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A randomized controlled clinical study of *Marichadi Kwatha* in the management of *Janusandhigata Vata*

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ABSTRACT

Background: *Sandhigata Vata* is a type of *Vatavyadhi* where the vitiated vata dosha specifically affects the joints with symptoms of *Sandhishoola*, *Atopa*, *Shopha*, and *Prasarana Aakunchana Vedana*. Osteoarthritis mainly targets the knee joint, hip joint and certain small joints. OA is an important cause of disability and the second most common musculoskeletal problem in the world (30%) after back pain (50%). Hence *Marichadi Kwatha* and *Rasnapanchaka Kwatha* taken for present clinical study and results compared for checking the efficacy in *Janusandhigata Vata*. **Methodology:** 60 patients fulfilling the diagnostic and inclusion criteria were selected for a single blind randomized controlled clinical study. They were randomly allocated into 2 equal groups Group A and Group B. Group A subjects received *Marichadi Kwatha* in a dosage of 25ml *Kwatha* with 3ml *Koshna Tila Taila* twice daily after food for 30 days. Group B subjects received *Rasnapanchaka Kwatha* 25ml *Kwatha* with 3ml *Koshna Tila Taila* twice daily after food with for 30 days. Assessment was done on 0th day, 16th day, 31st day and 46th day. **Results:** Both groups showed significant improvements in all parameters based on clinical evaluation. However, within each group, analysis showed significant changes in most parameters with the exception of *Atopa*. When comparing both groups, there were no significant differences found. **Conclusion:** Both *Marichadi Kwatha* and *Rasnapanchaka Kwatha* showed significant effect in all parameters except in *Atopa*. On statistical comparison between the two groups there were no significant difference in the effect of both *Marichadi Kwatha* and *Rasnapanchaka Kwatha*.

Key words: *Janusandhigata Vata*, *Knee joint Osteo arthritis*, *Marichadi Kwatha*, *Rasnapanchaka Kwatha*.

INTRODUCTION

Ayurveda, a comprehensive life science, aims to enhance the physical, social, and spiritual well-being of individuals by offering preventive and curative healthcare modalities for multifaceted diseases. *Sandhigata Vata* is one among the *Vata Vyadhi*. It mainly presents with *Vatapoornadhrthisparsha Shotha* and presence of *Vedana* during *Prasarana* and *Aakunchana*.^[1] *Janusandhigata Vata* is the most

most common clinical condition pertaining to joints. The *Lakshanas* of *Janusandhigata Vata* can be compared to Knee Osteoarthritis based on the signs and symptoms. Knee Osteoarthritis typically the result of wear and tear and progressive loss of articular cartilage.^[2] Its prevalence will continue to increase as age advances and obesity. Recent studies revealed that overall prevalence of Knee Osteoarthritis in India is 28.7%. Also, more prevalent in females (31.6%) than in males (28.1%).^[3] According to Ayurveda, management of *Sandhigata Vata* includes *Bahya Chikitsa* and *Abhyantara Chikitsa*. *Shamanoushadhis* like *Maharasnadi Kwatha*^[4] *Yogaraja Guggulu*,^[5] *Trayodasanga Guggulu*^[6] etc are included in *Abhyantara Chikitsa*. *Abhyanga*, *Upanaha*, *Agnikarma*, *Bandhana*, *Mardana* are the *Bahya Chikitsa*.^[7] As per modern science, medical and surgical interventions like Analgesics, NSAID, Total Knee Arthroplasty are the treatment modalities.^[8] *Marichadi Kwatha*^[9] mentioned in *Gadanigraha* was taken as the trial drug, for proving its effect in the management of

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Janusandhigata Vata. It mainly contains drugs having the properties of *Vatahara*, *Shoolahara*, *Shophahara*, *Agnideepana* properties. *Rasnapanchaka Kwatha*^[10] explained in *Chakradatta* was taken as the standard drug. Hence with the present clinical study *Marichadi Kwatha* and *Rasnapanchaka Kwatha* were taken and results were compared for checking the better efficacy in *Janusandhigata Vata*.

AIM

To evaluate the therapeutic effect of *Marichadi Kwatha* in the management of *Janusandhigata Vata*.

