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COMPARATIVE STUDY OF SAHACHARA TAILA AND SAHACHARADI TAILA ABHYANGA IN JANU SANDHIGATA VATA

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ABSTRACT

Sandhigata vata is described under Vatavyadhi in Ayurvedic texts. It can be correlated with Osteoarthritis in modern science. Osteoarthritis is also known as a degenerative arthritis that results from breakdown of joint cartilage. It mainly affects weight bearing joints of the body especially knee joints. In Ayurveda literatures, Snehan (Oleation) is the first line of treatment for Vata vyadhi. In this clinical study, comparison of two oils i.e. Sahachara taila and Sahacharadi taila is done in the form of Abhyanga in Janu Sandhigata vata. This study has shown that Sahacharadi taila is more effective in relieving Pain while Sahachara taila is more effective in Atopa (crepitus).

KEYWORDS: Sahachara taila, Sahacharadi taila, Abhyanga, Sandhigata vata, Janu Sandhi.

INTRODUCTION

Life, in present era has become nothing less than a rat-race for achieving financial gains which lead to stressful life. Avoiding unctuous food like pure ghee etc. is on the top of list with busy hectic working hours, lack of exercise and improper posture. These all wrong diet and working lifestyle leads to vitiation of Vata. When it vitiates in joints, it is known as Sandhigata vata. Due to all these reasons, every class is prone for several lifestyle disorders in which Sandhigata vata is one of them.

Snehana can be given mainly by two ways

a) Local Application & b) Oral Administration

In Ayurveda Samhita, there are many medicated oils have been described as an oleation treatment[1] in Vata vyadhi, where Acharya Vagbhata has stated two options of medicated oil i.e. Sahachara taila and Sahacharadi taila.[2] Acharya Charaka has stated only Sahachara taila in Vata vyadhi[3] & the study work of external application of Sahachara taila in Sandhigata vata has already done before. So considering its severity, variability, chronicity and high rate of occurrence; it is tempted to study the comparison between Sahachara taila and Sahacharadi taila abhyanga in Janu Sandhigata vata.

PURPOSE OF SELECTION OF TOPIC

- Number of patients suffering from Sandhigata vata especially Janu sandhi are becoming quite high as it is weight bearing joint.
- Many drugs are being used to get relief in pain of sandhigata vata within restricted limitations.
- Research on Sahachara taila abhyanga has been already established before, So it is decided to carry out comparative study of Sahachara taila and Sahacharadi taila abhyanga in same condition.

Aim: To study the comparison between Sahachara taila and Sahacharadi taila abhyanga in Janu Sandhigata vata as Vata shaman.

Objectives

- To develop evidence based support for the efficacy of Sahacharadi taila compare to Sahachara taila.
- To observe adverse effects of said aids, if any.

MATERIAL AND METHODS

Clinical study

Patients having Janu Sandhigata vata were selected for the research work. Total 60 patients were selected. The study completed in two groups.

Group A (Control group): 30 patients of Sahachara taila

Group B (Trial group): 30 patients of Sahacharadi taila.

It was randomized single blind comparative control group study.

SELECTION OF PATIENTS

All patients of Sandhigata vata of Janu sandhi attending OPD and IPD at Seth Tarachand Ramnath Hospital, Pune & Nanal Hospital, Pune were selected irrespective of sex, religion, economical status, education, occupation etc.

INCLUSION CRITERIA

1) Patients of Dhatukshayajanya janu sandhigata vata.
2) Sex: Male and Female.
3) Age: 30 to 70 Years.
4) Patient giving written consent.
5) Pain VAS of knee joint ≥4 at rest/ after activity in last 48 hours.

EXCLUSION CRITERIA

1) Patients of Amavata, Vatarakta, Kroushthukashirsha, etc.
2) Fracture of Knee Joint.
3) Need of Surgical care.
4) Major illness since long time.

WITHDRAWAL CRITERIA

1) Occurrence of Serious adverse events.
2) Patients absence for more than 2 days will be considered as dropped out from this project.

Drug preparation

1) Sahachara taila

The essential components were taken as follows.

A) Kwatha i.e. Sahachara (Barleria prionotis) kwatha 1 tula.
B) Kalka i.e. Sahachara kalka 10 pala.
C) Sneha i.e. Tilataila (Sesamum indicum) 1 adhaka and Godugdha (Cow's milk) 4 adhaka.
D) Sharkara (Sugar)18 pala.

The above mentioned kwatha and kalka mixed together. Tila taila and Godugdha added, boiled and stirred well continuously so that the kalka will not adhere to pot. When all the drava dravya get evaporated and samyaka sneha siddhi lakshana[4] is observed so that Madhyama snehapaka is achieved.

