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CLINICAL STUDY ON THE EFFICACY OF KARPASA BEEJA CHOORNA PINDA SWEDA AND PATRA PINDA SWEDA IN SANDHIGATA VATA

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ABSTRACT

According to WHO the second most disease prevailing in world population comes under musculoskeletal diseases. The reported prevalence of Osteoarthritis from a study in rural India is 5.78%[1]. Pain can be described as any physical suffering or discomfort caused by illness or injury. Ayurveda explains the origin of pain is due to *vitiated Vata dosha*, once *vata dosha* is treated efficiently the pain subsides automatically. Acharyas have mentioned that *Sandhigata vata* is a condition in which vitiated vayu gets localized in *sandhi*. Ayurvedic line of treatment in *Sandhigata vata* is *Swedana, Upanaha, Mardana and Snehana, Agni karma, Bandhana .Sweda karma* plays a major role in relieving stiffness, heaviness and coldness of the body and produces sweating. *Pinda Sweda* is a form of *Sankara Sweda* where different *Vatahara* drugs are used, which plays a major role in reducing the pain and stiffness of the joint. Both *Karpasabeeja choorna Pinda Sweda* and *Patra Pinda Sweda* with *Patra* like *nirgundi* (Vitex negundo), *karanja* (Pongamia pinnata), and *eranda* (Ricinus communis) have *Vatahara, shothahara* (anti-inflammatory) and *vednasthapana* (pain reducing) qualities. So the present study is planned to assess the efficacy of *Sweda karma* by a comparative study on *Karpasabeeja choorna Pinda Sweda* and *Patra Pinda Sweda for* the management of *Sandhigata vata* w.s.r. to osteoarthritis of knee joint.

Keywords: osteoarthritis, *pinda sweda*, *sandhigata vata*.

INTRODUCTION

Ayurveda – the elixir of life came into existence with the two main objectives as which aims at curing the diseases, prevention of diseases and promotion of health. According to WHO the second most disease prevailing in world population comes under musculo-skeletal diseases. The reported prevalence of Osteoarthritis from a study in rural India is 5.78%. The prevalence of osteoarthritis rises progressively with age such that by 65 years, 80% of people have radiographic evidence of osteoarthritis.[1] When the vitiated *Vata* gets seated in the ashayas, dhathus, sandhis etc., the conditions are termed as *Gatavatas*. In this group, the most important disease condition is *Sandhigatavata*, which is also the most

common joint disorder in the humans. This is a pathological condition which manifests when the *Sandhis* which are the important seat of *Kapha*, are affected by *Vayu.* This disease is characterized by *Prasaranaakunchanapravruthisavedana due to Kandara, Snayu Dusti, Asthi Kshaya, Vaatapoornadruthisparsha* type of *shotha* due to degeneration of cartilage of knee joint (*Sleshmadhara kala), Atopa* due to *Sroto Riktata* at *Janu sandhi (Kleda, Sleshma Kshaya)*. As *Acharya Charaka* has clearly indicated in *Vatavyadhi Chikitsa the Brumhana* measures in different forms like *bhojana, abhyangana, Snigdha Sweda, seka, vasti* etc are beneficial for the patient suffering from *Vataroga.* As *Sandhigatavata* is a *Vatavyadhi* the *snigdha sweda* in the form of *pinda sweda* is more preferred. *Swedana* is the specific treatment for a number of conditions especially in *Vata* dominant diseases where *Swedana* may be *Pradhana Karma*. *Charaka* included *Sweda Karma in Shad upakramas* shows its importance as a principal method of treatment .The drugs used for the purpose of *Swedana karma* should have the qualities like *USNA, Tikshna, Sara, Snigdha, Ruksha, Sukshma, Drava, Sthira and Guru*. *Both Karpasabeeja choorna Pinda Sweda* and *Patra Pinda Sweda* with *Patra nirgundi (*Vitex negundo), *karanja* (Pongamia pinnata), *eranda* (Ricinus communis) have *Vatahara*, *shothahara* (anti-inflammatory) and *vednasthapan*a (pain reducing) qualities. Therefore, this study has been undertaken as an attempt to help the patients suffering from *Sandhigata vata* w.s.r. to osteoarthritis of knee joint in our society and also to evaluate the efficacy of these treatment modalities i.e. *Karpasabeeja choorna Pinda Sweda and Snigdha Patra Pinda Sweda*

