AYUSHDHARA
ISSN: 2393-9583 (P)/ 2393-9591 (O)
An International Journal of Research in AYUSH and Allied Systems

Research Article

COMPARATIVE STUDY TO EVALUATE THE EFFICACY OF *MAHAMASHA TAILA BRIHANA NASYA* AND *AGNIKARMA* IN TREATMENT OF *AVABAHUKA* (FROZEN SHOULDER)

Chinky[1]*, Anup Jain[2]
*[1]PG Scholar, [2]Assistant Professor, PG Department of Panchakarma, Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, New Delhi, India.

Article info
Article History:
Received: 25-11-2023
Accepted: 16-12-2023
Published: 05-01-2024
KEYWORDS:
Avabahuka, Frozen shoulder, *Panchakarma, Nasya, Agnikarma*.

ABSTRACT

Avabahuka is a disease which is classified under the broad spectrum of *Vata Vyadhi* in classical texts which hampers the day-to-day activities of an individual as *Vata Dosha* is responsible for all the movements of the body. *Avabahuka* is a disease which affects shoulder joint in which *Vata* localized in the region of shoulder upon getting aggravated, dries up the ligaments of shoulders and constricts the *Sira* present there. Due to resemblance in clinical manifestations, *Avabahuka* can be compared with frozen shoulder (Adhesive capsulitis). Prevalence of frozen shoulder is 2-5% in general population. Women are generally affected more than men. **Aim:** To study the efficacy of *Mahamasha Taila Brihana Nasya* in *Avabahuka* (frozen shoulder) in comparison to *Agnikarma.* **Objective:** To compare the efficacy of *Mahamasha Taila Brihana Nasya* and *Agnikarma* in *Avabahuka* (Frozen shoulder). **Methods**: An open label, randomized, interventional and comparative clinical trial. In Group A, 2 sessions of 7 days each with a gap of 7 days between them where a dose of 8 *Bindu Mahamasha Taila Brihana Nasya* in each nostril was administered. In Group B, total 3 sittings of *Agnikarma* were given on same day of every week and in Group C, both *Mahamasha Taila Brihana Nasya* and *Agnikarma* were administered. The record of assessment was taken at 0, 7, 14, 21 and 28 days. **Result:** The reduction in the severity of symptoms was statistically analysed and highly significant improvement was found in all the patients. **Conclusion:** All the three groups were having statistically significant result in the parameters i.e., VAS score, SPADI score and ROM goniometric examination. But in inter group comparison, combined therapy (*Nasya* and *Agnikarma*) was found to be more effective than individual therapy.

INTRODUCTION

Avabahuka is a disease which is classified under the broad spectrum of *Vata Vyadhi*. *Acharya Charak, Acharya Sushruta* and *Acharya Vagbhata* have described *Vata Vyadhi* as one amongst *Ashta Mahagada.*[1] While describing these *Mahagada*, *Vata Vyadhi* has been explained as one of the most complicated disorders because it affects various systems including neurological, musculoskeletal, connective tissues, bones and joints.

Access this article online	
Quick Response Code	
	https://doi.org/10.47070/ayushdhara.v10i6.1450

Avabahuka is a disease which affects shoulder joint in which *Vata* localized in the region of shoulder, getting aggravated, dries up the ligaments of shoulders, constricts the veins present there.[2] It is characterized by *Bahupraspanditahara* (hamper normal functioning of the shoulder) and *Shoola* (pain).[3] Due to resemblance in clinical manifestations, *Avabahuka* can be compared with Frozen shoulder (adhesive capsulitis). Frozen shoulder is a disabling disease which is characterised by pain and restriction of shoulder movement in all the directions. Prolonged immobility of an arm due to any injury contributes to the development of adhesive capsulitis.[4] The capsule of the shoulder is gradually thickened and a mild chronic inflammatory infiltrate and fibrosis may develop. Due to decreased intra- articular volume in shoulder joint, restricted movement of shoulder occurs.

Prevalence of frozen shoulder is 2-5% in general population[5]. It peaks between 40–60 years of age.[6] Women are more affected than men.[7] The incidence of frozen shoulder is 2-4 times higher in diabetes then in the general population.[8] Bad posture and lifestyle, excessive stress and occupational strain also cause this condition.

