



Research Article

THE COMPARATIVE EFFECTS OF VRUDDHADARVADI UPANAHA AND WAX THERAPY IN THE PAIN MANAGEMENT OF JANU SANDHIGATAVATA W.S.R. TO OSTEOARTHRITIS OF KNEE JOINT

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KEYWORDS: *Janu Sandhigata vata*, Osteo-arthritis, *Upanaha Sweda*, Wax therapy.

ABSTRACT

A clinical trial was conducted to evaluate the efficacy of different treatment modalities in *Janu Sandhigata vata*. The *Lakshanas* of *Janu Sandhigata vata* as per classics are *Shotha*, *Shoola*, *Prasaranaa kunchanayovedana*, and *Atopa* are like the symptoms of Osteoarthritis of knee joint i.e., pain, swelling, crepitation and joint restriction. 30 patients suffering from *Janu Sandhigata vata* (single or both knees), who fulfilled the inclusion and exclusion criteria were selected for the study. 30 Patients were randomly allocated equally into two groups, Group A and Group B. Group A patients received *Vruddhadarvadi Upanaha sweda* for 1 Hour and Group B patients received Wax therapy for 20min, for 7 days. Both the groups received Placebos (capsules filled with rice flour) for 14 days during the follow-up period. The data of both the groups were analysed using Wilcoxon Signed Rank Test and Mann-Whitney U Test. The efficacy was statistically significant in both the Groups as p value <0.001 in most of the symptoms. *Upanaha Sweda* and Wax therapy, both the treatments shown equal effectiveness in relieving the pain, swelling, joint restriction and difficulty in walking. While comparison between the Groups, Group A i.e. *Upanaha* group showed marked reduction in symptoms. The final evaluation proved that the efficacy of Group A was moderately significant as compared to Group B.

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INTRODUCTION

Sandhigata vata is one among the *Vata Nanatmaja Vyadhis*.^[1] *Acharyas* have not explained it in a separate chapter, it is described under *Vatavyadhi Chikitsa*. Due to the present lifestyle, hectic work schedule, joint pain has become a common problem and it affects the day to day activities. By the age of 40 years about 90% of the people show radiographic evidence of Osteoarthritis which may or may not cause symptoms.^[2] In present era, the changed lifestyle and diet increases the prevalence of *Sandhigata vata* which is 5.8% in rural India, in cities even more.^[3] Osteoarthritis affects almost all the joints, but the incidence of knee OA is more as it bears the whole-body weight. According to Ayurveda due to *Nidanasevana*, *Vatadoshaprakopa* takes place and then the *Prakupita vata* takes *Sthanasamshraya* in

Sandhipradesa and there *Kaphakshyaya* takes place, which eventually produce symptoms like *Shoola* (pain), *Shotha* (swelling), *Atopa* (crepitus) and *Prasaranaa Kunchanavedana* (difficulty in walking)^[4] and it is called as *Janu Sandhigata vata*. According to *Acharya Charaka*, in all types of *Vata Vyadhi*, *Brumhana Chikitsa* should be done.^[5] All most all the *Acharyas* have described about *Bahya* and *Abhyantara Snehana* and *Swedana* as the *Chikitsa* for *Sandhigata vata*.^[6-10]

Upanahasweda, one of the best treatments among management of *Sandhigata vata*, which helps in creating *Swedana* along with *Snehana*, in the joints and it relieves the pain and stiffness immediately.

Wax therapy is a thermal modality of Physical therapy, which comes under the

Rehabilitation programme. The principle behind the Paraffin Wax bath is that it works on Latent heat.^[11] Wax therapy helps in relieving Pain, stiffness and muscle spasm in arthritis.

So, this study was planned for a comparative study of *Vruddhadarvadi Upanahasweda* and Wax therapy in *Janu Sandhigatavata* (Osteoarthritis of knee joint).

MATERIALS AND METHODS

Criteria for selection of Data

30 patients willing to participate in the study were selected based on the clinical features of *Janu Sandhigatavata*, considering the inclusion and exclusion criteria were selected and randomly allocated in two groups, each having 15 patients. Detailed history was taken according to the proforma prepared for the study.

