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## A Clinical Study on the Therapeutic Effect of *Dashanga Guggulu* and *Shothaghna Lepa* in *Janusandhigata Vata* w.s.r. Osteoarthritis

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### ABSTRACT

*Sandhi Gata Vata (SGV)* is explained in Ayurveda under *vatavyadhi*, the concept of *Gatavatatais* explained among *Tridosha*, *Vatais* responsible for all *Cheshta* and all diseases. In old age, all *Dhatu* beings undergo *Kshaya*, which leads to *VataPrakopa* and makes the individual prone to many diseases. Aging and Obesity are the major factors for increased occurrence of osteoarthritis. The *Shamana* procedures like *Snehana*, *Swedana*, *Lepa*, *Bandhana*, *Agni Karma* and *Raktamokshana* are emphasized in *Ayurveda* to provide relief from pain & swelling and restore mobility. *Bhavamishra* explained *Dashanga Guggulu* which has *Amapachaka*, *Medohara* and *Vatanulomaka* action. *Shothagna Lepa* is explained by *Sharangadhara* as *Shamana* therapy to relieve *shotha* and *shoola*. Hence, it is planned to evaluate and to compare the efficacy of *ShothagnaLepa* and *DashangaGuggulu* in *JanuSandhigataVata*.

### KEYWORDS

*JanusandhigataVata*, *Osteoarthritis of Knee Joint*, *Dashangaguggulu*, *ShothaghnaLepa*



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## INTRODUCTION

*SandhigataVata*<sup>1</sup> or Osteo-arthritis is a type of *Vatavyadhi* which mainly occurs in *Vriddhavastha* due to *Dhatukshaya*. It is the commonest form of articular disorder. It limits everyday activities such as walking, dressing, bathing etc. thus making patient disabled/handicapped. *Vatavyadhi* affects *Marmasthisandhi* and its occurrence in old age makes it *Kastasadhya* for the patient. Till date no medicine is available which prevents or reverses or blocks the growth of this disease.

The etiology of pain is multi-factorial, including inflammatory and non-inflammatory causes. The disease is managed by NSAIDs, analgesic drugs, physiotherapy and corticosteroids etc. Above drugs are very costly and have unwarranted side-effects. Even the surgical treatment does not provide complete relief. Treatment modalities in contemporary science are pharmaco-therapies with Non-Steroidal Anti Inflammatory Drugs, Intra articular injections and Surgery. There has been little response to the therapy with increased side effects.

Here, an effort has been made in search of its treatment. According to *Ayurveda*, the treatment is “*SampraptiVighatana*”. So in case of *SandhigataVata*, treatment should be such that it makes *AgniShamana*,

*VataShamana*, *KaphaVridddhi* (increase *Snigdha*guna) and correct *Khavaigunya*. Here *DashangaGuggulu*<sup>2</sup> and *ShothagnaLepa*<sup>3</sup> are selected for the present study which can serve above needs to treat the disease *JanuSandhigataVata* (Osteoarthritis).

## OBJECTIVES OF STUDY

1. To evaluate the efficacy of *Dashanga Guggulu* in *JanuSandhigataVata*.
2. To evaluate the efficacy of *Shothagna Lepa* in *JanuSandhigataVata*.
3. To evaluate the synergetic effect of *Dashanga Guggulu* and *Shothagna Lepa* in *JanuSandhigataVata*.

## MATERIALS AND METHODS

Ethical Committee Approval no. SDMCAU/ACA-49/EC-11/11-12

**Source of data:** Thirty patients, irrespective of gender, caste and social status will be selected for the study from IPD & OPD of SDM *Ayurveda* Hospital, Udupi. These patients will be divided in 3 groups equally. One group will be administered *Dashanga Guggulu*, the second *Shothagna Lepa*, and the third both. **Drugs:** *Dashanga Guggulu* and *Shothagna Lepa* preparation is done from SDM pharmacy, Udupi.



**Method of Data Collection:** A special proforma will be prepared for recording the historical details, physical signs and symptoms of the patients. Lab investigations will be carried out as mentioned in allied sciences.

**Study design:** It will be a single blind comparative clinical study with pre and post- test design wherein a minimum 30 patients suffering from *JanuSandhiGataVata* will be selected irrespective of their gender, caste and social status. Investigations and the parameters of signs and symptoms will be scored on the basis of standard method and will be analyzed statistically.

**Intervention:** Thirty patients are divided into three groups of 10 each-  
**Group I: *DashangaGuggulu* - 2 tablets of 500 mg** will be administered **thrice a day** for **14 days**.

**Group II: *ShothagnaLepa*** of sufficient quantity will be applied externally **once a day** for **14 days**.

**Group III: *DashangaGuggulu*– 2 tablets of 500 mg** will be administered **thrice a day** along with *ShothagnaLepa* of sufficient quantity applied externally **once a day** for **14 days**.