Management of frozen shoulder is primarily conservative. The contemporary system of medical science aims at pain relief, prevention of recurrence and improving neurological functions with anti-inflammatory medications, analgesics and muscle relaxants being the drug of choice; i.e., NSAIDs (Non-Steroidal Anti-inflammatory Drugs). For pain relief intra-articular corticosteroid injection and physiotherapy are recommended. In Ayurveda, *Avabahuka* is identified as *Urdhwajajatrugata Vikara* and caused by *Vata Dosha*. *Acharya Vagbhata* recommends *Nasya* and *Uttarbhaktika Snehapana*[9] in the management of *Avabahuka*. For reduction of *Vata* we can administer *Nasya* with *Taila* to cure *Avabahuka.* As *Avabahuka* is caused by vitiated *Vata Dosha* with *Anubandhana* of *Kapha, Agnikarma* is considered as best therapy to pacify these *Doshas* because of its *Ushna, Sukshma and Aashukari Guna*.[10] The treatment for *Snayu-Sandhi-Asthigata Vata* is repeated *Snehana* (oleation), *Agnikarma* (Intentional therapeutic heat burn therapy), *Bandana* (bandaging), *Mardana* (massage)[11]. Some principles that are mentioned in ayurveda needs to be scientifically evaluated. Therefore, the present work is planned to evaluate the effects of *Nasya Karma* and *Agnikarma* in the management of *Avabahuka.*

Keeping this phenomenon in mind *Mahamasha Taila Brihana Nasya* and *Agnikarma* is compared in randomly selected 60 clinically diagnosed and confirmed cases of *Avabahuka* (Frozen shoulder) from OPD and IPD of Ch. Brahm Prakash Ayurved Charak Sansthan.

MATERIALS AND METHODS

Research is essential for diagnosis of disease, development of new treatment and gives the latest information. It often leads to effective treatment that helps people to improve the quality of life. Keeping this in mind the present study was taken into consideration. A controlled clinical study was planned to evaluate the individual effect of *Mahamasha Taila Brihana Nasya, Agnikarma* and combined effect of both the therapies in the management of *Avabahuka* (frozen shoulder) in randomly selected 60 clinically diagnosed and confirmed cases of *Avabahuka* (frozen shoulder) from OPD and IPD of Ch. Brahm Prakash Ayurved Charak Sansthan.

IEC Certificate No. CBP-IEC/2020/PK-03/MD/18 dated 29/01/2022

CTRI No. CTRI/2022/03/040970

Plan of Study

Pre-Clinical screening: Complete medical history and related diagnostic tests of patients were done.

Clinical screening: A detailed case history proforma was specially prepared for this purpose. All the following mentioned points were recorded in this proforma before the initiation of the trial. A total of 67 patients suffering from *Avabahuka* (frozen shoulder) fulfilling the inclusion criteria were taken for the study and 60 patients completed the trial.

Eligibility Criteria

Diagnostic Criteria

Patients diagnosed with *Avabahuka* and having following symptoms:

1. *Bahupraspandatihara* (limited range of motion of the shoulder joint)
2. *Ansa Shoola* (pain in shoulder region).

Inclusion Criteria

1. Patients diagnosed with *Avabahuka* of either gender.
2. Patients within the age group of 20-60 years.
3. Patients of controlled diabetes mellitus, controlled hypothyroidism and Vit-D insufficiency.
4. Patients fit for *Nasya Karma* as per the text (*Charaka Samhita Siddhi Sthana* 2/22).

Exclusion Criteria

1. Patients of shoulder joint dislocation/fracture or have the history for the same.
2. Pregnant women and lactating mothers.
3. Patients suffering from major systemic disorders e.g., IHD, RA, Gout, SLE, uncontrolled Diabetes Mellitus and uncontrolled hypothyroidism.
4. Malignant and Immuno-compromised patients (AIDS).

Withdrawal Criteria

Patients reporting with any of the following-

1. Patients leave against medical advice in between will be allowed to quit and replaced.
2. If any acute illness or complications develop, patient will be treated accordingly and will be excluded from the study.

Grouping: The selected patients were grouped into three categories by using Simple Random Sampling Method.