Group A: Patients received *Vruddhadarvadi Upanaha* for 1 hour.

Group B: Patients received Wax therapy for 20 minutes.^[12]

Exclusion Criteria

1. Patients with skin diseases of knee joints.
2. Patients having Secondary OA.
3. Patients with other systemic diseases.

Inclusion Criteria

1. Patients having classical signs and symptoms of *Janusandhigatavata*.
2. Age between 40 to 60 years of either sex.
3. Patients fit for *Swedana karma*.
4. Patients fit for Wax therapy.

Subjective Parameters

1. *Sandhi shoola*
2. *Sandhi shotha*

Objective Parameters

1. Range of movement of joints
2. Walking time

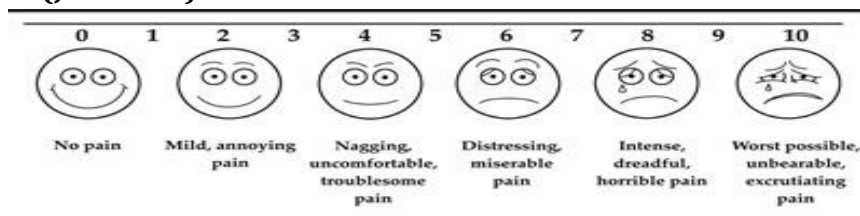
Procedures

Upanaha Sweda- *Upanahasweda* was performed in *Panchakarma* theatre. The patients were asked to sit/lie down according to their comfort.

Poorva karma: Before doing the *Upanahasweda*, patients were subjected to local *Abhyanga* with *Murchia Tila Taila* over knee joint for 5 minutes.

Grading for Subjective Parameters

1. Sandhi shoola (Joint Pain)



Pradhan karma

The powder of *Vruddhadarvadi lepa* was taken approximately 70gms (for one knee joint) in a clean vessel and mixed with required amounts of *Erandataila*, *Gomutra* and *Rasonakalka* to form a paste. Heat it indirectly. The prepared paste was applied over the affected knee joint. Then *Erandapatras* were put over the applied *Upanaha* in sufficient quantity. Then the whole part is covered using cotton cloth in a proper way and tied with thread. And the patients were advised to keep the *Upanaha* paste for one hour.

Paschat karma

Bandage was removed and the part was cleaned with warm water. All the patients were strictly instructed to follow the *Snehavidhi* regimen.

Wax Therapy- Wax therapy was performed in Physiotherapy unit. The patients were asked to sit/lie down according to their comfort.

1. Preparation of Medicine

All the required materials are collected and around 4-5kg of paraffin wax was taken in a paraffin wax bath and kept for melting.

2. Preparation of Patient

The knee to be treated with wax were exposed and inspected for cuts, rashes or infection and then cleaned properly.

Pradhan karma

First coconut oil was applied over the affected knee. Then melted paraffin Wax of tolerable temperature was applied with a brush. After making 10-12 layers, it was wrapped with a cotton cloth.

Paschat karma

After 20 minutes, the wax was removed and collected in the Paraffin Wax Bath for further use. The treated part was cleaned with a cotton piece.

Study Duration

Vruddhadarvadi Upanaha sweda was done daily 1hr for 7 days, Wax therapy 20mins daily for 7 days. Study duration=Treatment duration 7 days+ Follow up 14 days= Total 21 days.

VAS points	Grade	Severity
0	00	No pain
1-3	01	Mild
4-7	02	Moderate
8-10	03	Severe

2. Sandhi shotha (Joint swelling)

Character/criteria	Grade	Severity
No complaints	00	No swelling
Slightly obvious	01	Mild
Covers well over the bony prominence	02	Moderate
Much elevated	03	Severe

Grading for Objective Parameters

1. Walking Time

Time taken to cover 21 meters distance

Character/criteria	Grade	Severity
Up to 20 seconds	00	Normal
21-30 seconds	01	Mild
31-40 seconds	02	Moderate
41-50 seconds	03	Severe

2. Range of Movement

Goniometer reading- Degree of Flexion and extension of knee joints

Criteria	Grade	Severity
Flexion 140°, Extension 180°	00	Normal
Flexion 110°- 130°	01	Mild
Flexion 90°- 110°	02	Moderate
Flexion 70°- 90°	03	Severe

Assessment criteria

The net result obtained by various parameters of assessment both before and after treatment was taken into consideration, to assess the overall effect of the therapies. Then they were put in terms of percentage of relief in subjective and objective parameters.

