

## A COMPARATIVE CLINICAL TRIAL OF PIZHICCHIL AND PIZHINJUTADAVAL IN OSTEOARTHRITIS w. s. r to SAMYAKSVINNALAKSANA

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### ABSTRACT

**Background and Objectives:** The study “A Comparative clinical trial of *Pizhicchil* and *Pizhinjutadaval* in Osteoarthritis w. s. r to *Samyaksvinnalākṣaṇa*” is focused on the important techniques *Pizhicchil* and *Pizhinjutadaval* and a common disorder Osteoarthritis. *Pizhicchil* and *Pizhinjutadaval*, as *snehasveda* are believed to have a noteworthy role in management of degenerative conditions by imparting strength to body. **Methods:** Assess and compare the *Samyaksvinnalākṣaṇa* of *Pizhicchil* and *Pizhinjutadaval* in twenty participants satisfying the eligibility criteria who were selected from OPD of VPSV Ayurveda College Hospital and admitted in IPD. The subjective and objective assessments were done. **Results & Discussion:** *Samyaksvinnalākṣaṇa* were statistically similar in both groups where as the mean was more in *Pizhicchil* except in *Vyādhi mārḍava*. Sweat rate, reduction in urine frequency and output, reduction in serum Creatinine, blood urea and serum electrolytes were more in *Pizhicchil* and improvement in VAS and AIMS were more with *Pizhinjutadaval*. **Conclusion:** Both *Pizhicchil* and *Pizhinjutadaval* are statistically equally effective in producing *samyaksvinna lakṣaṇa* in Osteoarthritis. Production of *sveda* was more in *Pizhicchil* but the symptomatic relief was more in *Pizhinjutadaval*

**Keywords:** *Pizhicchil*, *Pizhinjutadaval*, Osteoarthritis, *Samyaksvinnalākṣaṇa*

### INTRODUCTION

*Pizhicchil* is otherwise called as the King of *Keraleeya Pancakarma* and is the most popular among them. It comes under *drava sveda* and serves the purpose of both *snehana* and *svedana*. This is a treatment modality which is applicable to both *swastha* and *ātura*. The terms like *Pizhinjuveezhth*, *Pizhinjupakarccha*, *Mukkippizhicchil*,

*Sarvangadhāra* and *Kāyaseka* are usually used synonymously with *Pizhicchil*<sup>1</sup>. On *Kāyaseka*, very little references are available in *Aṣṭāṅga Hr̥daya*, *Susruta Samhita* and *Caraka Samhita*. The word *Pizhicchil* literally means ‘Squeezing’ in which the body is made to perspire by means of warm medicated oil squeezed out from a piece of cloth.

*Pizhinjutadaval* is a modified form of *Pizhicchil* which is conventionally practiced very widely all over Kerala. It is cost effective *sveda karma* when compared to *Pizhicchil*. No references as such are available on the procedure even though it has been there in practice since a few decades.

**Need and Significance of the study:** *Svedakarma* is one among the *pūrvakarmas* and itself is said to be the best treatment for *Vāta* and *Kapha* disorders<sup>2</sup>. *Drava sveda* is one among the 4 types of *svedakarma* described by *Samhitas*<sup>3,4</sup>. Among them *Kāyaseka* or *Pizhicchil* serves this purpose, which also relieves the pain and nourishes the body.

Osteoarthritis is the most common joint disorder worldwide. The overall prevalence of the disease in the population above 40 years of age is about 49% with a female to male ratio 3:1<sup>5</sup>. In the contemporary system of medicine, NSAIDs and surgery are practiced in the management of this disease, but have their own limitations. The disease restricts the normal movement of the affected joint, therefore rendering the patient incapable of performing his/her daily activities. So in search of an effective and cost effective therapeutic measure to counter the degenerative process and also provide cure to the disease, *Pizhicchil* and *Pizhinjutadaval* were considered as the therapy.