Group A: *Mahamasha Taila Brihana Nasya*

Group B: *Agnikarma*

Group C: Both (*Mahamasha Taila Brihana Nasya* and *Agnikarma*)

Group A: *Mahamasha Taila Brihana Nasya*

- Duration of administration of *Nasya*: 2 sessions of 7 days each of *Nasya Karma* with 7 days of rest period in between.
- Time of administration of *Nasya* -Before meal
- Frequency of administration of *Nasya* - Once a day
- Dosage for *Nasya* – 8 *Bindu* (4ml approximately)[12] (1 *Bindu* = 0.5ml, therefore 8 *Bindu* = 4ml) each nostril.
- Source of procurement- IMPCL or GMP certified company
- Procedure- As per standard operative procedure of *Nasya Karma.*

Group B: *Agnikarma*

- Frequency of *Agnikarma* – Total 3 sittings on same day of every week.
- Duration of therapy – 3 weeks
- Duration of the study- Duration of the study will be minimum 28 days for each patient including follow up.
- Procedure-As per standard operative procedure of *Nasya Karma.*

Group-C

In this group *Mahamasha Taila Brihana Nasya* and *Agnikarma* both will be given.

Study design – Single Centre, open label, Randomized, interventional and comparative study.

Assessment Criteria

The improvement was assessed based on relief in sign and symptoms of *Avabahuka* (frozen shoulder). All the sign and symptoms were assessed depending upon their severity to assess the effect of treatment.

Objective Parameters

VAS Scale[13]: The pain VAS is a continuous scale comprised of a horizontal (HVAS) or vertical (VVAS) line, usually 10 centimetres (100mm) in length, anchored by 2 verbal descriptors, one for each symptom extreme. Instructions, time period for reporting and verbal descriptor anchors have varied widely in the literature depending on intended use of the scale.

Table 1: VAS Scale

Distance on the scale (In mm)	Severity of pain
0 to 4 mm	No pain
5 to 44 mm	Mild pain
45 to 74 mm	Moderate pain
75 to 100 mm	Severe pain

Range of Movements (ROM) Goniometer examination[14]

Table 2: Abduction

Degree	Score
Up to 90°	00
60°	01
30°	02
Cannot abduct	03

External Rotation

Table 3: External rotation

Degree	Score
Up to 90°	00
60°	01
30°	02
Cannot rotate externally	03

Flexion

Table 4: Flexion

Degree	Score
Up to 90^0	00
60^0	01
30^0	02
Cannot flexed	03

Extension

Table 5: Extension

Degree	Score
Up to 90^0	00
60^0	01
30^0	02
Cannot extend	03

SPADI Score Scale:[15]

The Shoulder Pain and Disability Index (SPADI) is a self- administered questionnaire that consists of two dimensions, one for pain and the other for functional activities. The pain dimension consists of five questions regarding the severity of an individual's pain. Functional activities are assessed with eight questions designed to measure the degree of difficulty an individual has with various activities of daily living that require upper-extremity use. The SPADI is the only reliable and valid region-specific measure for the shoulder.

Table 6: SPADI score scale showing pain scale

Pain scale	Score
At its worst?	1 to 10
When lying on the involved side?	1 to 10
Reaching for something on a high shelf?	1 to 10
Touching the back of your neck?	1 to 10
Pushing with the involved arm?	1 to 10

Table 7: SPADI score scale showing disability scale

Disability scale	Score
Washing your hair?	1 to 10
Washing your back?	1 to 10
Putting on an undershirt or jumper?	1 to 10
Putting on a shirt that buttons down the front?	1 to 10
Putting on your pants?	1 to 10
Placing an object on a high shelf?	1 to 10
Carrying a heavy object of 10 pounds (4.5 kilograms)	1 to 10
Removing something from your back pocket?	1 to 10

Interpretation of scores

- **Total pain score: .../ 50 x 100 =...%**
- **Total disability score: .../ 80 x 100 =...%**
- **Total SPADI SCORE: .../ 130 x 100 =...%**

Routine Examination and Assessment

Complete details of history and physical examination of the patients were recorded as per the performa. Clinical assessment was done and recorded on 0th day, 7th day, 14th day, 21th day and 28th day.