Effect	Percentage
Good Response	75% and above
Moderate Response	From 50% - below 75%
Mild Response	From 25% - below 50%
Poor Response	Below 25%
Unchanged	0%

OBSERVATION AND RESULTS

Comparative difference of Sandhi Shoola between the Groups

Table 1: Sandhi Shoola Between Groups A and B Comparisons

Assessment Observations Recorded on	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
After Treatment	Group A	1.53	0.52	15	16.23	243.5	101.50	0.52	>0.05	IS
	Group B	1.40	0.63	15	14.77	221.5				
After Follow-Up	Group A	0.87	0.64	15	12.67	190.0	70.00	2.06	<0.05	MS
	Group B	1.33	0.49	15	18.33	275.0				

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

Comparative difference of Sandhi Shotha between the Groups

Table 2: Shotha Between Groups A and B Comparisons

Assessment Observations Recorded on	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
After Treatment	Group A	0.07	0.26	15	14.50	217.5	97.50	1.06	>0.05	IS
	Group B	0.20	0.41	15	16.50	247.5				
After Follow-Up	Group A	0.13	0.35	15	14.00	210.0	90.00	1.27	>0.05	IS
	Group B	0.33	0.49	15	17.00	255.0				

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

Comparative difference of Range of Motion in between the Groups

Table 3: Range of Motion Between Groups A and B Comparisons

Assessment Observations Recorded on	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
After Treatment	Group A	0.87	0.52	15	14.97	224.5	104.50	0.51	>0.05	IS
	Group B	0.93	0.26	15	16.03	240.5				
After Follow-Up	Group A	0.67	0.49	15	12.67	190.0	70.00	2.53	<0.05	MS
	Group B	1.07	0.26	15	18.33	275.0				

IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

Comparative difference of Walking time in between the Groups

Table 4: Walking Time Between Groups A and B Comparisons

Assessment Observations Recorded on	Descriptive Statistics			Mann-Whitney U Test Ranks			Test Statistics			
	Group	Mean	± S.D.	N	Mean Rank	Sum of Ranks	U	Z	P	Remarks
After Treatment	Group A	0.13	0.35	15	15.00	225.0	105.00	0.48	>0.05	IS
	Group B	0.20	0.41	15	16.00	240.0				
After Follow-Up	Group A	0.07	0.26	15	12.50	187.5	67.50	2.44	<0.05	MS
	Group B	0.47	0.52	15	18.50	277.5				

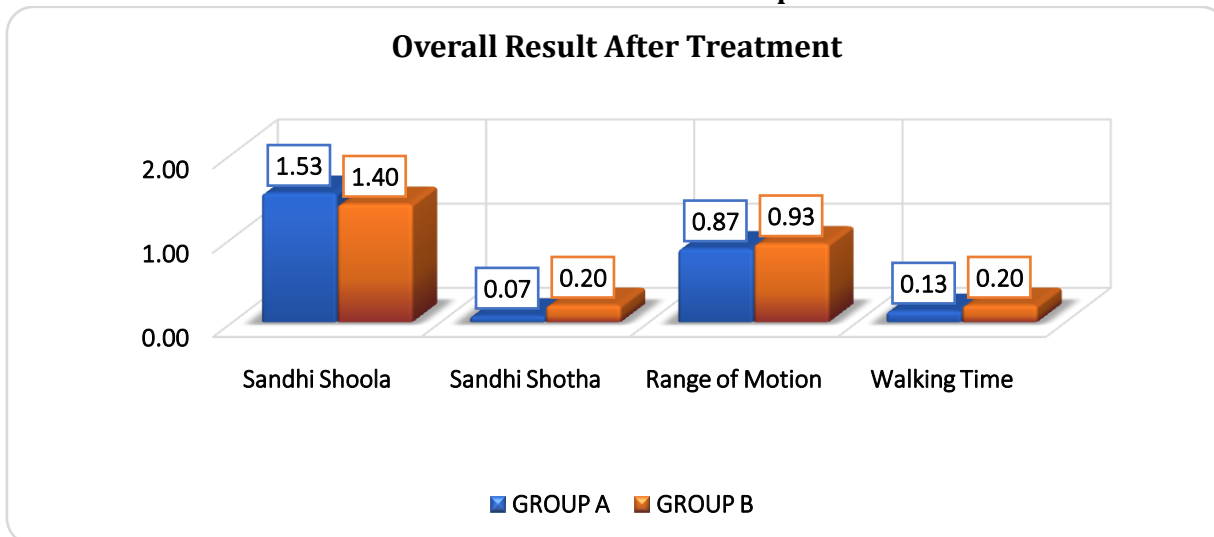
IS - Insignificant; MS - Moderately Significant; S - Significant; HS - Highly significant.