OBJECTIVES

1. To evaluate the efficacy of *Marichadi Kwatha* in the management of *Janusandhigata Vata*.
2. To compare the efficacy of *Marichadi Kwatha* and *Rasnapanchaka Kwatha* in the management of *Janusandhigata Vata*.

MATERIALS AND METHODS

Patients diagnosed with *Janusandhigata Vata* was randomly selected and allocated into two groups, from *Kayachikitsa* Out Patient Department of Alva's Ayurveda Medical College and Hospital, Moodubidire and from other available sources who were diagnosed with *Janusandhigata Vata*.

Method of Collection of Data

Selection of patients done irrespective of gender, caste, religion, occupation, educational status and socio-economic status. Those who are fulfilling the diagnostic criteria and inclusion criteria were selected.

- **Allocation** - Randomized Allocation
- **Method of Sampling** - Lottery Method
- **Groups** - Two groups
- **Group A** - Treated with *Marichadi Kwatha*
- **Group B** - Treated with *Rasnapanchaka Kwatha*
- **Sample Size** - 30 Patients in each group
- **Total Sample Size** - 60 Patients

Diagnostic Criteria

Patient diagnosed based on *Lakshanas* of *Janusandhigata Vata* such as

- *Sandhi Shoola* - Pain in the joints
- *Sandhi Atopa* - Crepitus in knee joints
- *Prasarana Aakunchana Vedana* - Presence of pain during flexion and extension of joints.
- X-ray findings also included. (AP/ LAT view)

Inclusion Criteria

- Patients with classical symptoms of *Janusandhigata Vata* like *Sandhi Shoola*, *Sandhi Atopa*, *Prasarana Aakunchana Vedana* (unilateral or bilateral) with or without *Sandhi Sthamba* and *Sandhi Shopha*.
- Participate in study and sign in the consent form.

Exclusion Criteria

- Patients suffering from diseases like *Vatarakta* and *Amavata*.
- Patient with deformities like *Genu varum* and *Genu valgum*.
- Secondary Osteoarthritis of Knee.
- Patient who requires surgical interventions.
- Pregnant women and Lactating mothers.

Intervention

Group	Dose	Time of Administration	Duration	<i>Prakshepaka Dravya</i>
Group A	25ml	Twice daily after food	30 days	3ml <i>Koshna Tilataila</i>
Group B	25ml	Twice daily after food	30days	3ml <i>Koshna Tilataila</i>

Observation Period: Patients were assessed clinically before treatment, on 16th day and on 31st day after treatment.

Follow Up: After 15 days of treatment (on 46th day)

Total Duration of Study: 45 days

Assessment Criteria

Subjective Parameters

- Janu Sandhi Shoola
- Janu Sandhi Sthambha
- Tenderness
- Visual Analogue Scale (VAS)
- WOMAC Osteoarthritis Index (Modified - CRD Pune Version)

Objective Parameters

- Janu Sandhi Shotha
- Janu Sandhi Atopa
- Range of Movement

Ingredients of Formulations

Marichadi Kwatha: Ingredients are Maricha, Devadaru, Nagara, Tilataila

Rasnapanchaka Kwatha: Ingredients are Rasna, Guduchi, Eranda, Devadaru, Mahoushada

OBSERVATIONS AND RESULTS

Observations	Predominance	Percentage
Age	50- 59 years	41.67%
Gender	Female	78.33%
Occupation	Housewives	46.67%
Family History	Negative	73.33%
Diet	Mixed	66.67%
Prakriti	Vatakapha	66.67%
Satwa	Madyama	90%
Satmya	Madyama	88.33%
Abhyavaharana Shakti	Madyama	83.33%
Jarana Shakti	Madyama	95%
Vyayama Shakti	Avara	68.33%

Nidra	Sound	68.33%
BMI	25-29.9 (Over weight)	70%
Onset of Pain	Gradual	100%
Character of Pain	Dull aching	58.33%
Course of Pain	Intermittent	90%

Statistical Analysis

Statistical software used here is Sigma Stat 3.1 Version.