For Statistical Analysis

The level of significance was prescribed in following manner:

- Non-significant (NS) - p >0.05
- Significant (S) - p <0.05
- Highly significant (HS) - p <0.001
- Extremely significant (ES) -p <0.00

OBSERVATION AND RESULTS

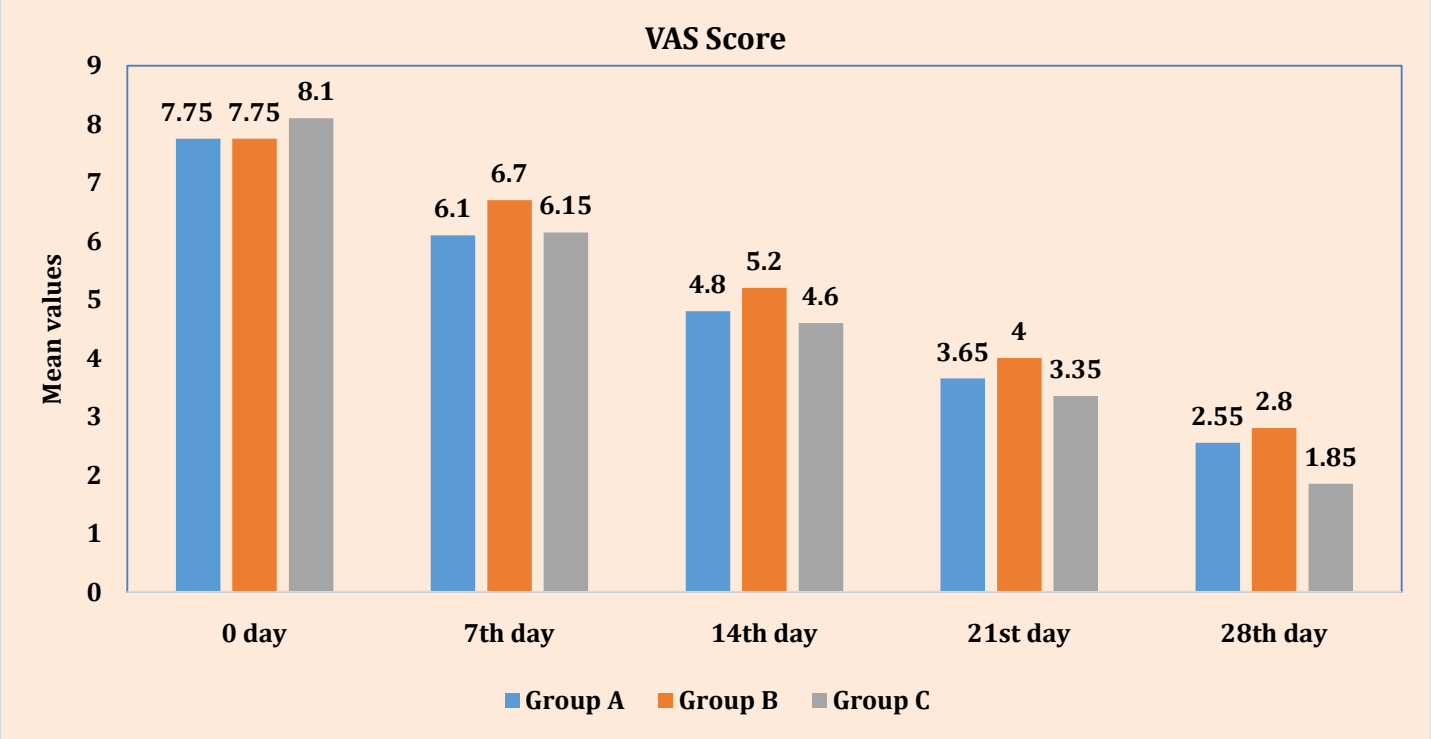
VAS Score

Table 8: Effect of the treatment on Vas Score across different study groups

VAS Scale	Group A (n = 20)		Group B (n = 20)		Group C (n = 20)		Between Group p-value	Groups between which mean value was significant
	Mean	SD	Mean	SD	Mean	SD		
0 day	7.75	0.851	7.75	0.716	8.10	0.852	0.295	
7th day	6.10 (a)	0.852	6.70 (a)	0.733	6.15(a)	0.813	0.038 (*)	Group A v/s Group B Group B v/s Group C
14th day	4.80 (a)	0.768	5.20 (a)	0.834	4.60(a)	0.754	0.057	
21st day	3.65 (a)	0.671	4.00(a)	0.795	3.35(a)	0.671	0.021 (*)	Group B v/s Group C
28th day	2.55 (a)	0.686	2.80(a)	0.834	1.85(a)	0.813	0.001 (*)	Group A v/s Group C Group B v/s Group C
Within group p-value		<0.001 (*)		<0.001(*)		<0.001 (*)		