2) Sahacharadi taila

A) Kwatha i.e. Sahachara (Barleria prionotis)kwatha 1 tula.

B) Kalka i.e. Tagara (Valeriana wallichii), Vacha (Acorus calamus), Shaliparni (Desmodium gangeticum), Kushtha (Saussurea lappa), Devadaru (Cedrus deodara), Sookshma Ela (Elattaria cardamom), Nalada (Vetiveria zizanioidis), Shaileya (Parmelia perlata), Shatavha (Anethum sowa), Raktachandana (Pterocarpus santalinus) Each 10 pala.

C) Sneha i.e. Tilataila (Sesamum indicum) 1 adhaka.

D) Sharkara (Sugar) 18 pala.

The above mentioned kwatha and kalka were mixed together. Tilataila added and same procedure done as previous.

Method of administration

1. Form: Abhyanga.
2. Dose: 15 to 25 ml per joint (As per requirement).
3. Duration of therapy: For 14 days.
4. Time of Abhyanga: 5 min. on each janu sandhi, once in a day.[5]
5. Follow up: 0 to 14th, 21st and 28th day.

PROCEDURE

A) Poorvakarma

1) Selected patient was examined thoroughly.

2) Informed consent was taken.

3) Patient was allowed to lie in supine position on abhyanga table.

B) Pradhanakarma

1) Abhyanga performed by warm either Sahachara taila or Sahacharadi taila on janu sandhi.

2) It was done in circular manner with adequate moderate pressure.

3) At the same time, it was observed that temperature of the oil is bearable to the patient.

C) Paschatakarma

1) Janu sandhi cleaned with warm towel.

2) Patient is kept at Nirvata sthana for 15 minutes.

3) Patient is allowed to go home with cloths properly covering the sandhi.

OBSERVATION

STATISTICAL ANALYSIS TABLE

1a) Effect of therapy on Shoola in Group A

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	2.133	0.6814	0.1244	12.522	< 0.0001	Significant
A.T	0.2667	0.4498	0.0812			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

1b) Effect of therapy on Shoola in Group B

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	2.600	0.4983	0.09097	19.039	< 0.0001	Significant
A.T	0.2667	0.4498	0.08212			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

2a) Effect of therapy on Shotha in Group A

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	37.953	2.843	0.5191	0.3826	> 0.0001	Not Significant
A.T	37.673	2.825	0.5158			

Since P value is not less than 0.0001, we reject H_1. Hence the treatment is not effective on this symptom.

2b) Effect of therapy on Shotha in Group B

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	37.970	2.879	0.5256	1.200	> 0.0001	Not Significant
A.T	37.093	2.777	0.5071			

Since P value is not less than 0.0001, we reject H_1. Hence the treatment is not effective on this symptom.

3a) Effect of therapy on Atopa in Group A

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	2.133	0.6814	0.1244	12.522	< 0.0001	Significant
A.T	0.2667	0.4498	0.08212			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

3b) Effect of therapy on Atopa in Group B

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	1.367	0.5561	0.1015	4.044	< 0.0001	Significant
A.T	0.833	0.4611	0.08419			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

4a) Effect of therapy on Graha in Group A

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	1.600	0.6215	0.1135	5.854	< 0.0001	Significant
A.T	0.733	0.5208	0.09509			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

4b) Effect of therapy on Graha in Group B

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	1.500	0.6823	0.1246	4.980	< 0.0001	Significant
A.T	0.7667	0.4302	0.07854			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

5a) Effect of therapy on VAS in Group A

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	8.190	0.5756	0.1051	15.846	< 0.0001	Significant
A.T	3.680	1.449	0.2645			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

5b) Effect of therapy on VAS in Group B

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	8.000	0.6638	0.1212	25.833	< 0.0001	Significant
A.T	3.003	0.8257	0.1507			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

6a) Effect of therapy on WOMAC Pain in Group A

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	12.467	1.358	0.2479	14.063	< 0.0001	Significant
A.T	7	1.640	0.2994			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

6b) Effect of therapy on WOMAC Pain in Group B

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	10.633	1.066	0.1947	20.658	< 0.0001	Significant
A.T	5.033	1.033	0.1887			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

7a) Effect of therapy on WOMAC Stiffness in Group A

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	5.0	0.8710	0.1590	5.163	< 0.0001	Significant
A.T	3.633	0.2116	0.2116			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

7b) Effect of therapy on WOMAC Stiffness in Group B

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	4.967	0.8087	0.1477	4.316	< 0.0001	Significant
A.T	4.133	0.6814	0.1244			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