Objectives of the Study:

a) To review of literature of *Sandhigata* vata.

b) To evaluate the efficacy of *Karpasabeeja choorna Pinda Sweda* in the Management of *Sandhigatavata.*

c) To evaluate the efficacy of *Patra Pinda Sweda* in the management of *Sandhigata Vata.*

d) To compare the efficacy of *Karpasabeeja choorna Pinda Sweda* and *Patra Pinda Sweda* in the management of *Sandhigata vata*.

Source of data:

Patients, suffering from Osteoarthritis, were selected from O.P.D. and I.P.D. of Muniyal Institute of Ayurveda Medical Sciences and Hospital, Manipal

Inclusion Criteria:-

1. Patients between the age group of 30-70 years of either sex.
2. Patients suffering from signs and symptoms of *Sandhigata vata*.
3. Patients fit for *Swedana* therapy.

Exclusion Criteria:-

1. Patients less than 30 and more than 70 years of age.
2. Patients with structural deformity will not be selected.
3. Patients with gouty arthritis, rheumatoid arthritis and any other serious systemic disorders.
4. Patients unfit for *Swedana* therapy.

Study design:-

This is a clinical comparative study with 40 patients suffering from *Sandhigata vata* will be selected as per inclusion & exclusion criteria. The patients enrolled in the study will be divided into 2 groups –

a) **Group A** will be treated by *Karpasabeeja choorna Pinda Sweda*;

b) **Group B** will be treated by *Patra Pinda Sweda*; each comprising of 15 patients.

The signs, symptoms and other parameters as per the assessment criteria mentioned will be observed before and after the treatment and the results of the two groups will be compared, analysed statistically and discussed.

Treatment plan:

GROUP-A

-*Sthanika Abhyanga* with *Pinyaka taila*.

- *Karpasa beeja choorna Pinda Sweda* will be conducted for 7 days.

GROUP-B

-*Sthanika Abhyanga with Pinyaka taila*.

-*Patra Pinda Sweda* will be conducted for 7 days.

Drug review

Table 1:The Drugs Utilized In The Present Study Are:

Drug	Botanical name	Guna	Virya	
BRIHATÌ	Solanum indicium	*Laghu*	*Usna*	*Vatahara, Kaphahara, Depana, Pacana, Hrdya, Grahi*
KANTAKARÌ	Solanum surattense	*Laghu, ruksha*	*usna*	*Depana, Pacana, amadosanasaka, Kanthya, shothahara, Kaphavata Hara*
GOKSURA	Tribulus terrestris	*Guru, Snigdha*	*sita*	*Vatanut, Vrusya, Brmhana, utrala*
SALAPARNI	Desmodium gangeticum	*Guru*	*Usna*	*Vatadosajit, Rasayani, Bhramahara, Visahara, Santapanasini*
PRSNIPARNI	Uraria picta	*Laghu, Sara*	*usna*	*Deepana, Sangrahi, Vatahara, Sotha-hara*
TILA	Sesamum indicum	*Guru, Snigdha, Sukshma, Vyavayi*	*usna*	*Snehana, Svarya, Snehopaga, Balya, Vataghana, Pittala, Sangrahi, Kesya,*
KSHEERA		*snigdha, Manda Guru, Sheeta, Shlakshna, Pichila*	*laghu*	*Brihmana, Vrusya, medhya,balya jeevaneeya ,sandhanaka ,sarva*

Preparation of *Pinyaka taila*:-

Pinyaka taila is prepared by using ingredients like *Pinyaka of tila, laghu panchamoola (brihati, kanta-kari, shaliparni, prishniparni, and gokshura), tila taila, go ksheera as per charaka samhitha.*