Between Group p-value computed using One-way ANOVA. Post hoc analysis done using Independent sample t-test to know which two groups differ significantly.
Within Group p-value compared using Repeated Measure ANOVA. Pair wise comparisons w.r.t 0 day value done using Bonferroni equality.
(a)Denotes that mean value was significant in comparison to 0 day value (Within group comparison).
p-value <0.05 has been considered as significant and is denoted with (*)

Figure No. 1: Showing effect of the treatment on VAS Score across different study groups



It was observed that in Group A, mean VAS score at baseline was 7.75 which reduced to 2.55 after 28 days of treatment (% change = 67.1%). In Group B, mean VAS score at day 0 was 7.75 which reduced to 2.80 at 28th day (% change = 63.8%). While in Group C, mean VAS score changed from 8.10 at baseline to 1.85 after 28 days of treatment (% change = 77.1%). Therefore, it was observed that maximum treatment effect has been obtained in Group C. Within group p-value was significant in all the three groups (p-value <0.001). However, at 28th day, between group analysis revealed that treatment effect in Group C differ significantly as compared to Group A and Group B (p-value = 0.001).

ROM Goniometer examination

Abduction

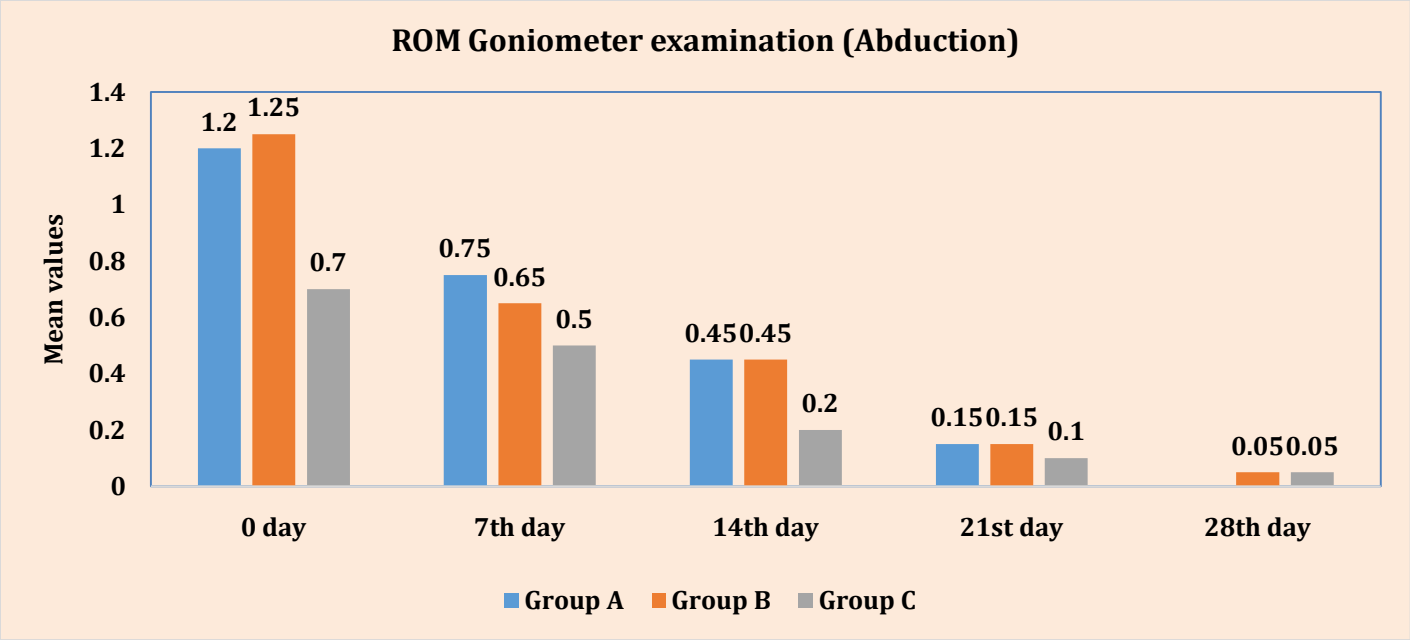
Table 9: Effect of the treatment on ROM Goniometer examination (Abduction) across different study groups

