

## TO EVALUATE CLINICAL EFFICACY OF VISHWADI DWADASHANGA KWATHA AND RASNA PANCHAKA KWATHA IN JANU SANDHIGATA VATA - A COMPARATIVE CLINICAL STUDY

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### ABSTRACT

**Background and Objectives:-** Pain is an unfavourable sensation that brings an individual to the physician due to a halt from their routine works. The condition is more painful when mobile joints such as *Janu Sandhi* (Knee joint) are involved due to *Sandhigata Vata*. *Sandhigata Vata* is a disease of the elderly. It mainly affects weight bearing joints of the body specially knee, hip etc. It is characterized by *Sandhi Shoola* (Joint pain), *Sandhi Shotha* (Swelling over the joint), *Sandhi Stambha* (Stiffness over the joint), *Prasarana Aakunchana Vedana* (Painful and restricted joint movements), *Sandhi Atopa* (Crepitus). This can be correlated to Osteoarthritis of Knee. Knee Osteoarthritis is the most common type of arthritis, which is a major cause of disability which reduces the quality of life. India is expected to be the chronic disease capital with 60 million people with arthritis by 2025. *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* are two formulations which contain the drugs of *Vatahara*, *Shothahara*, *Vedanasthapaka* property which will help in management of *Janu Sandhigata Vata*. **Methods:-** It was a single blind randomized comparative clinical trial. The study was conducted in 40 subjects for a period of 30 days. Observations were analyzed and findings were evaluated by using statistical methods. **Results:-** The severity of symptoms markedly reduced in both the groups which is statistically significant and on comparison the effect of *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* there was no statistical difference obtained. **Conclusion:-** The result suggests that both *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* had significant effect in *Janu Sandhigata Vata*. There was no significant difference in the effect of *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha*.

**Keywords:** *Janu Sandhigata Vata*, *Vishwadi Dwadashanga Kwatha*, *Rasna Panchaka Kwatha*,

### INTRODUCTION

Mobility is one of the cornerstones of healthy aging. Mobility limitations are often an early sign of impending functional decline in old age people. Recognizing an increase in those limitations at early stage creates

the opportunity for successful interventions aimed at warding off functional decline and keeping old age people living independently for as long as possible.

Mobility is a sort of measure for how well an older people ages.

Osteoarthritis is by focal loss of cartilage with evidence of accompanying periarticular bone response in the form of subchondral bone sclerosis and attempted new bone formation in the form of bony overgrowth called osteophytes. It is called degenerative joint disease represents failure of the diarthrodial (movable synovial lined joint)<sup>1</sup>.

Osteoarthritis is among the common musculoskeletal diseases affecting the human beings making it an important cause of disability. According to WHO, Osteoarthritis is the second commonest musculoskeletal disease in the world population (30%) after back pain (50%).

Osteoarthritis of knee is common and a major cause of disability in older people that is likely to increase over time. This is a prevalent joint disease commonly associated with varying degrees of pain and functional disability, premature losses of earnings, poor life quality.

Osteoarthritis is more common in women than men, but the prevalence increases dramatically with age. Despite its prevalence and significant physical, economic, psychological and social impact, no known cure exists for the condition<sup>2</sup>.

In *Vrudhavastha*, all *dhatu*s undergo *Kshaya* thus leading to *Vataprakopa* and making individual prone to many diseases among them *Sandhigata Vata* occurrence is more. *Sandhigata Vata* was described by *Acharya Charaka* as *Sandhigata Anila* with symptoms of *Shotha* which on palpation feels like a bag filled with air that is *Vatapoornadhritisparsha* and *Shoola* on *Prasarana* and *Aakunchana*<sup>3</sup>. *Acharya Sushruta* added with symptoms of *Hanti* that is leading to dimension of the joint movement<sup>4</sup>.

*Madhavakara* adds *Atopa*<sup>5</sup> as additional feature that is crepitus. The pathologic underpinnings of this disease are attributing to the aberration of *Vata* and *Kapha dosha* affecting *Asthi*, *Sandhi*, *Mamsa* and *Snayu*. As

it being *Vatavyadhi* located in *Marma*, *Asthi*, *Sandhi* and its occurrence in old age makes it *Kastasadhya*<sup>6</sup>.