8a) Effect of therapy on WOMAC Daily Activity in Group A

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	39.133	2.583	0.4716	14.989	< 0.0001	Significant
A.T	25.733	4.160	0.7595			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

8b) Effect of therapy on WOMAC Daily Activity in Group B

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	38.761	3.761	0.6866	15.582	< 0.0001	Significant
A.T	23.400	3.578	0.6532			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

9a) Effect of therapy on WOMAC Total Score in Group A

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	56.600	3.500	0.6390	16.892	< 0.0001	Significant
A.T	36.367	5.549	1.013			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

9b) Effect of therapy on WOMAC Total Score in Group B

	Mean	S.D.	S.E.	t value	P value	Remark
B.T	53.767	4.224	0.7712	20.280	< 0.0001	Significant
A.T	32.567	3.866	0.7058			

Since P value is less than 0.0001, we reject Ho. Hence the treatment is significantly effective on this symptom.

PROBABLE MODE OF ACTION

SAHACHARA TAILA

No	Dravya	Rasa	Veerya	Vipaka	Guna
1	Sahachara	Tikta, Madhura	Ushna	Katu	Laghu, Ushna
2	Godugdha	Madhura	Sheeta	Madhura	Guru, Snigdha
3	Tila taila	Madhura, Kashaya, Tikta	Ushna	Madhura	Guru, Snigdha
4	Sharkara	Madhura	Sheeta	Madhura	Guru, Snigdha

Cumulative effect of Sahachara taila:

Guna: Guru, Snigdha Veerya: Ushna (Mild)

Doshaghnata: Vatapittaghna Karma: Brunhana

Sahachara taila has properties like Guru, Snigdha which makes it Balya, Vedanahara & Sookshma srotogami. Sahachara taila abhyanga over knee joint pacifies sthanika vitiated Vata dosha. It gets absorbed into knee joint through skin. It facilitates smooth movement of

the joint. Guru & Snigdha guna work as Brunhana, Vata shaman. Laghu, Ruksha guna of vata get pacified by Guru, Snigdha guna of Sahachara taila.

SAHACHARADI TAILA

No	Dravya	Rasa	Veerya	Vipaka	Guna
1	Sahachara	Tikta, Madhura	Ushna	Katu	Laghu, Ushna
2	Nata	Tikta, Madhura, Kashaya	Ushna	Katu	Laghu, Snigdha
3	Shadgrantha	Katu, Tikta	Ushna	Katu	Laghu, Tikshna
4	Sthira	Madhura, Tikta	Ushna	Madhura	Guru, Snigdha
5	Kushtha	Tikta, Katu, Madhura	Ushna	Katu	Ruksha, Tikshna
6	Suravhaya	Tikta	Ushna	Katu	Laghu, Snigdha
7	Ela	Katu	Ushna	Katu	Laghu, Ushna
8	Nalada	Tikta, Madhura	Sheeta	Katu	Laghu, Ruksha
9	Shaileya	Tikta, Kashaya	Sheeta	Katu	Laghu, Snigdha
10	Shatavha	Katu, Tikta	Ushna	Katu	Tikshna, Ruksha
11	Rakta Chandana	Tikta, Madhura	Sheeta	Katu	Guru, Ruksha
12	Tila taila	Madhura, Kashaya, Tikta	Ushna	Madhura	Guru, Snigdha
13	Sharkara	Madhura	Sheeta	Madhura	Guru, Snigdha

Cumulative effect of Sahacharadi taila:

Guna : Snigdha, Tikshna, Ushna Veerya : Ushna (mod)

Doshaghnata : Vatakaphaghna Karma : Pachana + Brunhana

Instead of Godugdha of Sahachara taila, 10 dravyas are added in Sahacharadi taila. All these dravyas have pachana effect which gives additional property with brunhana. It pacifies Vata dosha. These dravyas also act as vedanahara.

TAF factor is extracted from sahachara proved to be anti-inflammatory & anti-arthritic activity.[6] The oil used for massage get absorbed through the skin & shows effect. According to modern science, absorption through the skin can be enhanced by suspending the drug in an oily vehicle. Thus we can say that the drugs used in oil get absorbed through skin. The effect of abhyanga can be assumed in two ways i.e. physical manipulation & the effect of medicated oil. Physical manipulation in the form of massage increases circulation of blood & plasma. It can stimulate & strengthen the lymphatic system & remove internal waste byproducts. Muscles & deep connective tissues get relaxed.

The strokes used in massage may have following effects

- Increase in flow of circulation to local area.
- Reduction of muscular tone which was in a state of exess tension.