Showing the mean of overall Result after treatment in between Groups

Table 5: Overall Result after Treatment

Mean of Parameters	Group A		Group B	
	Mean	SD	Mean	SD
<i>Sandhi Shoola</i>	1.53	0.516	1.40	0.632
<i>Sandhi Shotha</i>	0.07	0.258	0.20	0.414
Range of Motion	0.87	0.516	0.93	0.258
Walking Time	0.13	0.352	0.20	0.414

Mean of overall result after the treatment in between the Groups

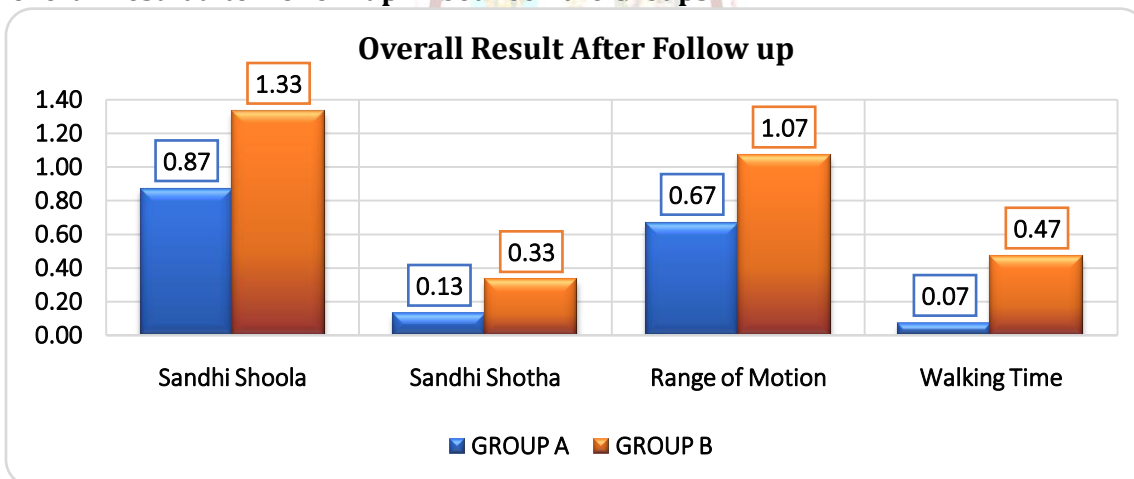


Mean of overall Result after follow-up in between Groups

Table 6: Overall Response after Follow up

Overall Response	Group A	%	Group B	%
Poor Response	0	0%	1	7%
Mild Response	2	13%	9	60%
Moderate Response	5	33%	5	33%
Good Response	8	53%	0	0%
Total	15	100%	15	100%