The domain of *svedana* is a less explored research area. The studies on *Pizhicchil* mainly focused on its efficacy in comparison with other treatment procedures only. The selection of the procedure *Pizhicchil* or *Pizhinjutadaval* is usually based on economic reasons rather than scientific ones. There is so far no study conducted on *Pizhinjutadaval*. Also no pro forma has been developed yet to assess the *samyaksvinnalakšana* in *Pizhicchil*. Hence this study has been undertaken to compare *Pizhicchil* and *Pizhinjutadaval* in Osteoarthritis

### Objectives:

- To assess the *samyaksvinnalakšana* of *Pizhicchil* in Osteoarthritis
- To assess the *samyaksvinnalakšana* of *Pizhinjutadaval* in Osteoarthritis
- To compare the *samyaksvinnalakšana* of *Pizhicchil* and *Pizhinjutadaval* in Osteoarthritis

### Materials and methods:

**Ethical committee clearance:** The study was placed before Institutional Ethics Committee (IEC) prior to the starting of the work in a meeting held on 27/04/2017. The whole plan of the study was approved by IEC (Approval No: IEC/CI/15/15). Consent form in regional language was prepared and prior consent of all the participants were obtained in the consent form.

**Study design:** Comparative clinical trial

**Sampling technique:** Random sampling

**Sample size:** 20

Group A: 10 (*Pizhicchil*), Group B: 10 (*Pizhinjutadaval*)

**Study setting:** IPD of VPSV Ayurveda College Hospital, Kottakkal

**Duration:** 18 months

**Diagnostic criteria**<sup>6</sup>:

- As per the American College of Rheumatology (Hip, Knee, Hand)<sup>7,8</sup>
- Spine- X-Ray+ Radiating pain, Morning stiffness, Neurological Symptoms-Numbness, Tingling

**Inclusion criteria:**

- Participants diagnosed with Osteoarthritis, *Sveda arha*, Age group 40 to 70 years, Involvement of more than one joint, BMI  $\leq$  30, Sex no discrimination, Participants who have given informed consent

**Exclusion criteria:**

- Persons having other systemic illness
- Any other condition which the guide think may jeopardize the study

**Withdrawal criteria:**

- Participants develop any serious adverse effect during procedure
- Non-compliance of the participant with *Pizhicchil* and *Pizhinjutadaval* procedure and regimen

Participants satisfying eligibility criteria were selected and allocated into two groups following random number table

Group A- 10 participants (*Pizhicchil*), Group B- 10 participants (*Pizhinjutadaval*)

**Assessment criteria:** Assessment done by following subjective and objective parameters

**Subjective parameters:**

- *samyak svinna lakṣaṇa* (Daily)
- Event evaluation scale (Daily)

(Event Evaluation Scale was prepared by including *svedana ayoga* and *atiyoga lakṣaṇa*)

VAS (Visual Analogue Scale) for pain

before and after treatment

AIMS for functional improvement

**Table1: Assessment Pro forma for Samyak Svinna Lakṣaṇa**

Lakṣaṇa	Days							Total days
	1	2	3	4	5	6	7	
1. <i>Śītakṣaya</i> (Relief of coldness)								
2. <i>Śūlakṣaya</i> (Relief of pain)								
3. <i>Stambha nigraha</i> (Relief of stiffness)								
4. <i>Gourava nigraha</i> (Relief of heaviness)								
5. <i>Mārdava janana</i> (Softness of skin)								
6. <i>Sveda srāva</i> (Sweat production)								
7. <i>Dīptāgni</i> (Digestive power)								
8. <i>Vyādhihāni</i> (Relief of symptoms)								
<b>Sweat rate(ml/ Hr)</b>								
Weight before <i>svedana</i> (BT)								
Weight after <i>svedana</i> (AT)								
BT-AT (gms)								
Sweat rate= (BT-AT)/ 35 min*60								
Average sweat rate (ml/ Hr)								

**Table 2: Average sweat rate**

Average Sweat rate(ml/Hr)	Grade
>600	Grade 1
401-600	Grade 2
<400	Grade 3

**Evaluation of *Samyak svinna lakṣaṇa*:**

- *Uthama sveda*- >5 *lakṣaṇa* for >5 days+ Sweat rate G 1
- *Madhyama sveda*- 3-5 *lakṣaṇa* for >5 days+ Sweat rate G 2
- *Avara sveda*- <3 *lakṣaṇa* for <5 days+ Sweat rate G3