ROM Goniometer examination (Abduction)		0 day	7th day	14th day	21st day	28th day	Within group p-value
Group A	Mean	1.20	.75	.45	.15	.00	<0.001 (*)
	Std. Deviation	.410	.639	.510	.366	.000	
	Median	1.00	1.00	.00	.00	.00	
	First quartile	1.00	.00	.00	.00	.00	
	Third Quartile	1.00	1.00	1.00	.00	.00	
Group B	Mean	1.25	.65	.45	.15	.05	<0.001 (*)
	Std. Deviation	.444	.587	.605	.366	.224	
	Median	1.00	1.00	.00	.00	.00	
	First quartile	1.00	.00	.00	.00	.00	
	Third Quartile	1.75	1.00	1.00	.00	.00	
Group C	Mean	.70	.50	.20	.10	.05	<0.001 (*)

	Std. Deviation	.470	.513	.410	.308	.224	
Group C	**Median**	1.00	.50	.00	.00	.00	
	First quartile	.00	.00	.00	.00	.00	
	Third Quartile	1.00	1.00	.00	.00	.00	
Between group p-value		0.001(*)	0.458	0.216	0.868	0.601	
Groups between which mean value was significant		Group A v/s Group C Group B v/s Group C					

Between Group p-value computed using Kruskal Waliis test. Post hoc analysis done using mann-Whitney test to know which two groups differ significantly.
Within Group p-value compared using Friedman test. Pair wise comparisons w.r.t 0 day value done using Wilcoxon signed rank test.
(a)Denotes that mean value was significant in comparison to 0 day value (Within group comparison).
p-value <0.05 has been considered as significant and is denoted with (*)

Figure 2: Showing effect of the treatment on ROM Goniometer examination (Abduction) across different study groups



It was observed that ROM Goniometer examination (abduction), mean score was 1.20 at baseline which reduced to 0 at 28th day in Group A, which indicates complete resolution. In Group B, mean score at baseline was 1.25 which reduced to 0.05 after 28 days. (Mean change = 1.2). In Group C, mean score at baseline was 0.70 which reduced to 0.05 at 28th day (Mean change = 0.65). Between group analysis revealed no significant difference in the effect of the treatment on ROM Goniometer examination (abduction) (p-value >0.05).

External Rotation

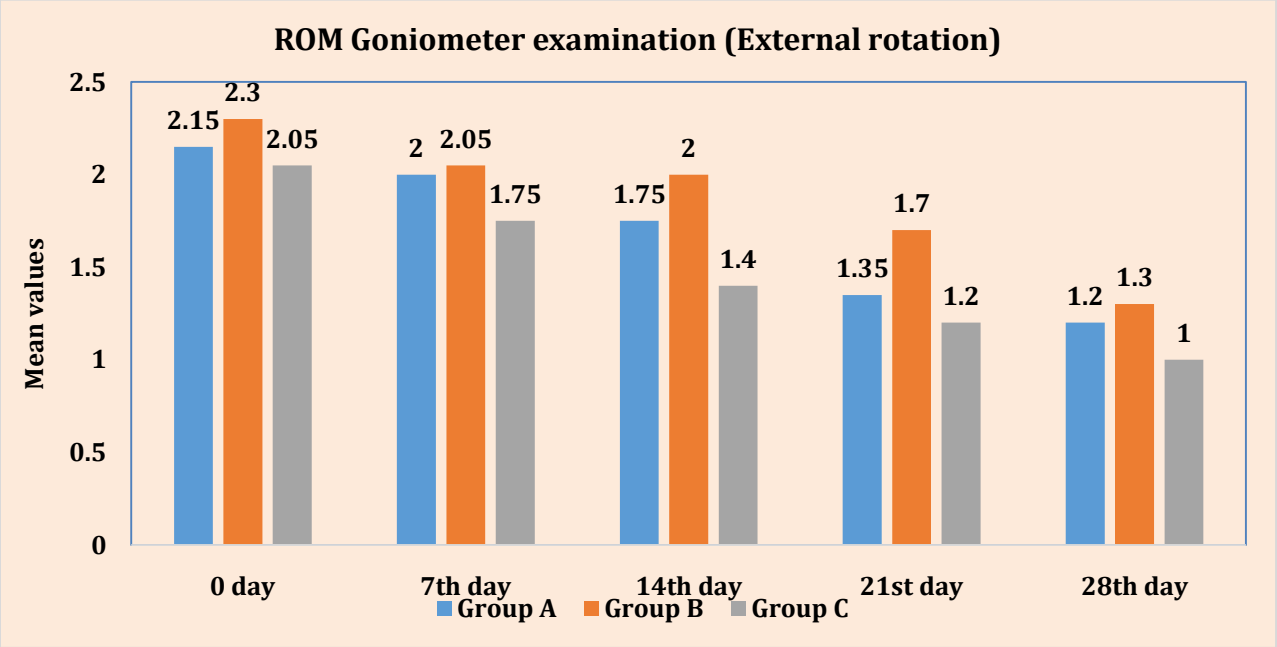
Table 10: Effect of the treatment on ROM Goniometer examination (External rotation) across different study groups