Hence considering all above factor of *Sandhigata Vata* the present study aims to explore the efficacy of *Vishwadi Dwadashanga Kwatha*<sup>7</sup> and *Rasna Panchaka Kwatha*<sup>8</sup>, the drugs of both formulations having the properties of *VataKaphahara*, *Ushnaveerya*, *Shothahara*, *Vedanasthapana* which must be contributing to the efficacy of drugs. Here an effort has been made to evaluate, ascertain and compare the efficacy of *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* in *Janu Sandhigata Vata*.

#### AIM AND OBJECTIVES:-

1. To evaluate and ascertain the individual effect of *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* in *Janu Sandhigata Vata*.
2. To compare the effect of *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* in *Janu Sandhigata Vata*.

#### MATERIALS AND METHODS:-

##### SOURCE OF DATA:-

**LITERARY SOURCE:-**All the classical books like *Brihatrayis* and *Laghutrayis* and modern literature and contemporary text including the website about the disease, drug and procedure was reviewed and documented for the intended study.

**DRUG SOURCE:-**The raw drugs required were identified and collected from the source of availability and the medicines prepared according to the classical references at Alva's Pharmacy, Mijar.

**SOURCE OF SAMPLE:-**Patients of either sex attending OPD of Alva's Ayurveda Medical College & Hospital, Moodbidri and from other available sources who were diagnosed as *Janu Sandhigata Vata* were selected for study.

**ETHICAL CLEARANCE:-** ICEC/KC/01

**METHOD OF SAMPLING:-**Simple Random Sampling Method.

**Table 1: INTERVENTION:-**

GROUPS	DOSAGE	TIME OF ADMINISTRATION	DURATION OF TREATMENT	ANUPANA
GROUP A <i>Vishwadi Dwadashanga Kwatha</i>	50ml	Twice daily before Food	30 days	<i>Ushnodaka</i>
GROUP B <i>Rasna Panchaka Kwatha</i>	50ml	Twice daily before Food	30 days	<i>Ushnodaka</i>

**CRITERIA FOR SELECTION OF PATIENTS:-**

**DIAGNOSTIC CRITERIA:-**

The diagnosis is mainly based upon the *lakshanas* of *Janu Sandhigata Vata* mentioned in Ayurvedic texts which will be correlated clinically.

Radiographs will be taken to confirm clinical findings.

**INCLUSION CRITERIA:-**

Classical *Lakshana* of *Janu Sandhigata Vata* like *Sandhi Sthotha, Sandhi Shoola, Prasarana* and *Akunchana Vedana, Sandhi Stambha, Sandhi Atopa*.

Patient of either sex between 40-70 years of age

**EXCLUSION CRITERIA:-**

Secondary Osteoarthritis of knee.

Patient suffering from *Amavata, Vatarakta* or any other systemic diseases.

**INGREDIENTS OF FORMULATIONS:-**

**VISHWADI DWADASHANGA KWATHA:-** *Vishwa* (Zingiber Officinale), *Eranda shifa*(Ricinus Communis), *Devadaru* (Cedrus Deodara), *Vacha*(Aconus Calamus), *Shunti* (Zingiber Officianale), *Duralabha* (Fagonia Cretica), *Abhaya* (Terminalia Chebulla), *Ativisha* (Aconitum Heterophyllum), *Musta*(Cyperus Rotundus), *Shatamooli* (Asparagus Racemosa), *Vrisha* (Apathoda Vasica), *Amruta*(Tinospora Cordifolia).

**RASNA PANCHAKA KWATHA:-***Rasna*(Pluchea Lanceolata), *Guduchi*(Tinospora Cordifolia), *Eranda* (Ricinus Communis), *Devadaru*(Cedrus Deodara), *Mahaushadha* (Zingiber Officinale).