Mean of overall result after follow-up in between the Groups

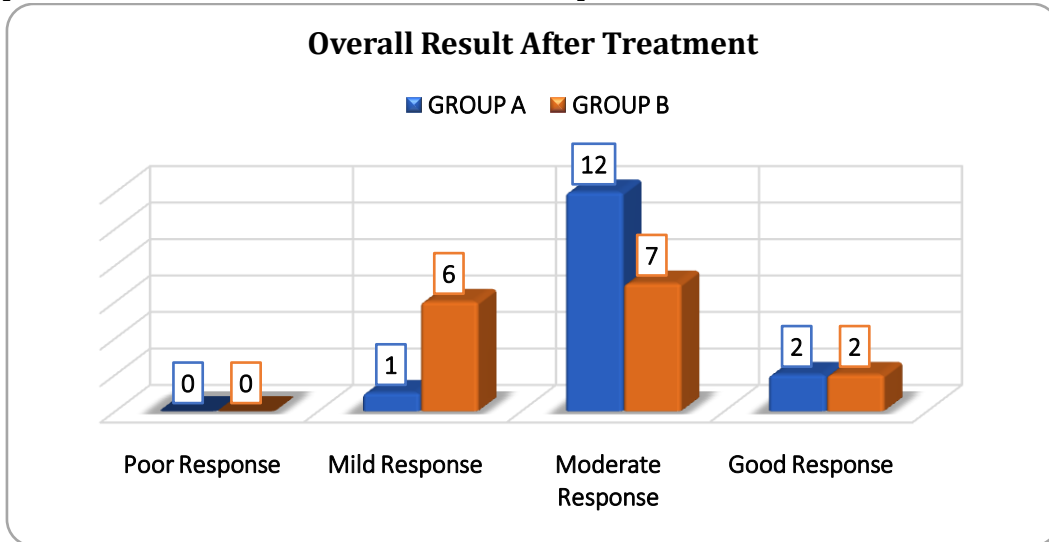


Showing the overall Response after treatment between the Groups:

Overall Response After Treatment				
Overall Response	Group A	%	Group B	%
Poor Response	0	0%	0	0%
Mild Response	1	7%	6	40%
Moderate Response	12	80%	7	47%
Good Response	2	13%	2	13%
Total	15	100%	15	100%

The overall response of after treatment data showed that in Group A, out of 15 patients; 12 patients showed moderate response, 2 patients showed good response and 1 patient showed mild response. While in Group B, out of 15 patients; 7 patients showed moderate response, 2 patients showed good response and 6 patients showed mild response.

Overall response after treatment in between the Groups

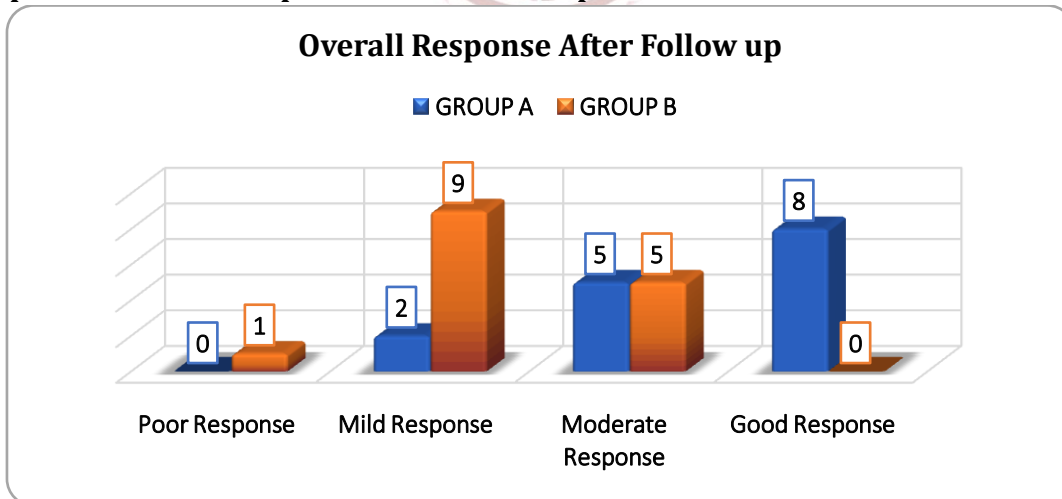


Overall Response after follow-up in between the Groups

Overall Response	Group A	%	Group B	%
Poor Response	0	0%	1	7%
Mild Response	2	13%	9	60%
Moderate Response	5	33%	5	33%
Good Response	8	53%	0	0%
Total	15	100%	15	100%

The overall response of after follow-up data showed that in Group A, out of 15 patients- 5 patients showed moderate response, 8 patients showed good response and 2 patients showed mild response. While in Group B, out of 15 patients- 5 patients showed moderate response, 9 patients showed mild response and 1 patient showed poor response, none of the patient showed good response.