Within the group comparison was done statistically with Wilcoxon Signed Rank Test (Janu Sandhi Shoola, and Stambha), Paired t Test (Janu Sandhi Sopha and Prasarana Aakunchana Vedana) RM Anova on Ranks (Atopa, Tenderness, VAS Score, Womac Score), Comparative analysis of the overall effect of the treatment in both the groups was done statistically with Mann Whitney Rank Sum Test (Janu Sandhi Shoola, Stambha, Atopa, Tenderness, VAS Score, WOMAC Score) and Unpaired t-Test (Janu Sandhi Sopha and Prasarana Akunchana Vedana).

Effectiveness of Medicine Before and After Treatment

Assessment Criteria	Group	Mean Value		WSRT/ Paired t test /RM Anova on Ranks		Remarks
		BT	AT	W/t/ Q Value	P Value	
Janusandhi Shoola	A	2.1	0.88	-91	<0.001	HS
	B	2.15	0.98	-91	<0.001	HS
Janusandhi Stambha	A	0.07	0.03	-1	1.00	NS
	B	0.1	0.03	-1	1.00	NS
Janusandhi Atopa	A	1	1	0	>0.05	NS
	B	1.07	1	0	>0.05	NS

Janusandhi Shotha	A	10.55	10.30	2.867	0.008	S
	B	15.96	15.65	4.086	<0.001	HS
Tenderness	A	0.3	0.03	2.41	>0.05	NS
	B	0.37	0.07	2.62	>0.05	NS
Prasarana Aakunchana Vedana	A	122.75	127.83	-26.91	<0.001	HS
	B	123	128.53	-19.54	<0.001	HS
VAS Score	A	4.98	2.3	9.899	<0.001	HS
	B	5.42	2.25	9.970	<0.001	HS
WOMAC Score	A	37.67	22.37	9.55	<0.001	HS
	B	38.33	22	9.68	<0.001	HS

HS - Highly Significant, NS - Not Significant, S - Significant

Comparative Analysis of the Treatments in Both the Groups

Assessment Criteria	Median Value / Mean Difference (BT – AT)		Mann Whitney Test / Un Paired t test		Remarks
	Group A	Group B	T/t Value	P Value	
Janusandhi Shoola	1	1	947	0.635	NS
Janusandhi Stambha	0	0	930	0.829	NS
Janusandhi Atopa	0	0	915	0.994	NS
Janusandhi Shotha	-0.060		-0.52	0.606	NS
Tenderness	0	0	930	0.830	NS

Prasarana Aakunchana Vedana	-0.33		-0.86	0.396	NS
VAS Score	3	3	755	0.018	NS
WOMAC Score	15	16	826	0.191	NS

NS - Not Significant

Percentage Wise Relief in Group A and Group B

Assessment Criteria	Group A		
	D16	AT	FU
Janusandhi Shoola	38.09%	59.52%	55.5%
Janusandhi Stambha	0	4.99%	4.95%
Janusandhi Atopa	0%	0%	0%
Janusandhi Shotha	1.44%	2.4%	2.3%
Tenderness	0%	89%	89%
Prasarana Aakunchana Vedana	0.81%	4.14%	4.14%
VAS Score	27.75%	52.11%	60.20%
WOMAC Score	19.38%	40.6%	44.25%
Assessment Criteria	Group B		
	D16	AT	FU
Janusandhi Shoola	34.8%	54.3%	54.27%
Janusandhi Stambha	0%	6.18%	6.18%
Janusandhi Atopa	0%	0%	0%
Janusandhi Shotha	1.14%	1.94%	1.94%
Tenderness	27.24%	81.74	81.74%
Prasarana Aakunchana Vedana	1.048%	4.04%	4.04%
VAS Score	25.9%	53.94%	61.6%
WOMAC Score	22.95%	42.72%	43.82%

DISCUSSION

Both formulations consist of ingredients with *Tikta Kashaya Madhura Rasa Ushna Virya, Amapachana, Vatakaphahara, and Shoolahara* properties, making them effective in reducing *Shoola* and *Shopha*. As the pain reduces the VAS scores also gets reduced. Also, *Tila Taila* having *Tikta Madhura Rasa, Madhura Vipaka, Ushna Virya* and *Vatagnakarman* provides lubrication, reduces friction, and nourishes the joints, improving their mobility and flexibility, thereby decreasing *Stambha*, increasing the range of movements and can reduce the WOMAC scores by increasing the quality of life.