**ATIVISHA SHODANA<sup>9</sup>:-**

*Ativisha* is tied in a cloth and then put in the *Dola yantra* filled with *Gomaya Kwatha*. It should not touch the bottom of the pot i.e. it should remain hanging in

the decoction. It is then boiled over *mandagni* for 1 *yama* and thereafter dried in the sun.

**METHOD OF MEDICINE PREPARATION:-**

**VISHWADI DWADASHANGA KWATHA:-**

The *Kwatha* was made in two batches 10 litres each. All 12 ingredients were taken in equal quantity of 1 part each which was made into coarse powder. 8 parts of water was added, subjected to *Mandagni* until it was reduced to 1/4<sup>th</sup>. The *Kwatha* obtained was filtered through a kora cloth and collected in a sterile container. After cooling preservatives like methyl parabin, prophyl parabin was added. The *Kwatha* was filled in bottles and sealed<sup>10</sup>.

**RASNA PANCHAKA KWATHA:-**

The *Kwatha* was made in two batches of 10 litres each. All 5 ingredients were taken in equal quantity of 1 part each, which was made into coarse powder. 8 parts of water was added, subjected to *Mandagni* until it was reduced to 1/4<sup>th</sup>. The *Kwatha* obtained was filtered through a kora cloth and collected in a sterile container. After cooling preservatives like methyl parabin, prophyl parabin was added. The *Kwatha* was filled in bottles and sealed.

**INTERVENTION:-**

The interventions of clinical study were carried according to the individual groups mentioned below. These groups assigned as Group A and B was treated with *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* respectively.

Group A:- *Vishwadi Dwadashanga Kwatha* 50ml (15ml of *Kashaya* + 35ml of water ) twice daily before food with *Ushnodaka* for a period of 30 days.

Group B:- *Rasna Panchaka Kwatha* 50ml (15ml of *Kashaya*+35ml of water) twice daily before food with *Ushnodaka* for a period of 30 days.

**OBSERVATIONAL PERIOD:-**

Patients were assigned clinically on day 0(BT), after 15<sup>th</sup> day and after 30<sup>th</sup> day of treatment.

**FOLLOW UP:-**After 60<sup>th</sup> day.

**TOTAL STUDY DURATION:-** 60 days.

**INVESTIGATIONS:-**

Routine blood investigations along with x-ray of affected knee AP and Lateral views were carried out before the clinical study to confirm diagnosis.

**ASSESSMENT CRITERIA:-**

The general condition of the patients before treatment was noted by thorough screening of the *Lakshanas*, detailed history and physical examinations. Later the changes in *Lakshanas* after treatment were noted and both the finding was documented in a specially designed case proforma. The improvements were assessed through Subjective and Objective Parameters by adopting standard method of scoring. Grading was given to all the *Lakshanas* according to the severity and was documented before, during treatment, after treatment and follow up.

**STATISTICAL ANALYSIS:-**

Post therapeutic effect of the administered drug is assessed by Paired 't' test. Comparative study of each Subjective and Objective Parameters of either groups by Student 't' test. For all the tests, a P value of <0.05 is considered as the statistical significance level for obtaining accurate result.

## DISCUSSION

**AGE:-**In this study, majority of the patients were belonging to the age group of 51-60yrs with 47.5%. This may be due *Vrudavastha* is predominant of *Vata*, process of degeneration is more seen.

**GENDER:-** Majority of patients were female about 67.5%. Female hormones have an effect on cushioning cartilage to allow smooth joint movement.

**OCCUPATION:-** In this present study, majority of patients were housewives about 67.5%. This may be

due prolonged standing, squatting, and cross legged sitting.

**PRAKRUTHI:-** *Vata Kapha Prakruthi* patients were dominant which was 55%. Reason to this may be as *Vata* dominant people are prone for this disease.

**SAMHANANA:-** Among 40 patients in this study, majority of patients were of *Madhyama Samhanana* about 57.5%.

**VYAYAMA:-** About 70% of patients in this study have *Avara Vyayama shakthi*. This is due to the disease and age factor.

**NIDRA:-**In this study about 55% of patients had disturbed sleep due to age factor and *VataPrakopa*.

**WEIGHT:-** Majority of patients present in this study were Overweight about 52.5%. Because of which there will be increase in pressure over knee joint.