**Follow-up:** All the patients were followed for 14 days after treatment with weekly intervals.

#### **Inclusion Criteria**

- Patients with *prathyatmalakshana* of *JanuSandhigataVata*,
- Patient with signs & symptoms of Osteoarthritis,
- Patients ageing 30 years to 70 years.

#### **Exclusion Criteria**

- Patients below 30years and above 70 years,
- Patient with Tuberculosis, Rheumatoid Arthritis, Systemic Lupus Erythematosus, Psoriatic Arthritis, Gouty Arthritis.

**Assessment Criteria-**Signs and symptoms of *JanuSandhigataVata*, Osteoarthritis are evaluated.

- Pain-Visual Analogue Scale (VAS)
- Morning Stiffness of knee joint.
- Swelling-girth of joint is measured with tape.
- Tenderness asses by severity grade.
- Movement of joints-measurement is done with Goniometry.
- WOMCA- Index for Osteoarthritis.
- Functional ability: -
  1. Walking - time required to cover 30 meters in seconds.
  2. 10 sit -ups time required in minutes.
  - 3.10 steps climb time required in seconds.

#### **Investigations**

##### ❖ ***Hematological investigations:***

- Hemoglobin %, Total leucocytes count, Differential count,



- Erythrocyte Sedimentation Rate, Random blood sugar.

❖ **Urological investigations:**

- Sugar, Albumin & Microscopic

❖ **Radiological investigations:**

- X-ray: AP& Lateral view of knee

**Observations:** It was observed that age, gender, habits/ addictions, *prakruti*, occupation and nature of work have certain degree of correlation with this disease. However, religion, level of education, marital status, socio- economic status, and diet could not be found to have a correlation with this disease.

**Effects of treatment:** The assessment of results was made by adopting the standard methods of scoring questionnaires and the signs and symptoms of *Janusandhigataavata*. It included the

assessment of pain, swelling, tenderness and functional disability.

## RESULTS

The results of each parameter, in each of the group in the study are analyzed statistically with the paired T test and ANOVA test. The details are as follow

### PAIN

The statistical analysis of Group-A, Group-B, Group-C revealed that the mean pain between Groups and within the Groups; Which was in Group-A 38.02, in Group-B 40.62 and in Group-C 40.00. The P value is 0.815, considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 1**.

**Table 1** Comparison of Pain inpatients of A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	38.02	8.578	2.713	0.2058	0.815
Group B	40.62	8.916	2.834		
Group C	40.00	10.70	3.385		

### MORNING STIFFNESS

The statistical analysis of Group-A, Group-B, Group-C revealed that the mean morning stiffness between Groups and within the Groups; Which was in Group-A 0.800, in Group-B 0.750 and in Group-C 0.650. The

P value is 0.6938, considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 2**.

**Table 2** Comparison of Morning Stiffness in patient A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	0.800	0.349	0.110	0.3706	0.6938
Group B	0.750	0.424	0.134		
Group C	0.650	0.411	0.130		



### SWELLING-GIRTH OF KNEE JOINT

The statistical analysis of Group-A, Group-B, Group-C revealed that the mean swelling-girth of knee joint between Groups and within the Groups; which was in Group-A 38.95, in Group-B 37.07 and in

Group-C 35.92. The P value is 0.1489, considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 3**.

**Table 3** Comparison of Swelling-girth of knee joint in patient A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	38.95	5.011	1.585	2.046	0.1489
Group B	37.07	2.258	0.714		
Group C	35.92	1.997	0.631		

### TENDERNESS

The statistical analysis of Group-A, Group-B, Group-C revealed that the mean tenderness between Groups and within the Groups; Which was in Group-A 0.350, in Group-B 0.750 and in Group-C 0.500. The

P value is 0.3688, considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 4**.

**Table 4** Comparison of Tenderness in patient A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	0.350	0.411	0.130	1.035	0.3688
Group B	0.750	0.754	0.238		
Group C	0.500	0.666	0.210		

### MOVEMENT OF KNEE JOINTS

The statistical analysis of Group-A, Group-B, Group-C revealed that the mean pain between Groups and within the Groups; Which was in Group-A 127.5, in Group-B 124.5 and in Group-C 119.5. The P value is

0.4052, considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 5**.

**Table 5** Comparison of Movement of knee joints in patient A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	127.5	9.860	3.118	0.9343	0.4052
Group B	124.5	8.724	2.759		
Group C	119.5	18.73	5.925		

### WOMAC- Index



The statistical analysis of Group-A, Group-B, Group-C revealed that the mean pain between Groups and within the Groups; Which was in Group-A 58.20, in Group-B 53.80 and in Group-C 61.20. The P value is

0.4953, considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 6**.