ROM Goniometer examination (External rotation)		**0 day**	**7th day**	**14th day**	**21st day**	**28th day**	**Within group p-value**
Group A	**Mean**	2.15	2.00	1.75	1.35	1.20	
	Std. Deviation	.366	.324	.444	.489	.410	<0.001 (*)
	Median	2.00	2.00	2.00	1.00	1.00	

	First quartile	2.00	2.00	1.25	1.00	1.00	
	Third Quartile	2.00	2.00	2.00	2.00	1.00	
Group B	**Mean**	2.30	2.05	2.00	1.70	1.30	
	Std. Deviation	.470	.224	.000	.470	.470	
	Median	2.00	2.00	2.00	2.00	1.00	<0.001 (*)
	First quartile	2.00	2.00	2.00	1.00	1.00	
	Third Quartile	3.00	2.00	2.00	2.00	2.00	
Group C	**Mean**	2.05	1.75	1.40	1.20	1.00	
	Std. Deviation	.510	.550	.503	.410	.000	
	Median	2.00	2.00	1.00	1.00	1.00	<0.001 (*)
	First quartile	2.00	1.00	1.00	1.00	1.00	
	Third Quartile	2.00	2.00	2.00	1.00	1.00	
Between group p-value		0.242	0.038(*)	<0.001 (*)	0.005(*)	0.037 (*)	
Groups between which mean value was significant			Group B v/s Group C	Group B v/s Group C	Group B v/s Group C	Group B v/s Group C	

Between Group p-value computed using Kruskal Waliis test. Post hoc analysis done using mann-Whitney test to know which two groups differ significantly.
Within Group p-value compared using Friedman test. Pair wise comparisons w.r.t 0 day value done using Wilcoxon signed rank test.
(a)Denotes that mean value was significant in comparison to 0 day value (Within group comparison).
p-value <0.05 has been considered as significant and is denoted with (*)

Figure 3: Showing effect of the treatment on ROM Goniometer examination (External rotation) across different study groups



It was observed that mean score for ROM Goniometer examination (external rotation) in Group A was 2.15 at day 0, which reduced to 1.20 at 28th day (Mean change = 0.95). In Group B, mean change from baseline to 28th day was 1.0. While in Group C, mean at baseline was 2.03 which reduced to 1.0 at 28th day (Mean change = 1.03). It was observed that, effect of the treatment was much better in Group C. Between group comparison showed significant difference between the effect of the treatment in Group B and Group C, at all the follow up visits (p-value <0.05).