**INCIDENCE OF PAIN:-** All patients under this study, incidence of pain was gradual in nature. This is due degenerative changes in the knee.

**CHARACTER OF PAIN:-** In this study , 65% patients had dull aching pain. This is because of the cartilage destruction.

**COURSE OF PAIN:-** Among 40 patients , 40% experienced progressive type course of pain. This is because of degenerative changes.

**AGGREVATING FACTORS:-** In this study about 47.5% of patients had evening time aggravation of pain as it is said to *Vata Prakopa Kala*.

**RELIEVING FACTORS:-** Majority of patients that is 47.5% had relieving of pain at rest. This may be due to reduced physical activity.

## RESULTS

The study was carried out in patient of *Janu Sandhigata Vata* in 2 groups of which Group A received *Vishwadi Dwadashanga Kwatha* and Group B received *Rasna Panchaka Kwatha* for a period of 30 days. Data was collected before treatment, after 15<sup>th</sup>, after 30<sup>th</sup> and after 60<sup>th</sup> day of study period. The assessment of condition was done based on detailed proforma adopting standard scoring methods of Subjective and Objective parameters:

**Table 2: GRADINGS FOR SUBJECTIVE & OBJECTIVE PARAMETERS:-**

<b><i>Janu Sandhi Shoola:-</i></b>	
<b>Grade 0</b>	No pain
<b>Grade 1</b>	Mild pain not interfering with activities and sleep
<b>Grade 2</b>	Moderate pain interfering with activities and sleep
<b>Grade 3</b>	Severe pain reducing activities and sleep
<b><i>Janu Sandhi Stambha :-</i></b>	
<b>Grade 0</b>	Absent
<b>Grade 1</b>	Present
<b><i>Janu Sandhi Shotha:-</i></b>	
<b>Grade 0</b>	No swelling
<b>Grade 1</b>	Slight swelling
<b>Grade 2</b>	Covers well over bony prominence
<b>Grade 3</b>	Much elevated
<b>Grade 0</b>	Full range of joint movement
<b><i>Janu Sandhi Prasarana and Aakunchana Vedana:-</i></b>	
<b>Grade 1</b>	>75% and < full range of joint movement
<b>Grade 2</b>	50 % – 75% of full range of joint movement
<b>Grade 3</b>	Upto 50% of full range of joint movement
<b>Grade 4</b>	No movement
<b><i>Janu Sandhi Atopa:-</i></b>	
<b>Grade 0</b>	Absent
<b>Grade 1</b>	Palpable
<b>Grade 2</b>	Audible
<b><i>Janu Sandhi Sparshaakkshamatva:-</i></b>	
<b>Grade 0</b>	No tenderness
<b>Grade 1</b>	Patients complaints of joint tenderness
<b>Grade 2</b>	Patient winces on touch
<b>Grade 3</b>	Patient withdraws the effected joint
<b>VAS ( VISUAL ANALOG SCALE):-</b>	
<b>Grade 0</b>	0 cm
<b>Grade 1</b>	1-3cms
<b>Grade 2</b>	4-6cms
<b>Grade 3</b>	7-10cms
<b>WOMAC O.A INDEX:-</b>	
<b>Grade 1</b>	None (0)
<b>Grade 2</b>	Mild(0-24)
<b>Grade 3</b>	Moderate (25-48)
<b>Grade 4</b>	Severe (49-72)
<b>Grade 5</b>	Extreme(73-96)

Both Groups were compared by using following statistical analysis.

✓ Non Parametric test average was found using Arithmetic mean and Percentage.

✓ Pre- Post Comparison done by Paired't' test.

✓ Student't' test is applied between group comparison.