- Stretching of tightest fascia & restoration of mobility of soft tissues.
- Relief in pain is obtained by releasing acute & chronic tension in muscles & by affecting pressure & touch nerve endings.

Method of assessment of symptoms

EFFICACY PARAMETER EVALUATION

Sr No	Observation Day & Date	Visit 1 0D	Visit 2 14D	Visit 3 21D	Visit 4 28D
1	Shoola				
2	Shotha				
3	Atopa				
4	Graha				
5	VAS				
6	WOMAC Pain				
7	WOMAC Stiffness				
8	WOMAC Daily Activity				
9	WOMAC				

1) Assessment of Shoola (Pain)

Oxford Pain chart

Sandhishoola	Grade
None	0
Mild	1
Moderate	2
Severe	3
Extreme	4

Percentage pain/Symptoms relief = $\frac{IPo–IPL}{IPo} \times 100$

Where, IPo -is intensity of Symptoms before treatment

IPL - is intensity of Symptoms after treatment.

2) Assessment of Shotha (Swelling)

Shotha measured with help of measuring tape; so it is an objective parameter

Knee joint: Shotha measured at three levels in cm

Level A – 2 inches (5.08 cm) above mid patteler point

Level B - At midpatteler point

Level C – 2 inches (5.08 cm) below mid patteler point

All measurements were taken. Mean calculated & effect of a trial is calculated in terms of difference between the Shotha before treatment and after treatment.

3) Assessment of Atopa (Crepitus)

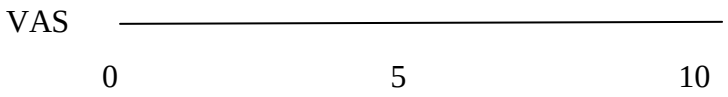
Grade	Observation
0	No Crepitus
1	Palpable Crepitus
2	Palpable+Audible Crepitus
3	Always audible

4) Assessment of Graha (Stiffness)

Sandhi Graha	Grade
None	0
Mild	1
Moderate	2
Severe	3
Severe stiffness more than 10 mins.	4

5) Visual Analogue Scale (VAS)

There was 10 cm long scale for assessment of overall relief. '0' marking on left side & '10' marking on right side. '0' indicates complete relief while '10' indicates severe condition. Patients were asked to grade their severity of disease & mark accordingly. Then it was measured by scale.



6) WOMAC Index Scale

WOMAC is a self – administered disease-specific questionnaire. WOMAC has been recommended for use as a primary efficacy measure in osteoarthritis treatment studies.

The Western Ontario & McMaster University Osteoarthritis Index, (WOMAC) is a disease – specific, self administered, health measure developed to study patients with osteoarthritis in the hip or knee. The three domains in WOMAC; the pain (5 questions), stiffness (2 questions) & physical function (17 questions) can be analyzed separately or with a single score. Every question can be given five alternative answers which mean a total of 0-4 points.

Minimum total score: 0 Maximum total score: 96

Minimum pain subscore: 0 Maximum pain subscore: 20

Minimum stiffness subscore: 0 Maximum stiffness subscore: 8

Min.physical function subscore: 0 Max.physical functionsubscore:68

DISCUSSION

Present study has included data of 60 patients. Clinical examination is main criteria of diagnosis & assessment. The assessment was carried out before & after treatment to evaluate the total effect of treatment. Result was analyzed by using Unpaired 't' test.

Discussion on demographic data

1) Age: In 60 cases of study, highest number of patients were 28 (46.67%) of age group 41-50. Maximum patients were belonging to 40-60 years. It can be said that this age group correlates with 'Madhyam vaya' of hani stage. According to Sushrut, degenerative process starts at this age.
2) Sex: In this study, 41 (68.33%) patients were female & 19 (31.67%) patients were male. According to this observation, it can be said that Janu Sandhigata vata is most common in female.
3) Diet: According to diet, 49 patients were mixed diet (81.67%) & 11 patients were vegetarian (18.33%). This doesn't seem to have any important role to play as far as Janu Sandhigata vata is concerned because Ahara is responsible when it is not taken in proper Matra, Agni & Kala.
4) Prakruti: According to prakruti, maximum number of patients having Vatapittaja prakruti 29 (48.33%). Second maximum number of patients were of Vatakaphaja prakruti 19 (31.67%) as Vatapittaja prakruti is hinatama & Vatakaphaja prakruti is hinatara.
   This can be concluded that Vata dominant patients in dwandwaja prakruti, suffer more from Janu Sandhigata vata & prognosis may be poor in them as prakruti & dosha involvement is the same.
5) Occupation: Maximum number of patients were housewives i.e. 30 (50%) due to etiologocal factors like physical work, diwaswapa, unrich diet. 19 patients were Servicemen (31.67%) & 11 patients were labour workers (18.33%).
6) Knee involvement: Maximum number of patients having Janu Sandhigata vata of right knee 29 (48.33%) & then both knees 18 (30%) out of 60 patients. Hence it can be said that most commonly right knee is affected in Janu Sandhigata vata.

