenderness and stiffness.
- Bahyasnehan (external application of oil) is mentioned as one of the therapeutic measures in curing various types of Vāta disorders. External application of Sahachara Taila with Jānu Basti helps curing Vāta disorders quickly and effectively due to its Vātahara as well as Brihmhana (nourishing) and Pāchan properties.
- Both Snehan and Swedan can be done by Jānubasti.
- Sahachar Taila is Uṣṇa Virya in nature so it diminishes vitiated vāta and resolves the symptoms of Jānusandhigata Vāta due to aggravated Vāta<sup>14</sup>.

All these properties of Sahachar Taila help in Samprāpti Vighatana and prevent Kha Vaigunya which is the main factor for Jānusandhigata Vāta.

## **II. Mode of Action of Agnikarma:**



- Jānusandhigata Vāta is produced by vitiated Vāta Doṣa with Anubandha of Kapha By virtue of Uṣṇa, Tikṣṇa, Sukṣma and Aśukāri guna , Agnikarma rendered best therapy to pacify Vāta as well as Kapha Doṣa. The Agnikarm was done by red hot Tamrashalaka the physical heat transferred as therapeutic heat to Twak Dhatu by producing Samyak Dagdha Vrana. This therapeutic heat acted in the following ways:
- Uṣṇa, Tikṣṇa, Sukṣma and Aśukāri guna removes the Srotāvarodha followed by increase in Rasa Rakta Savnāhana (blood circulation) to Jānu Pradesha which pacify the vitiated Vāta and Kapha Doṣa. Probably, it flushed out the pain producing substances from the Jānu region and provided relief in pain and stiffness to the patients, ultimately<sup>17</sup>.
- Therapeutic heat might have increased the Dhātavagni which helped in the digestion of Doṣa followed by increased metabolism of Dhātu in proper way. Further, promotion of nutrition to Jānu Sandhi from Purva Dhātu took place and in this way Asthi and Majjā Dhātu might have become more stable to provide relief from symptoms to the patients<sup>13</sup>.
- Equilibrium state of Doṣa provides relief from the disease conditions which is achieved by application of therapeutic heat to the deeper tissue like Mamsa and Asthi Dhātu by the process of neutralization of Śita Guna of Vāta and Kapha Doṣa .

- According to scientist Dr. Venhanff, in the heat burns place the local tissue metabolism improves, thus various metabolic and rejuvenating changes take place at the site of heat burns, thus it leads to increased demand of oxygen and nutrient of the tissues at the site of heat burn. It also excretes the unwanted metabolites and toxins<sup>13</sup>.
- Due to increased local metabolism, the waste products (metabolites) which are produced gets excreted, which normalize the blood circulation thus resulting in reduction in intensity of pain. Provided that the heating is not excessive, it appears to reduce the excitability (quick response to stimuli) of nerves<sup>30</sup>.

### **Conclusion :**

- Jānubasti with Sahachar Taila and Agnikarma with Tāmraśalākā were found significant effect in Jānusandhigata Vāta. (i.e. p value is  $P < 0.0001$ )
- Efficacy of Jānubasti with Sachar Taila in Janusandhigata Vata is Statistically significant as  $P < 0.0001$  in the symptoms viz- Śula, Śoṭha, Sparśasahatva, Ākuncan Prasāranjnya Śula (Stiffness), Sandhispuṭan. and Skaṣṭacalan.
- Efficacy of Agnikarma with Tamraśalākā in Janusandhigata Vata is Statistically significant as  $P < 0.0001$  in the symptoms viz-. Śula (pain) Śoṭha, Sparśasahatva, Ākuncan Prasāranjnya Śula (Stiffness), Sandhispuṭan. and Skaṣṭacalan.
- Jānubasti and Agnikarma were found equal effect (i.e. p value is  $> 0.05$ ) in relieving the signs and symptoms of Jānu Sandhigata Vāta.

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