Preparation of *karpasa beeja churna pinda Sweda*:-

Karpasa beeja choorna pinda Sweda is prepared with ingredients like *karpasa beeja, jambeera, saindhava lavana.*

Preparation of *Patra Pinda Sweda*

Patra pinda Sweda is prepared with ingredients like *Patras of nirgundi, karanja, eranda; grated coconut, jambeera*

Table2

Drug	Botanical name	Guna	Verya	Karma
KARPASA BEEJA	Gossypium herbaceum	*Guru, Snigdha*	*sita*	*Hrdya, Varya, Stanyajanana, Kaphakara ,Vatahara*
JAMBEERA	Citrus limon	*Laghu*	*usna*	*Vatahara, Pittakara, Kaphahara, Depana, Pacana*
Saindhava lavana		*Snigdha, Ushna, Tik-shna, Laghu,*	*Anushna Shita and Shita*	*Deepaniyatama (Ch.), Deepana, Pachana, Ruchya, Vrishya*
Eranda	Ricinus communis	*Snigdha, Sukshma, tikshna*	*Usna*	*Kaphavatasamaka, Vrsya, Krmighna, Pittaprakopaka*
NIRGUNDÌ	Vitex negundo	*Laghu*	*usna*	*Kaphasamaka, Vatasamaka, so-phahara, Cakshusyam,Anulomna*
KARANJA	-Pongamia pinnata	*Tikshna*	*usna*	*Bhedana, Kaphahara, Vatahara, Shothahara*
ARKA	Calotropis Gigantea	*Laghu, Ruksha Teekshna*	*Usna*	
Narikela	Cocos nucifera	*Guru, snigdha*	*sita*	*Vatahara, Pittahara, Kaphakara, Balya, Vrsya, Brmhana, Hrdya*

CRITERIA FOR ASSESSMENT

If before treatment, during treatment and after treatment patient will be assessed through case record Proforma based on VISUAL ANALOGUE SCALE.

Objective parameters:

- Range of movements by Goniometer
- Western Ontario McMaster University Osteoarthritis index (WOMAC) arthritis index which is an international index for assessment of arthritis in lower extremity was selected and is based on visual analogue scale.
- Tenderness

Subjective parameters

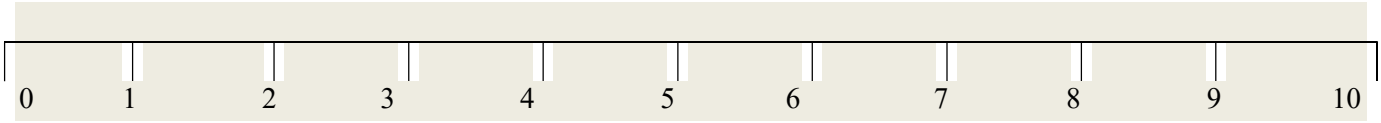
- Pain
- Swelling
- Crepitus
- Stiffness

Scoring pattern (grading):-

- Pain (Scoring pattern)

0 - No pain
1 - Mild pain (up to 3 marks)
2 - Moderate pain (up to 4-6 marks)
3 - Severe pain (up to 7-8 marks)
4 - Intolerable pain (up to 9-10 marks)

Grading of severity of pain was done on the basis of VAS (Visual analogue scale). The most common VAS consists of a 10 cm horizontal or vertical line with two points labelled –no pain and worst pain ever.



- Swelling

0-No Swelling
1-Mild Swelling
2-Moderate Swelling
3-Severe Swelling

- Crepitus

0- No Crepitus
1- Palpable Crepitus
2- Audible Crepitus

- Stiffness :- (Early morning stiffness = EMS)

0- Absence of stiffness
1 - Mild 30 min
2- Moderate 31 min to 60 min.
3- Severe 61 min and above.