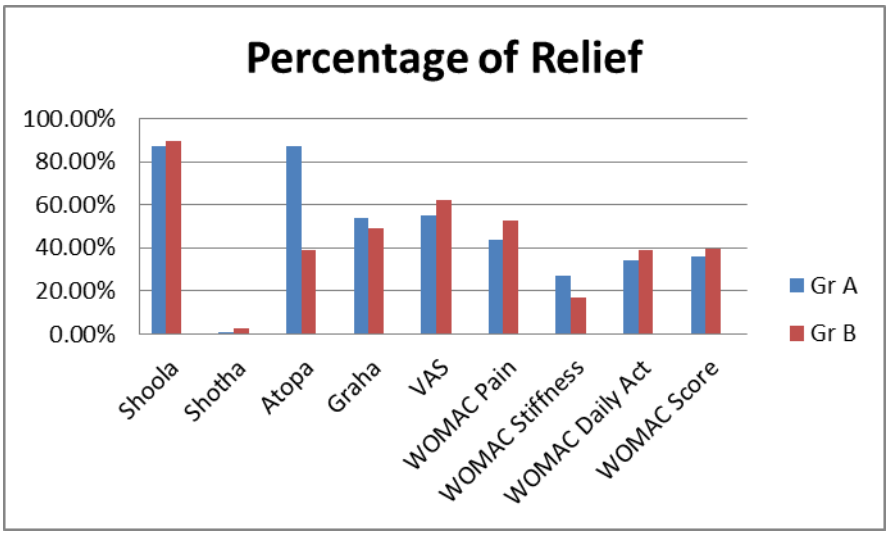
Disscussion according to symptoms & criteria

1) Shoola: According to statistics, Mean of reduction in Shoola was 1.8663 in Gr. A & 2.333 in Gr. B. Percentage of relief was 87.49 % in Gr. A & 89.74 % in Gr. B.

2) Shotha: According to statistics, Mean of reduction in Shotha was 0.28 in Gr. A & 0.877 in Gr. B. Percentage of relief was 0.74 % in Gr. A & 2.31 % in Gr. B.
3) Atopa: According to statistics, Mean of reduction in Atopa was 1.8663 in Gr. A & 0.5337 in Gr. B. Percentage of relief was 87.50 % in Gr. A & 39.04 % in Gr. B.
4) Graha: According to statistics, Mean of reduction in Graha was 0.8667 in Gr. A & 0.7333 in Gr. B. Percentage of relief was 54.17 % in Gr. A & 48.89 % in Gr. B.
5) VAS: According to statistics, Mean of reduction in VAS was 4.51 in Gr. A & 4.997 in Gr. B. Percentage of relief was 55.07 % in Gr. A & 62.46 % in Gr. B.
6) WOMAC Pain: According to statistics, Mean of reduction in WOMAC Pain was 5.467 in Gr. A & 5.6 in Gr. B. Percentage of relief was 43.85 % in Gr. A & 52.67 % in Gr. B.
7) WOMAC Stiffness: According to statistics, Mean of reduction in WOMAC Stiffness was 1.367 in Gr. A & 0.834 in Gr. B. Percentage of relief was 27.34 % in Gr. A & 16.79 % in Gr. B.
8) WOMAC Daily activity: According to statistics, Mean of reduction in WOMAC Daily activity was 13.4 in Gr. A & 14.77 in Gr. B. Percentage of relief was 34.24 % in Gr. A & 38.69 % in Gr. B.
9) WOMAC Total score: According to statistics, Mean of reduction in WOMAC Total score was 20.233 in Gr. A & 21.2 in Gr. B. Percentage of relief was 35.75 % in Gr. A & 39.43 % in Gr. B.