**Objective parameters:**

- Vital parameters: Blood Pressure, Heart Rate, Pulse Rate, Rectal Temperature
- Blood: Fasting blood sugar, Post prandial blood sugar, Serum Creatinine, Blood urea, Packed cellvolume, Serumelectrolytes (Na<sup>+</sup>, K<sup>+</sup>, Cl<sup>-</sup>)
- Sweat rate (Daily)
- Urine –Output and frequency

**Intervention:****Table 3:** Particulars of intervention

Particulars	Group A	Group B
Sample size	10	10
Procedure	<i>Pizhicchil</i>	<i>Pizhinjutadaval</i>
Medicine	<i>Ceriya Cincādi tailam</i> (GMP Certified)	<i>Ceriya Cincādi tailam</i> (GMP Certified)
Quantity	5L	3L
Time duration	35minutes/day	35 minutes/day
Duration	7 days	7 days
Time	8-12 pm	8-12pm
Temperature of <i>taila</i>	42-45 degree C	42-45 degree C

***Pūrvakarma*:**

- *Udvartanam* with *yava kola kulattha chūrṇam*- 3days
- Internally-*Gandharvahastādi Kaṣāyam*, 90 ml BD

***Pradhānakarma*:**

- *Pizhicchil* or *Pizhinjutadaval*
- Internally *Gandharvahastādi Kaṣāyam*, 90 ml BD
- *Gandharvahasta eraṇdam*-5 ml with morning *Kaṣāyam*
- *Talam* with *Dhanvantaram tailam*

***Paścātkarma*:**

- Rest for 1hour
- Hot water bath
- Apply *Rāsnadi Cūrṇa* over vertex

**Data analysis:** The subjective parameters and objective parameters were tabulated and subjected to statistical analysis manually with the help of Excel work sheet, SPSS soft ware and Graph Pad InStat version 3.10 and the results were analyzed statisti-

cally using paired ‘t’ test within the group and unpaired ‘t’ test between the groups.

**Observations and analysis: Effect on Arthritis Impact Measurement Scale:** Initial mean AIMS score was 32.5 and reduced to 22.3 after the treatment in group A while in group B 31.2 before the treatment was reduced to 20.9 after the treatment and in between the group the p value was >0.05.

**Effect on Visual Analogue Scale:** Initial mean VAS score was 2.4 and reduced to 1.2 after the treatment in group A while in group B 2.6 before the treatment was reduced to 1.1 after the treatment and in between the group the p value was >0.05.

**Effect on sweat rate:** Mean sweat rate in group A was 658.6 and in group B was 635.8. On comparing the groups the difference was statistically not significant.

**Effect on urine frequency and output:** The initial mean urine frequency was 7.3and reduced to 5.5 after the treatment in group A while in group B 7.1 before the treatment was reduced to 5.7 after the treatment and in between the group the p value was

>0.05. The initial mean urine output was 2075 and reduced to 1726 after the treatment in group A while in group B 1910 before the treatment was reduced to

1657 after the treatment and in between the group the p value was >0.05

**Table4:** Blood sugar

Fasting blood sugar	BT	AT	t value	p value
A	110.3	106.0	2.3	P<0.05
B	104.5	101.4	2.2	P>0.05
Post prandial blood sugar				
A	154.9	147.6	1.1	P>0.05
B	140.2	144	<b>0.6</b>	p>0.05

**Table 5:** Lipid profile

Total cholesterol	BT	AT	t value	p value
A	215.2	201.7	1.7	p>0.05
B	198.2	195.7	0.4	p>0.05
Triglycerides				
A	161.5	153.8	1.1	p>0.05
B	178.5	182.1	0.19	p>0.05
HDL				
A	44.5	43.6	1.1	p>0.05
B	45.1	43.1	2.6	P<0.05
LDL				
A	138.5	133.3	1.6	p>0.05
B	116.5	112.5	0.9	p>0.05
VLDL				
A	31.5	29.5	1.8	p>0.05
B	31.2	28.2	3	P<0.05

**Table6:** Effect on blood parameters

Packed cell volume	BT	AT	t value	p value
A	37.8	36.8	1.95	p>0.05
B	37.6	35.8	3.7	P<0.01
Serum Creatinine				
A	0.96	0.89	2.8	P<0.05
B	0.92	0.930.2	0.2	P>0.05
Blood Urea				
A	25.9	23.0	2.6	P<0.05
B	24.3	22.9	1.7	P>0.05