- Movement of the knee joint – (degree of flexion)

0 - Normal 130 degrees
1 - Mild 120-130 degrees
2 - Moderate 60-119 degrees
3 - Severe 0-59 degrees

- Tenderness

0 – No tenderness
1 – Patient says the joint is tender
2 - Winces with pain
3 - Winces & withdraws affected part
4 - Does not allow touching the affected part

Duration of the study:-

The study will be of 2 weeks duration.

Follow up:-

There will be two follow ups in both groups in the 2 weeks duration of study.

1st follow up – on the 7th day (the last day of treatment)

2nd follow up – on the 15th day (after 7 days of following the treatment)

Result

The signs and symptoms were assessed before and the after the treatment based on the assessment criteria mentioned earlier. The effects of the therapy are being presented here under separate headings.

- Pre-Post comparison done by paired‘t’ test.
- Unpaired‘t’ test was applied for between group comparison.

Effects of *Karpasabeeja choorna Pinda Sweda*

Table 3: There is an extremely significant change in all the signs and symptoms

Signs and symptoms	BT			BT-AT	%	Sd	Se	T value	P value
Pain	1.800	AT	0.8000	1.000	55.55%	0.3244	0.07255	13.784	<0.0001
		FU	0.6500	1.150	63.88%	0.5871	0.1313	8.759	<0.0001
Stiffness	1.100	AT	0.2000	0.9000	82%	0.06882	0.3078	13.077	<0.0001
		FU	0.6000	0.6000	52.15%	0.50260	0.1124	5.339	<0.0001
Swelling	0.9500	AT	0.3500	0.6000	63%	0.5026	0.1124	5.339	<0.0001
		FU	0.4000	0.5500	57.89%	0.5104	0.1141	4.819	0.0001
Creptius	1.450	AT	0.5000	0.9500	66%	0.3940	0.08811	10.782	<0.0001
		FU	0.6000	0.8500	58.62%	0.3663	0.08192	10.376	<0.0001
Tenderness	1.400	AT	0.6000	0.8000	57%	0.4104	0.09177	8.718	<0.0001
		FU	0.7000	0.7000	50%	0.4702	0.1051	6.658	<0.0001
Range of move-ments	1.650	AT	0.7000	0.9500	58%	0.2236	0.05000	19.000	<0.0001
		FU	0.5000	1.150	69.69%	04894	0.1094	10.510	<0.0001
Womac	2.750	AT	1.100	1.650	60%	0.5871	0.1313	12.568	<0.0001
		FU	1.000	1.750	63.63%	0.5501	0.1230	14.226	<0.0001

Effects of *Patra Pinda Sweda*

Table 4: There is an extremely significant change in all the signs and symptoms

Signs and symptoms	BT			BT-AT	%	Sd	Se	T value	P value
Pain	1.900	AT	0.9500	0.9500	50%	0.2236	0.05000	19.000	<0.0001
		FU	0.7000	1.200	63.15%	0.4104	0.09177	13.077	<0.0001
Stiffness	1.3500	AT	0.4000	0.9500	70%	0.3940	0.08811	10.782	<0.0001
		FU	0.5500	0.8000	59%	0.5231	0.1170	6.839	<0.0001
Swelling	0.8000	AT	0.3000	0.5000	62.5	0.5130	0.1147	4.359	<0.0003
		FU	0.3500	0.4500	56.25	0.5104	0.1141	3.943	<0.0009
Creptius	1.250	AT	0.5500	0.7000	56%	0.4702	0.1051	6.658	<0.0001
		FU	0.4500	0.8000	64%	0.6156	0.1376	5.812	<0.0001
Tenderness	1.150	AT	0.5500	0.6000	52%	0.5026	0.1124	5.339	<0.0001
		FU	0.3500	0.8000	69.56%	0.6959	0.1556	5.141	<0.0001
Range of move-ments	1.7200	AT	0.8000	0.9000	52.%	0.6407	0.1433	6.282	<0.0001
		FU	0.9000	0.8000	45.71.%	0.4104	0.09177	80718	<0.0001
Womac	2.600	AT	1.300	1.300	50%	0.6569	0.1469	8.850	<0.0001
		FU	1.250	1.350	51.92%	0.5871	0.1313	10.283	<0.0001