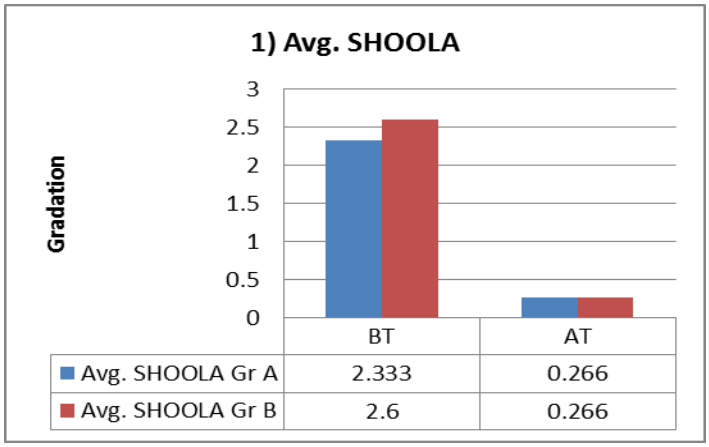
COMPARATIVE ANALYSIS BETWEEN GROUPS

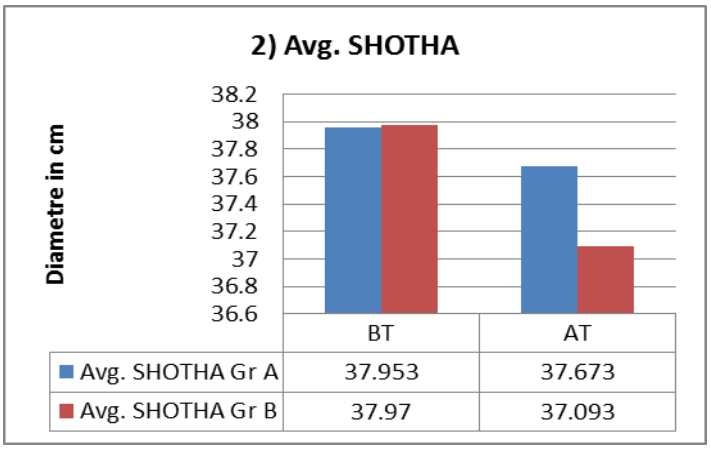
No.	Symptoms	Mean of Reduction		Percentage of Relief	
		Group A	Group B	Group A	Group B
1	Shoola	1.8663	2.333	87.49 %	89.74 %
2	Shotha	0.28	0.877	0.74 %	2.31 %
3	Atopa	1.8663	0.5337	87.50 %	39.04 %
4	Graha	0.8667	0.7333	54.17 %	48.89 %
5	VAS	4.51	4.997	55.07 %	62.46 %
6	WOMAC Pain	5.467	5.6	43.85 %	52.67 %
7	WOMAC Stiffness	1.367	0.834	27.34 %	16.79 %
8	WOMAC Daily Activity	13.4	14.77	34.24 %	38.69 %
9	WOMAC Total Score	20.233	21.2	35.75 %	39.43 %