**TABLE 3: STATISTICAL RESULT OF INDIVIDUAL ASSESSMENT CRITERIA:-**

Assessment criteria	Group	BT Mean	AT Mean	M.D	Effect of treatment (%)	S.D	S.E	t- value	p-value
<i>Shoola</i>	A	1.600	0.550	1.050	65.625%	0.887	0.0500	21.00	<0.001
	B	1.600	0.650	0.950	59.37%	0.813	0.182	19.00	<0.001
<i>Stambha</i>	A	1.000	0.300	0.700	70%	0.470	0.105	6.658	<0.001
	B	1.000	0.350	0.650	65%	0.489	0.109	5.940	<0.001
<i>Shotha</i>	A	1.250	0.350	0.900	72%	0.587	0.131	13.077	<0.001
	B	1.600	0.350	1.250	78.125%	0.489	0.109	12.583	<0.001
<i>Prasarana Aakunchana Vedana</i>	A	2.100	0.850	1.250	59.52%	0.813	0.182	10.162	<0.001
	B	1.950	0.700	1.250	64.102%	0.801	0.179	12.583	<0.001
<i>Atopa</i>	A	1.150	1.150	0.000	0%	0.366	0.0819	0.000	>0.05
	B	1.200	1.200	0.000	0%	0.410	0.0918	0.000	>0.05
VAS	A	1.850	0.600	1.250	67.567%	0.821	0.184	10.162	<0.001
	B	1.750	0.500	1.250	71.428%	0.688	0.184	12.883	<0.001
WOMAC	A	2.950	2.100	0.850	28.81%	0.308	0.0688	4.073	<0.001
	B	2.900	2.150	0.750	25.862%	0.366	0.0189	4.682	<0.001

## DISCUSSION ON RESULTS

### EFFECT OF TREATMENT ON SHOOLA:-

On comparing the groups, p value (=0.165) revealed statistically no significant difference between the groups.

Percentage wise relief on *Shoola* in Group A was 65.62% to that of Group B with 59.37%.

### EFFECT OF TREATMENT ON STAMBHA:-

On comparing between the groups, p value (=0.744) revealed statistically no significant differences between the groups.

Percentage wise relief on *Stambha* in Group A was 70% with that of Group B was 65%.

### EFFECT OF TREATMENT ON SHOTHA:-

Comparing between the groups, p value (=0.006) revealed statistically significant differences between the groups.

Percentage wise relief on *Shotha* in Group B was 78.12% where as in Group A was about 72%.

### EFFECT OF TREATMENT ON PRASARANA AAKUNCHANA VEDANA:-

On comparison between the groups, p value (=1.000) revealed statistically no significant differences between the groups.

Percentage wise relief on *Prasarana Aakunchana* in Group B was 64.102% with that of Group A was 59.52%.

### EFFECT OF TREATMENT ON ATOPA:-

On comparing between the groups, p value (=1.000) revealed statistically no significant differences between the groups.

There was 0% relief on *Atopa* in both the groups.

### EFFECT OF TREATMENT ON VAS:-

Between the groups comparison, p value (=1.000) revealed statistically no significant differences between the groups.

Percentage wise relief in Group B was 71.428% to that 67.567% in Group A in VAS.

**EFFECT OF TREATMENT ON WOMAC:-**

The effect of treatment on WOMAC within the group, before and after treatment also at follow up with p value (<0.001) was statistically highly significant in both the groups.

On comparing between the groups, the p value (=1.000) revealed statistically no significant between the groups.

Percentage wise relief in WOMAC in Group A was 28.81% to that of 25.862% in Group B.

**TABLE 4: DISCUSSION ON COMPARATIVE EFFECT OF TREATMENT IN GROUP A & GROUP B:-**

Symptoms	Mean		M.D	t- value	p-value
	GROUP A	GROUP B			
Shoola	1.050	0.950	0.100	1.414	>0.05
Stambha	0.700	0.650	0.500	0.330	>0.05
Shotha	0.900	1.250	0.350	2.896	>0.05
Prasarana Aakunchana Vedana	1.250	1.250	0.000	0.000	>0.05
Atopa	0.000	0.000	0.000	0.000	>0.05
VAS	1.250	1.250	0.000	0.000	>0.05
WOMAC	0.750	0.750	0.000	0.000	>0.05

The result obtained after treatment in both groups was compared by unpaired t test. The result revealed that there is no significant difference between the effects of treatment in both the groups.