**Table 7:** Serum Electrolytes

Sodium	BT	AT	t value	p value
A	141.6	138.7	2.4	P<0.05
B	141.7	138.9	3.6	P>0.05
Potassium				

A	4.3	4.1	2.1	P>0.05
B	4.5	4.4	1.5	P>0.05
Chloride				
A	103.1	101.2	2.5	P<0.05
B	100.8	99.9	1.1	P>0.05

**Table 8:** Vital parameters

Heart rate	BT	AT	t value	p value
A	74.7	74.3	1.3	p>0.05
B	76.2	75.2	4.7	P<0.05
Pulse rate				
A	74.7	74.3	1.3	p>0.05
B	76.2	75.2	4.7	P<0.05
Respiratory rate				
A	18.2	17.8	2.4	P<0.05
B	18.3	17.9	T+=10 T-=0	p>0.05
Blood Pressure-Systolic				
A	126.3	125.4	2.1	p>0.05
B	128.7	127.7	2.7	P<0.05
Blood Pressure-Diastolic				
A	82.3	82.3	0	p>0.05
B	81.8	81	2.4	P<0.05
Rectal Temperature				
A	98.9	98.8	T+=36, T-=0	P<0.01
B	99.1	99.0	6.1	P<0.001

**Effect of therapy on *Samyak svinna lakṣaṇa*:**

The effect of therapy on *samyak svinna lakṣaṇa* attained by both the groups was calculated from the percentage of participants. In both Groups A and B,

100% of the participants attained *lakṣaṇa* like *Sītākṣaya*, *Mārdava janana*, *Sveda srāva* and *Dīptagni*. Hence there was no statistical difference between the groups on that *lakṣaṇas*.

**Table9:** Effect of therapy on *Samyak svinna lakṣaṇa*

Lakshana	Mean	SD	t value	p value
<i>Sooakshaya</i>				
A	72.9	38.2	0.1	0.9
B	70.0	42.0		
<i>Stambha nigraha</i>				
A	75.7	29.9	0.2	0.8
B	70	42.8		
<i>Gourava nigraha</i>				
A	75.7	29.9	0.2	0.8
B	70	42.8		
<i>Vyadhimardava</i>				
A	54.3	41.2	0.7	0.5
B	70.0	42		

## RESULTS & DISCUSSION

On analyzing the obtained data it was found that in both the groups, the effect of therapy on AIMS and VAS were equally significant where as the mean reduction was more in *Pizhinjutadaval*. On sweat rate, there had no significant difference between the groups, but the mean production was more with *Pizhicchil*. In case of urine output and frequency, there had significant reduction in both, whereas mean reduction was more in *Pizhicchil*. In case of blood parameters, there has significant reduction in Serum Creatinine, blood urea and serum electrolytes after treatment in *Pizhicchil*.

On analyzing the *samyaksvinnalaksana*, *Sheetakshaya*, *Mardava janana*, *Swedasrava* and *deeptagni* were found equally in both groups, *Shoolakshaya*, *Stambha nigraha*, *Gourava nigraha* was found more in *Pizhicchil* where as the *vyadhimardava* was obtained more after *Pizhinjutadaval*.

**Probable mode of action:** Osteoarthritis is a disease that occurs due to *Dhatukshaya* which in turn lead to *vata prakopa*. Hence the treatment adopted should be *Vata kaphahara* and *shoolahara*. As a *snehasweda*, *Pizhicchil* works as *Dhatu dardyakara* and medicine used, *Chinchadi taila* itself is *sarvanga vatanut*. In *Pizhinjutadaval*, the additional benefit of massage is also taking part that makes it more *vata hara*.

## CONCLUSION

- Both *Pizhicchil* and *Pizhinjutadaval* are statistically equally effective in producing *samyaksvinnalakṣaṇa* in Osteoarthritis.
- *Pizhicchil*. Is statistically more effective in reducing Serum Creatinine, Blood Urea and Serum Electrolytes.
- Mean Sweat rate is more in *Pizhicchil* and reduction in urine frequency and output was also more in *Pizhicchil*.
- Mean reduction in AIMS and VAS was more in *Pizhinjutadaval*
- The *lakṣaṇa Vyādhimārdava* was observed more with *Pizhinjutadaval*

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