Table 4: Comparison between groups

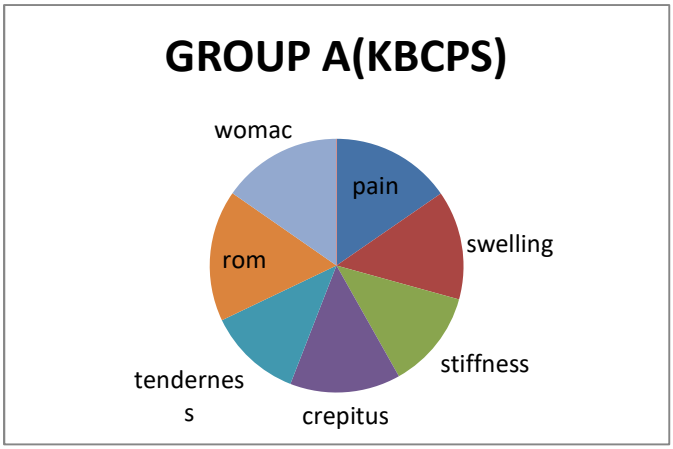
Signs and symptoms		Mean Difference		T value	P value	Remarks
		A	B			
Pain	AT	0.2000	0.2500	0.3258	0.7464	Ns
	FU	0.2000	0.05000	1.435	0.1594	Ns
Swelling	AT	0.6000	0.2500	2.101	0.0424	cs
	FU	0.6000	0.2500	2.101	0.0424	cs
Stiffness	AT	0.7500	0.4000	1.926	0.0616	Nqs

	FU	0.7500	0.6000	0.8254	0.4143	Ns
Creptius	AT	0.5000	0.2500	1.486	0.1454	ns
	FU	0.4500	0.3000	0.8757	0.3867	Ns
Tenderness	AT	0.8500	0.5500	1.485	0.1457	ns
	FU	0.8500	0.7500	0.5155	0.6092	Ns
Range of movements	AT	0.8500	0.7000	0.5878	0.5602	Ns
	FU	0.8500	0.7500	0.3801	0.7060	Ns
womac	AT	0.8500	0.7500	0.5155	0.6092	ns
	FU	0.8500	0.7500	0.5155	0.6092	ns

There is a statistically no significant difference in all signs and symptoms except in case of swelling where The mean difference of swelling in group A(0.6000) is more than in groupB(0.2500) with a statistically considered significant change with P = 0.0424.

Table 5: PERCENTAGE COMPARISON between both groups

Signs and symptoms	KBCPS	PPS
Pain	63.88%	63.15%
Swelling	57.89%	56.25%
Stiffness	52.15%	59.25%
Creptius	58.62%	64%
Tenderness	50%	69.56%
Range of movements	69.69%	45.71%
womac	63.63%	51.92%
Total	59.41%	58.54%



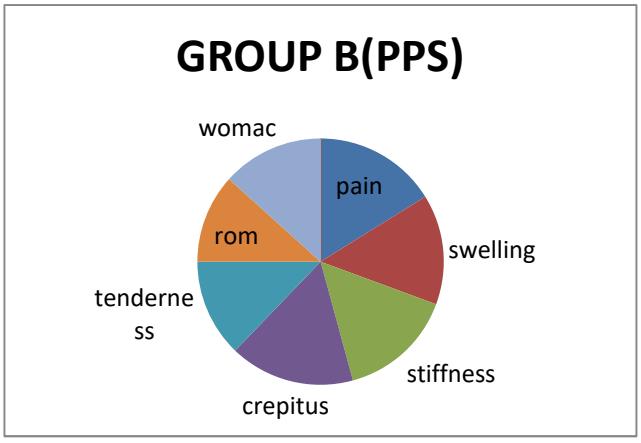


Table 6: ASSESSMENT OF TOTAL EFFECT OF THERAPY

	KBCPS		PPS	
Status	Cases	Result	Cases	Result
Cured (100%)	0	0.00%	0	0.00%
Marked Improvement (76- 99%)	2	10%	3	15