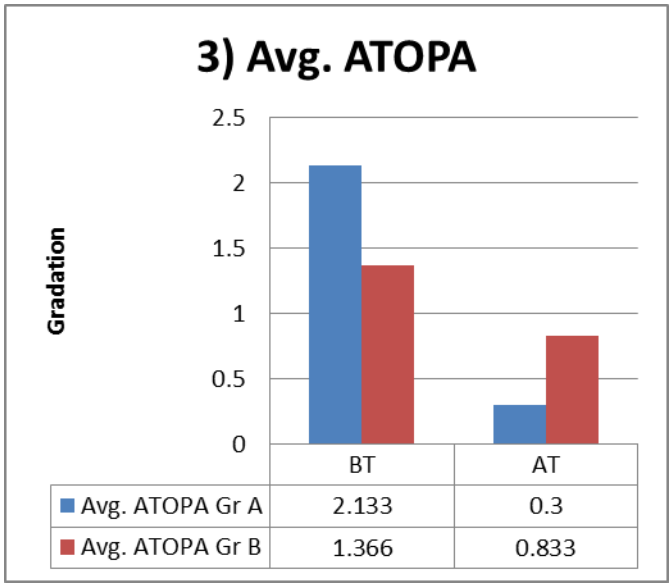


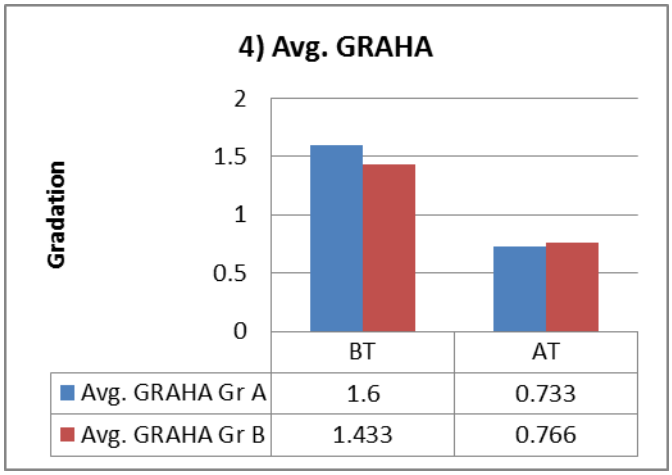
CONCLUSION

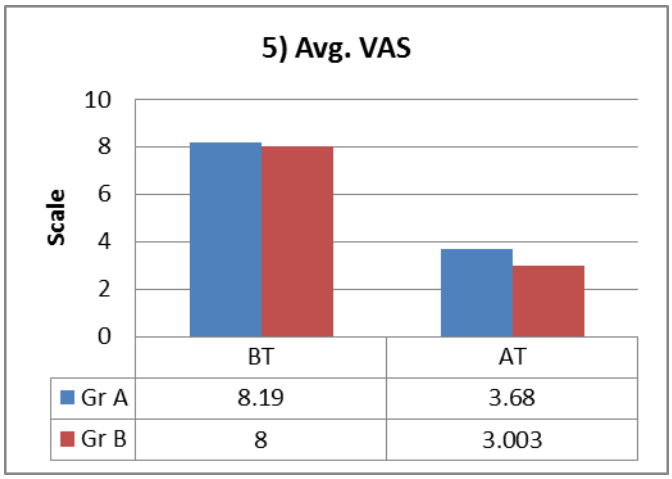
The efficacy of Sahachara taila abhyanga & Sahacharadi taila abhyanga in Shoola, Atopa, Graha, VAS & WOMAC score was statistically highly significant hence we can summarized that Sahacharadi taila is more effective in Pain management while Sahachara taila is more effective in degenerative conditions.