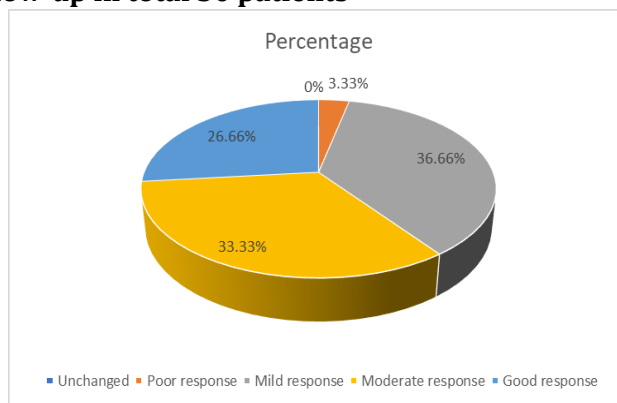
Overall response after follow-up in between the Groups:



Overall Result: Overall Result after the follow-up in total 30 patients.

Overall response (AF)	Total	Percentage
Unchanged	0	0%
Poor response	1	3.33%
Mild response	11	36.66%
Moderate response	10	33.33%
Good response	8	26.66%

Overall Result after the follow-up in total 30 patients



DISCUSSION

Discussion was studied under 6 main headings:

1. Discussion on Disease Review
2. Discussion on Procedure Review
3. Discussion on Drug Review
4. Discussion on Materials and Methods
5. Discussion on Observation and Results
6. Discussion on Probable Mode of Action.

Discussion on Disease Review

Sandhigatavata is described under *Vatavyadhi*. It shows the clinical features like *Shotha*, *Shoola*, *Atopa*, *Prasarana Akunchana Vedana* etc. It is a pure *Vatavyadhi*, here aggravation of *Vata* takes place along with *Kaphakshaya*. So, *Acharyas* has advised to give *Snigdha*, *Ushna* and *Brumhana chikitsa* like *Snehana*, *Swedana*, *Bandhana*, *Upanaha*, *Lepa*, *Basti* etc.

Discussion on Procedure Review

Upanahaswda

Upanahasweda is mentioned by almost all *Acharyas*. It mainly indicated in *Vatavikara* and *Vata* associated with *Pitta* and *Kapha*. It is of two types i.e. *Sagni* and *Niragni*. *Acharya Charaka* described *Upanaha* under 10 types of *Niragnisweda*. *Acharya Sushruta* and *Vagbhata* described under 4 types of *Swedana*. *Upanahasweda* is advised when *Doshaprakopa* is present in *Snayu*, *Sandhi*, *Asthi*, *Sira* and *Twak*. According to the drugs present in the *Upanahasweda*, it acts as *Sothahara*, *Shoolahara*, *Stambhaghna*, *Gouravaghna*, *Balya*, *Brumhana* etc.

Wax therapy

It is one of the *Physiotherapy* modalities. It is basically a moist heat therapy. Here moist heat is applied to the hands or feet to ease the pain and stiffness of arthritis. Low specific heat allows for application at a higher temperature than water without the risk of scald. Low thermal conductivity allows heating of tissues gradually thus reducing the risk of overheating the tissues.

Discussion on drug review

Vruddhadarvadi Lepa is mentioned in *Gada Nigraha*, *Vatavyadhi Adhikara*. The drugs present in it are mainly *Ushna*, *Snigdha* in property, having *Ushnavirya* and *Madhura vipaka*. So, the *Upanahasweda*, with its *Vatakaphashamaka*, *Sothahara*, *Shoolahara*, *Snehana*, *Balya* and *Brumhana* properties helps in relieving pain, swelling, stiffness and gives strength to the joints.

Discussion on materials and methods

30 cases with signs and symptoms of *Janu sandhigatavata* were selected and they were randomly allocated into two groups, Group A, Group B.

Patients of Group A, treated with '*Vruddhadarvadi Upanaha Sweda*' 1 hour daily for 7 days. Patients of Group B, treated with '*Wax therapy*' 20 minutes daily for 7 days. 2 weeks of follow up, placebos were received to both the groups, after completion of the treatment periods.