Improved (51-75%)	13	65%	11	55
Marginal Improvement (26- 50%)	5	25%	6	30
No Improvement (0-25%)	0	0%	0	0

While comparing the effect of treatment,

- None of the patients from group KBCPS and group PPS got good and poor response
- 2 patients (10%) from group KBCPS and 3 patients (15%) from group PPS got marked response.
- 13 patients (65%) from group KBCPS and 11 patients (55%) from group PPS got moderate response
- 5 patients (25%) from group KBCPS and 6 patients (30%) from group PPS got marginal response

DISCUSSION

Sandhigatavata is *madhyamarogamargagata Vatika* disorders in which *vitiated Vata* gets lodged in *Sandhi.* Symptoms of *Sandhigatavata* are *sandhishula, sandhi shotha, Akunchana Prasarana janya Vedana, hanti sandhi gati, stambha and Atopa* described by various Acharya. Here, *sandhishula, sandhi shotha* are due to *vata prakopa* and special type of *shotha* i.e. *vatapoorna druti sparsha* or *Atopa* indicate vata dominancy. *Akunchana prasaranjanya vedana and hanti sandhi gati* occur due to *kaphakshya* and *vata prakopa.*

Symptoms of *Sandhigatavata* are similar to that of osteoarthritis i.e. joint pain, swelling, stiffness, disability and crepitation over joint. *Acharya Sushruta and* Acharya *Vaghbatta* has described specific treatment for the *Sandhigatavata* first time i.e. *Snehana, Upanaha, Agni karma, Bandhana and Mardana* 4,5 *Acharya Charaka* has mentioned repeated use of *Snehana, Swedana, Basti and Mridu Virechana* for the treatment of *Vatavyadhi* in general. It is believed that, once osteoarthritis has taken place, then it is very difficult to reverse or block the disease process. Till date, no treatment is available that can reverse or slow or block the disease process. Allopath science has only palliative treatment for osteoarthritis. In the same way, *Ayurveda* has mentioned that *sandhigatavata* is a *Kashtasadhya vyadhi*8 because all the *Vatavyadhi* are difficult to cure and they are said as *Mahagadha*. Being a *Vatavyadhi, sandhigatavata* is of *Kashtasadhya* in prognosis, situated in *Madhyama Rogamarga, Asthi* and *Majja* are its *Dushya*. Being a *jarajanya vyadhi*, *Dhatu kshaya*, *Vriddhavastha* also make the disease *Kashtasadhya.*

Swedana karma is also a very useful panchkarma modality used as a *poorvakarma* (Preparatory procedures) and main therapeutic measure. Swedana is specially indicated in symptoms like sankocha (stiffness), ayama (pain) shoola (tenderness), stambha (restricted movement), Gaurava (heaviness) 4.virtually all these indications are cardinal symptoms of sandhigata vata. In this way Swedana might play crucial role in relief of such symptomatology of sandhigata vata.

This attribute is a resultant of excess seetha guna and also influence of factors such as samana vata, Sleshaka kapha, Ama, mamas, vasa & medas is contributory to the production of stambha. Samana vata is rooksha guna Pradhana and hence if vitiated does excessive shoshana of shareera there by producing contractures and stiffness. Sleshaka kapha is snigdha and pichila and hence if decreased (kshaya) results in less lubrication of joints causing stiffness. Swedakarma being snigdha and Ushna corrects both these deranged dosha ghatakas and relieves stiffness. Here the pain and stiffness are two symptoms present in the disease which can be attributed the Vata and Kapha dosha lakshana. So, Sweda is the best line of treatment.