**DISCUSSION ON MODE OF ACTION:-**

**VISHWADI DWADASHANGA KWATHA:-**

This *kashaya* has indication in *Mamsa, Asthi, Majja* and *Sarvanga Vata*<sup>11</sup>.

In *phalashruthi* of this formulation it is specified that it is indicated in *Shleshaka Sandhi* disorders.

Most drugs of this formulation have *Ushna Veerya* and *doshagnatha* is *Kapha Vatahara*.

It also has drugs which have *Shotha hara, Vedanasthapaka* and *Deepana Pachana* properties.

*Vishwa* having *katu rasa, teekshna, rooksha guna, ushna veerya* and *madhura vipaka* does *Vata Kaphahara*<sup>12</sup>.

*Eranda* has *madhura, katu, kashaya rasa, snigdha, teekshna guna, ushna veerya* and *madhura vipaka* that does *Kapha Vatashamaka* acts as *Shotha, Shoolahara*<sup>13</sup>.

*Devadaru* is *tikta rasa, snigdha guna, ushna veerya* does *Kapha Vatashamaka* acts as *Shothahara*<sup>13</sup>.

*Vaca* has *katu rasa, teekshna guna* and *ushna veerya* does *Kapha Vatahara*.

*Shunti* has *snigdha guna, ushna veerya* which does in lubrication of joint and does *Shophahara*. It also does *Deepana, Pachana*<sup>13</sup>.

*Abhaya* due to its *kashaya rasa, rooksha guna* does *Shophahara*. It does *Vata anulomana*. As *Sandhigata Vata* occurs in *Vrudavastha*, it helps in *Vayasthapana*. *Ativisha* and *Musta* has *tikta, katu rasa, ushna veerya* and *katu vipaka* does *Kapha Pittahara, Shothahara*.

**RASNA PANCHAKA KWATHA:-**

This *kashaya* has ingredients which are *Agrya* in *Vatavyadhi*.

Some drugs are also having properties of *Anulomana, Gamitwa* towards *Asthi Majja*.

This *Kashaya* has *Agnideepana, Vatahara, Shothahara, Vedanasthapana* and *Rasayana* properties.

**ACTION OF CHEMICAL CONSTITUENTS:-**

*Shunti* – *Gingerol, Shoagal* – inhibit synthesis of pro inflammatory cytokines such as interleukins<sup>14</sup>.

*Guduchi* – Rich in Calcium, Phosphorus<sup>15</sup>.

*Eranda* – *Lupeol* – acts on interleukin system<sup>16</sup>.

*Rasna* – *Triterpenoids* – Anti inflammatory<sup>17</sup>.

*Vaca*- *Saponins* – inhibits the production of cytokines<sup>18</sup>.

*Shatavari*- *Racemofuran* which acts same as *COX-2* inhibitors<sup>19</sup>.

## CONCLUSION

*Vata* is the governing factor in the maintenance of equilibrium in the body. As age advances, the influence of *Vata* progresses degeneration, resulting in the process of gradual degeneration of the body.

*Sandhigata Vata* is one of the consequences of this process, which is common in elderly person. This is *Kastasadhya* and said as *Mahagada*, occurs at *Marma Asthi Sandhi*.

*Janu* is a *Sandhi Marma*. It is explained in *Charaka Samhita* that for management of the diseases at *Marma Sthana*, *Vata Dosha* should be treated.

The study is intended to compare the effect of *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* in *Janu Sandhigata Vata*.

After analysing the study, observation, clinical trials, results and discussion, it can be concluded that both *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* provided relief in all most all signs and symptoms other than *Atopa*.

Signs and symptoms like *Shoola*, *Stambha*, *Shotha*, *Prasarana Aakunchana Vedana* and parameters like VAS, WOMAC reduced to a marked extent in both the groups which is statistically highly significant where as in *Atopa* no results seen in both groups.

There is no significant difference in the effect on signs and symptoms while comparing between the groups.

Thus we can conclude that there is no significant difference in the effect of *Vishwadi Dwadashanga Kwatha* and *Rasna Panchaka Kwatha* in *Janu Sandhigata Vata*.

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