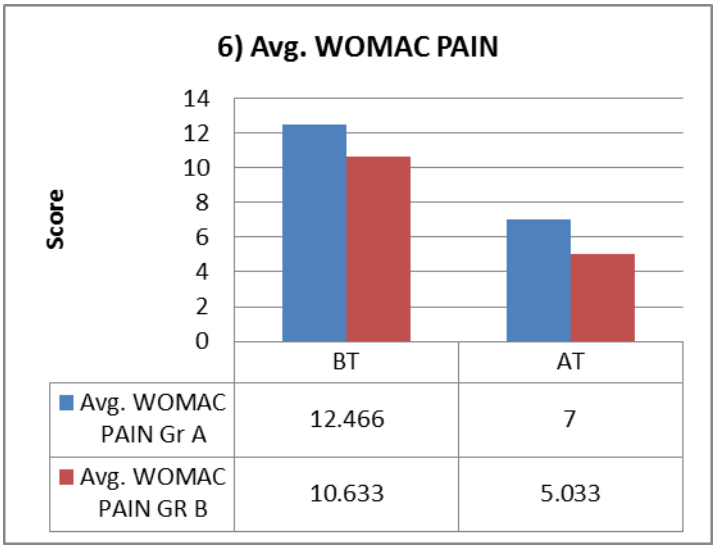


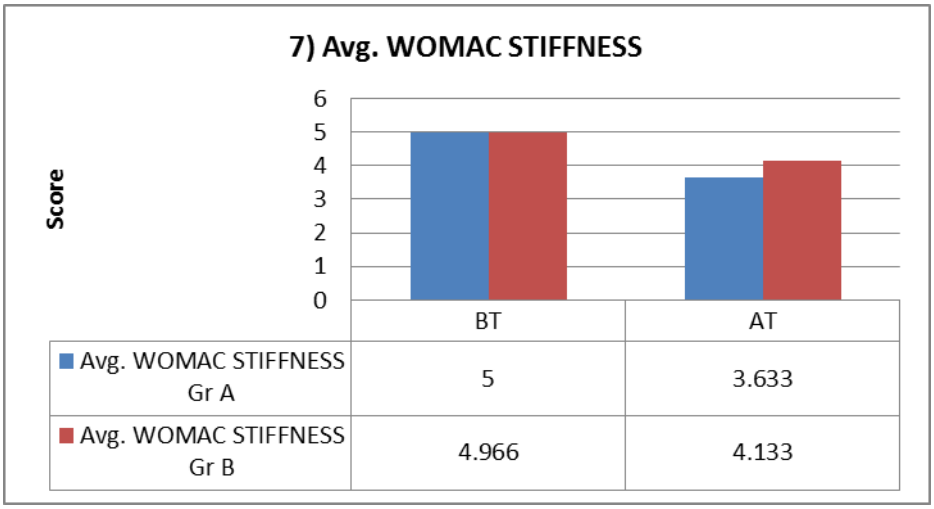


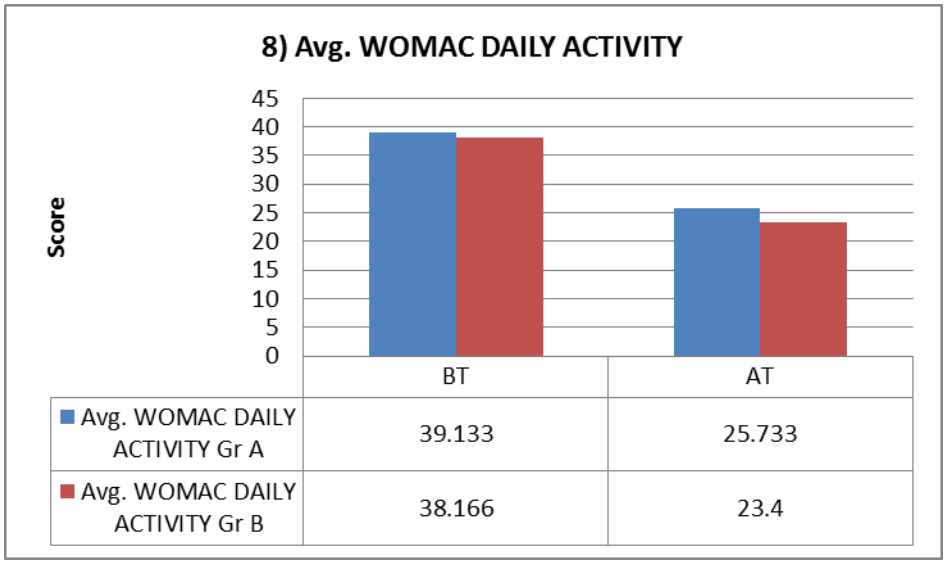

3) Avg. ATOPA
Gradation
2.5
2
1.5
1
0.5
0
BT
AT
Avg. ATOPA Gr A
2.133
0.3
Avg. ATOPA Gr B
1.366
0.833

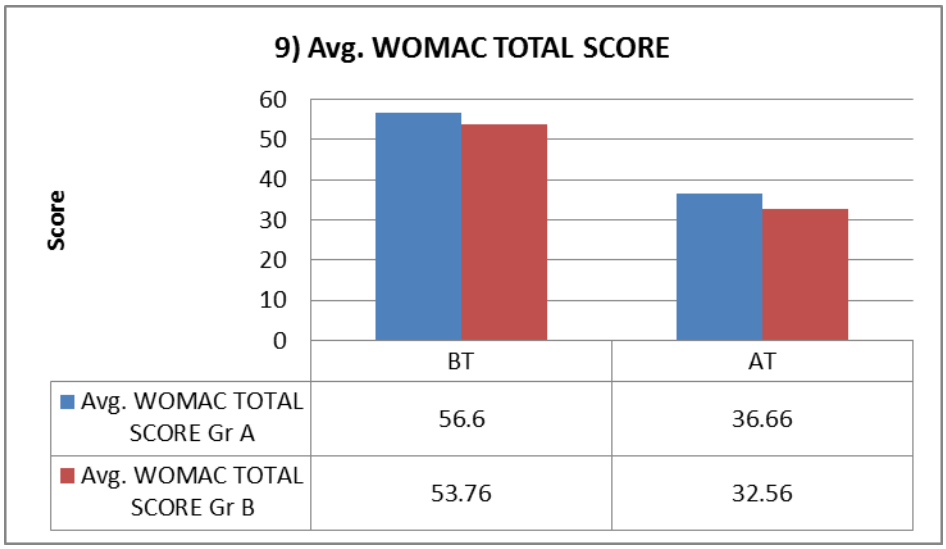

4) Avg. GRAHA
Gradation
2
1.5
1
0.5
0
BT
AT
Avg. GRAHA Gr A
1.6
0.733
Avg. GRAHA Gr B
1.433
0.766


5) Avg. VAS
Scale
10
8
6
4
2
0
BT
AT
Gr A
8.19
3.68
Gr B
8
3.003


6) Avg. WOMAC PAIN
Score
14
12
10
8
6
4
2
0
BT
AT
Avg. WOMAC PAIN Gr A
12.466
7
Avg. WOMAC PAIN GR B
10.633
5.033


7) Avg. WOMAC STIFFNESS
Score
6
5
4
3
2
1
0
BT
AT
Avg. WOMAC STIFFNESS Gr A
5
3.633
Avg. WOMAC STIFFNESS Gr B
4.966
4.133


8) Avg. WOMAC DAILY ACTIVITY
Score
45
40
35
30
25
20
15
10
5
0
BT
AT
Avg. WOMAC DAILY ACTIVITY Gr A
39.133
25.733
Avg. WOMAC DAILY ACTIVITY Gr B
38.166
23.4



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