Karpasa beeja choorna pinda sweda & Patra pinda sweda are used which relieves the pain and stambatwa. By Swedana we can get the effects like twak

mruduta, twakprasada, srotoshodhana, stabdhatwa in the sandhis are relieved and becomes easy for chesta. Charaka while explaining the effects of Swedana he says it is best in sankocha, ayama, shoola, sthambha etc. all the vikaras of sarvanga and ekanga.

Probable Mode of Action

By Swedana process, our body temperature is increased and due to increase in body temperature, sympathetic activities are also increased. Because of increased sympathetic activities hormones like Epinephrine, Norepinephrine Cortisol, Thyroid hormones are released which accelerate the metabolic rate and stimulate the process of lipolysis. As a result of increased metabolism there is increased demand for oxygen and increased output of waste products. It can be correlated with digestion of Ama

As a result of Vasodilatation there is an increased blood flow through the area so that the necessary oxygen and nutritive materials are supplied and waste products are removed. It can be correlated with Sroto-Mukha-Vishodhanat.

- Ushna Guna also increases circulation of Rasa and Rakta
- A high temperature of blood stimulates sweat glands of the skin via hypothermic activation of sympathetic nerves and by this procedure excessive sweat production takes place. With the increased Sweat production more waste products are expelled out of the body through the medium of sweat. Hence, it can be said that Swedana corrects Swedovaha- Sroto-dusti.
- Due to the effect of Sara and sookshma gunas of swedana dravyas, the leena doshas are liquefied in in our body they come out through the pores of sweat glands which are present over the skin
- By the help of Ushna teekshna Guna of the pinda sweda drugs used agni deepanam will occur which results amapachana

The overall observation on 40 patients of sandhigata vata in the present study reveals that – maximum number of patients are in the 50-60 (32.5%) age group. Maximum number of patients were females (62.5%). s*andhigata Vata* starts at the age of 40 which is declining stage of *Madhya Vayu*. According to sex 59.18% were female patients, which indicates that *Sandhigata Vata* is more common in female and here the lack of female hormone (oestrogen) in the pre-menopausal period also plays an important role. Due to *Dhatu kshaya (Rasa Dhatu)* aggravation of *Vayu* occurs that causes the *Sandhigata Vata*. In Prakrutiwise distribution shows that *Vata-Kapha* and vatapitta predominance was found in 40% of patients, due to *Vayu* of patients and also intake of the *Vata Vardhaka Nidana*. While 62.5% patients did not have regular exercise in their routine life. Lack of practice or exercise gradually leads to the weight gain which ultimately leads to *Sandhigata Vata*. In case of chronicity, 22.5%patients were found in chronic stage & 72.5% were having gradual type of onset. Based on the symptoms all 40 patients have the symptom of pain, 37 patients have stiffness, 36 patients have crepitus and 30 patients have swelling and tenderness

Swedana with karpasa beeja choorna pinda sweda i.e group A has provided better relief in the disease *Sandhigata Vata* (Osteoarthritis) in the present study. While comparing the effect of treatment None of the patients from GROUP A(KBCPS) and GROUP B(PPS) got good and poor response, 2patients (10%) from GROUP A(KBCPS and 3 patients (15%) from GROUP B(PPS), got marked response. 13patients (65%) from GROUP A(KBCPS and 11 patients (55%) from GROUP B(PPS), got moderate response ,5patients (25%) from GROUP A(KBCPS and 6 patients (30%) from GROUP B(PPS), got marginal response

CONCLUSION

- This study was designed with a sample size of 40 distributed among two groups 20 each each based on classical signs and symptoms of sandhigata vata.
- Choorna pinda sweda is one among ushma sweda
- No complications of Sweda (atiyoga, ayoga and mitya yoga) were absorbed in this study.

- Treatment response of all parameters was highly significant in both the groups,
- Pain, swelling, Range of movement and womac were found to be having significant in Karpasa-beeja choorna pinda sweda than Patra pinda Sweda.
- In order to maintain the effects achieved by the procedure we have to use samana oushadies to sustain it.
- Though both groups are effective but still GROUP a (KBCPS) is found to be more effective in sandhigatavata.

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