**Table 6** Comparison of WOMAC- Index in patient A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	58.20	13.30	4.208	0.7211	0.4953
Group B	53.80	17.09	5.405		
Group C	61.20	10.34	3.272		

### Functional ability

- Walking - time required to cover 30 meters in seconds.**

The statistical analysis of Group-A, Group-B, Group-C revealed that the mean pain between Groups and within the Groups; Which was in Group-A 1.500, in Group-B

1.500 and in Group-C 1.500. The P value is >0.0999, considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 7**.

**Table 7** Comparison of walking time in patients of A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	1.500	0.527	0.166		
Group B	1.500	0.527	0.166	0.000	>0.0999
Group C	1.500	0.527	0.166		

- 10 sit -ups time required in minutes**

The statistical analysis of Group-A, Group-B, Group-C revealed that the mean pain between Groups and within the Groups; Which was in Group-A 1.300, in Group-B

1.200 and in Group-C 1.300. The P value is 0.9508, considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 8**.

**Table 8** Comparison of 10 sit -ups time in patient A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	1.300	0.674	0.213		
Group B	1.200	0.788	0.249	0.05056	0.9508
Group C	1.300	0.948	0.300		



- **10 steps climb time required in seconds.**

The statistical analysis of Group-A, Group-B, Group-C revealed that the mean pain between Groups and within the Groups; Which was in Group-A 1.600,in Group-B

1.600 and in Group-C 1.300.The P value is 0.4145,considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 9**.

**Table 9** Comparison of 10 steps climb time in patient A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	1.600	0.516	0.163	0.9101	0.4145
Group B	1.600	0.516	0.163		
Group C	1.300	0.674	0.213		

### **Kellgren– Lawrence Radiographic Grading Scale of Osteoarthritis.**

The statistical analysis of Group-A, Group-B, Group-C revealed that the mean pain between Groups and within the Groups; Which was in Group-A 2.000,in Group-B

1.900 and in Group-C 2.200.The P value is 0.6520,considered not significant variation among group means no difference in the effect of the treatment. Standard deviation, Standard error of mean 'F' value and 'P' value are given in **Table 10**.

**Table 10** Comparison of Kellgren– Lawrence Radiographic Scale in patients of A, B & C Groups

GROUPS	DIFFERENCE IN MEAN	STANDARD DEVIATION	STANDARD ERROR OF MEANS	ONE WAY ANOVA TEST	
				F	P
Group A	2.000	0.942	0.298	0.4345	0.6520
Group B	1.900	0.567	0.179		
Group C	2.200	0.632	0.200		

## **DISCUSSION**

Selectivity and affinity are the principle parameters which characterize the interaction between drug and receptor.*SampraptiVighatana* is said to be the treatment for *JanuSandhiGataVata*. Therefore, the drug is supposed to dismantle the *SampraptiGhatakas* of the disease and establish a relationship between the same and pentafold principles of *Rasa*,

*Guna, Virya, VipakaandPrabhava*of the drug.

***DashangaGuggulu***:In Group A, *DashangaGuggulu* was selected in form of oral administration. It is *Tridoshanashaka, Shulahara, VedanaSthapana, Shothahara, Deepana, PachanaandRasayana*. It is anti-inflammatory and analgesic too<sup>4</sup>.

***ShothagnaLepa***:In Group B, *ShothagnaLepa*was selected as a form of external application in





*JanuSandhiGataVata*.

*Bahirparimarjanachikitsa* plays a vital role amongst the disorders pertaining to *Madhyamarogamarga* such as *JanuSandhiGataVata*<sup>5</sup>.

*ShothagnaLepa* applied in the form of *pradeha* in *JanuSandhiGataVata* has got the properties to the *UshnaVeerya* and *Vatakaphahara*, which are resulting in *Shoolaghna*, *Shothaghna* and *Stambhahara* actions in this disease<sup>6</sup>.

## CONCLUSION

THE TOTAL EFFECT OF THE THERAPY

- Maximum Improvement : 60%
- Moderate Improvement : 20%
- Mild Improvement : 20%
- No Improvement : 0%

Comparison of the results of all the 3 groups showed that *DashangaGuggulu* in (Group A) and *ShothagnaLepa* in (Group B) and both *DashangaGuggulu* and *ShothagnaLepa* in (Group C) are given but overall *DashangaGuggulu* in (Group A) as a *Shaman* therapy has greater effect in improving the signs and symptoms of *JanuSandhigataVata* than *ShothagnaLepa* alone or *DashangaGuggulu* and *ShothagnaLepa* both.



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