Subjective parameters: *Sandhi Shoola*, *Sanshi Shotha*

Objective parameters: Range of movement, walking time

Study design: A randomized comparative clinical trial

Instrument used: Goniometer was used to measure the range of movement.

Discussion on Observations and Results

Interpretation of the demographic data

Age: The incidence of *Sandhigatavata* is more after 50yrs. But due to the present lifestyle it is also became a problem for peoples below 50 years.

Gender: *Sandhigatavata* in more common in females than in males. It might be due to more work, stress, and not taking timely food.

Menopausal status: *Sandhigatavata* is more prevalent in menopausal women. After menopause due to the hormonal imbalance, calcium absorption becomes less hence bones starts osteoporosis,

which results in weakness of the bone. So, bone becomes more prone to Osteoarthritis.

Interpretation of the Response to the Treatment

Assessment on 8th day

Sandhi shoola: Group A- reduced by 39% which was highly significant at $p < 0.001$

Group B- reduced by 46% which was highly significant at $p < 0.001$

Sandhi shotha: Group A- reduced by 93% which was significant at $p < 0.01$

Group B- reduced by 77% which was significant at $p < 0.01$

Range of motion: Group A- reduced by 59% which was highly significant at $p < 0.001$.

Group B- reduced by 53% which was highly significant at $p < 0.001$

Walking time: Group A- reduced by 87% which was significant at $p < 0.01$

Group B- reduced by 80% which was significant at $p < 0.01$

Assessment on 22nd day

Sandhi shoola: Group A- reduced by 66% which was highly significant at $p < 0.001$

Group B- reduced by 49% which was significant at $p < 0.01$

Sandhi shotha: Group A- reduced by 87% which was significant at $p < 0.01$

Group B- reduced by 62% which was moderately significant at $p < 0.05$

Range of motion: Group A- reduced by 69% which was highly significant at $p < 0.001$

Group B- reduced by 47% which was highly significant at $p < 0.001$

Walking time: Group A- reduced by 93% which was significant at $p < 0.01$

Group B- reduced by 53% which was moderately significant at $p < 0.05$

Interpretation of comparison between the groups

The treatment is effective for both *Upanahasweda* and Wax therapy. When comparing the efficacy, it is found that the efficacy of the Group A is moderately significant as compared to Group B. Regarding *Shoola*, Group A is better than Group B and regarding *Shotha*, Range of movement and walking time both the groups were almost equally effective on comparison.

Discussion on Mode of Action

Mode of action of *Upanahasweda*

Before the administration of *Upanahasweda*, *Snehana* had been done with *Murchita Tila taila* on

the affected joints. Oleation will produce unctuousness, softness, fluidity and moistness in the joints. When *Abhyanga* is done, oil gets absorbed in the joints. *Abhyanga* helps in the promotion and regulation of the proper function of *Vata*. The effect of *Abhyanga* can be assumed in two ways i.e. physical manipulations and the effect of medicated oil. Physical manipulation in the form of massage increases the circulation of blood and plasma. It can stimulate and strengthen the lymphatic system and remove internal waste products. Muscles and deep connective tissues get relaxation.

After *Snehana*, when *Swedana* is given it does *Paka* of the *Doshas* and helps in separation of *Dosha* from *Dhatu*.

Sweda karma has four major actions over the body,

1. *Stambhaghata* (release stiffness)
2. *Gauravaghata* (heaviness)
3. *Sheetaghata* (coldness)
4. *Swedakarakata* (induce perspiration)

Mode of action of Wax therapy

Increases local temperature of the treated site/ higher tissue temperature.

By that extensibility of collagen tissues increases which results in proper Ionic Concentration.

Local muscle relaxation occurs, and vasodilatation takes place.

By that waste metabolites are excreted, and tissues get more oxygen and nutrition.

As a result, there will be decrease in joint stiffness, reduction in pain, relieve in muscle spasm and reduction in inflammation and oedema.

CONCLUSION

Upanahasweda and Wax therapy both have shown good results after the treatment and even after the follow up, in relieving the symptoms. But *Upanaha* group was found to be more effective statistically than Wax Therapy.

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Pictures

Upanahasweda



Wax therapy