Mode of action of drugs *Marichadi Kwatha*

Maricha having *Sukshma Guna, Ushna Virya* and *Kaphavatahara Karma*. Also having antioxidant, anti arthritic, ant inflammatory in action. The primary active compound of *Maricha* piperine can inhibit the activity of proinflammatory enzymes and cytokines, helping to reduce pain and inflammation in Osteoarthritis. **Mahadaru (Devadaru)** having *Snigdha Guna, Ushna Virya, Kaphavatahara Karma*. Active components in *Mahadaru* like cedrol, deodarone, flavonoids and tannins having anti-inflammatory, analgesic and anti-arthritic effect. Recent study related to *Cedrus deodara* revealed positive results regarding anti-inflammatory and analgesic activity **Nagara** having *Guru Snigdha Guna, Ushna Virya, Madhura Vipaka* and *Vatakaphahara Karma*. Active components in *nagara* like gingerol, shogaol, zingiberene having anti-inflammatory and analgesic in action. Clinical study related to *Zinigiber officinale* also highlights its properties of anti-arthritic, antioxidant, anti-inflammatory and analgesic effects. **Tila Taila** has *Guru Snigdha Guna, Madhura, Tikta Kashaya Rasa, Ushna Virya, Madhura Vipaka, Vatahara, Balya* and *Sthairyakara* in *Karma*. *Tila Taila* rich in antioxidants like sesamol, sesamin and sesamolins exhibits anti-inflammatory and antioxidant properties that could be beneficial in managing Knee Osteoarthritis.

Mode of Action of *Rasnapanchaka Kwatha*

Rasna having *guru Guna, Ushna Virya, Kaphavatahaghna* and *Shophahara*. Also, chemical

constituents such as quercetin, neolupenol, sorghumol, were studied for anti-inflammatory and anti-arthritic activities. **Guduchi** has *Ushna Virya, and Madhura Vipaka*. Also having *Deepaneeya, Tridosahara, Balya* and *Rasayana* properties. Ecdysteroids isolated from the plant have been reported of protein anabolic and anti-osteoporotic effects in mammals. **Eranda** having *Madhura Katu Rasa, Snigdha Theekshna Guna, Usna Virya, Madhura Vipaka, Tridosha Hara, Shothahara* and *Vedanasthapana* properties. Studies related Alkaloids, Saponin and terpenoid, flavanoid have been found to be responsible for both analgesic and anti-inflammatory actions **Devadaru** having *Snigdha Guna, Ushna Virya, Kapha Vatahara* in *Karma*. Also having analgesic, anti-inflammatory and antioxidant activity. **Mahoushada (Nagara)** having *Guru Snigdha Guna, Ushna Virya, Madhura Vipaka* and *Vatakaphahara Karma*. It also improves *Deepana, Pachana* and also act as *Sophahara*.

Anupana: *Tila Taila* is selected as *Anupana*. *Tila Taila* has *Guru Snigdha Guna Madhura, Tikta Kashaya Rasa Ushna Virya* and *Madhura Vipaka*. Also, *Tila Taila Vataghna, Balya* and *Sthairyakara*.

Dose: The dose administered was 25 ml of *Kwatha* along with 3 ml of *Koshna Tila Taila*, taken twice daily. This dosage was selected based on previous studies involving *Rasnapanchaka Kwatha* to ensure consistency with standard drug protocols.

Aushadha Sevana Kala: *Aushadha Sevana Kala* is *Adhobhakta*, after meals. As per Ayurvedic science *Adhobhakta Aushadha Kala* is indicated in *Vyanavayu Vikriti*. As in *Janusandhigata Vata* both the *Shleshaka Kapha* and *Vyana Vayu* are affected, this *Aushadha Kala* has been selected for the study in the groups.

CONCLUSION

In clinical comparison, both drugs produced notable and effective outcomes individually. Within each group, both drugs showed significant results before and after treatment in all parameters except *Atopa*. Although the results for tenderness and stiffness were not statistically significant, improvements in symptoms

were observed. The effect of the drugs was maintained even after the treatment till the period of follow up. On comparing between two groups, there was no statistically significant difference in the effect of treatment. This indicating that both *Kwathas* are therapeutically effective in treating *Janusandhigata Vata*.

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