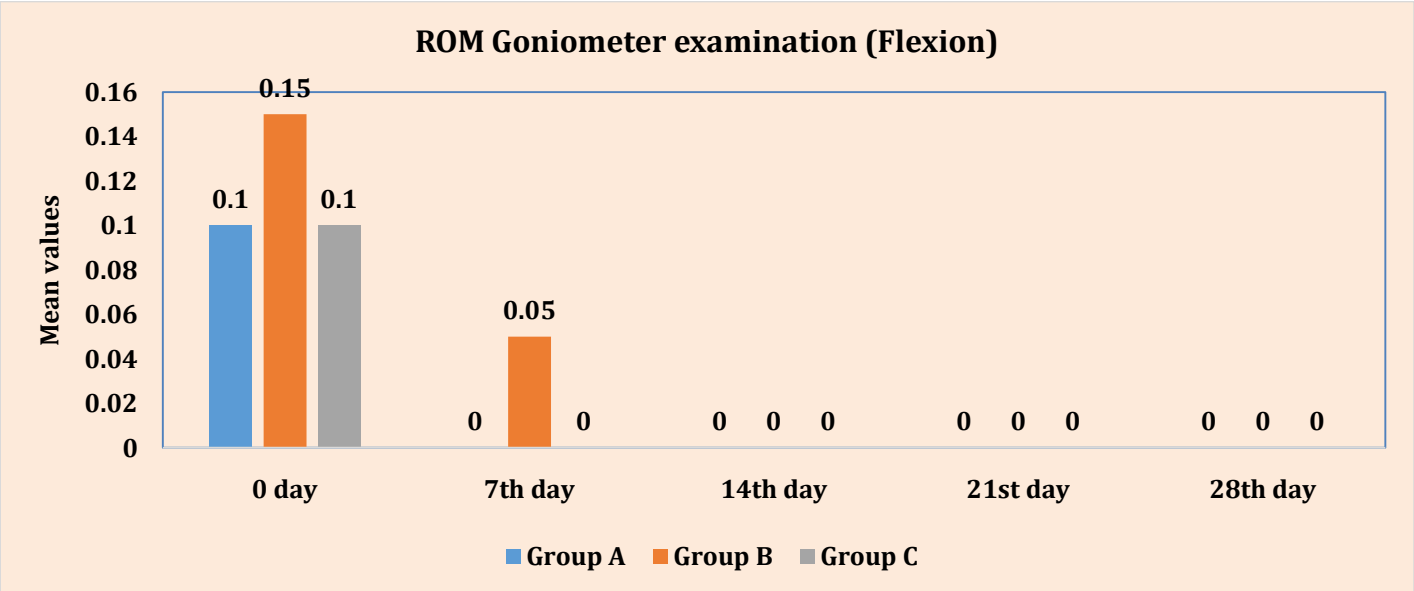
Flexion

Table 11: Effect of the treatment on ROM Goniometer examination (Flexion) across different study groups

ROM Goniometer examination (Flexion)		0 day	7th day	14th day	21st day	28th day	Within group p-value
Group A	Mean	.10	.00	.00	.00	.00	0.092
	Std. Deviation	.308	.000	.000	.000	.000	
	Median	.00	.00	.00	.00	.00	
	First quartile	.00	.00	.00	.00	.00	
	Third Quartile	.00	.00	.00	.00	.00	
Group B	Mean	.15	.05	.00	.00	.00	0.171
	Std. Deviation	.489	.224	.000	.000	.000	
	Median	.00	.00	.00	.00	.00	
	First quartile	.00	.00	.00	.00	.00	
	Third Quartile	.00	.00	.00	.00	.00	
Group C	Mean	.10	.00	.00	.00	.00	0.092
	Std. Deviation	.308	.000	.000	.000	.000	
	Median	.00	.00	.00	.00	.00	
	First quartile	.00	.00	.00	.00	.00	
	Third Quartile	.00	.00	.00	.00	.00	
Between group p-value		0.998	0.368	1.000	1.000	1.000	
Groups between which mean value was significant							

Between Group p-value computed using Kruskal Waliis test. Post hoc analysis done using mann-Whitney test to know which two groups differ significantly.
Within Group p-value compared using Friedman test. Pair wise comparisons w.r.t 0 day value done using Wilcoxon signed rank test.
(a) Denotes that mean value was significant in comparison to 0 day value (Within group comparison).
p-value <0.05 has been considered as significant and is denoted with (*)

Figure 4: Showing effect of the treatment on ROM Goniometer examination (Flexion) across different study groups



It was observed that scores before and after treatment did not differ significantly for ROM Goniometer examination (flexion) in any of the study groups. Within group and between group comparisons showed no significant difference.

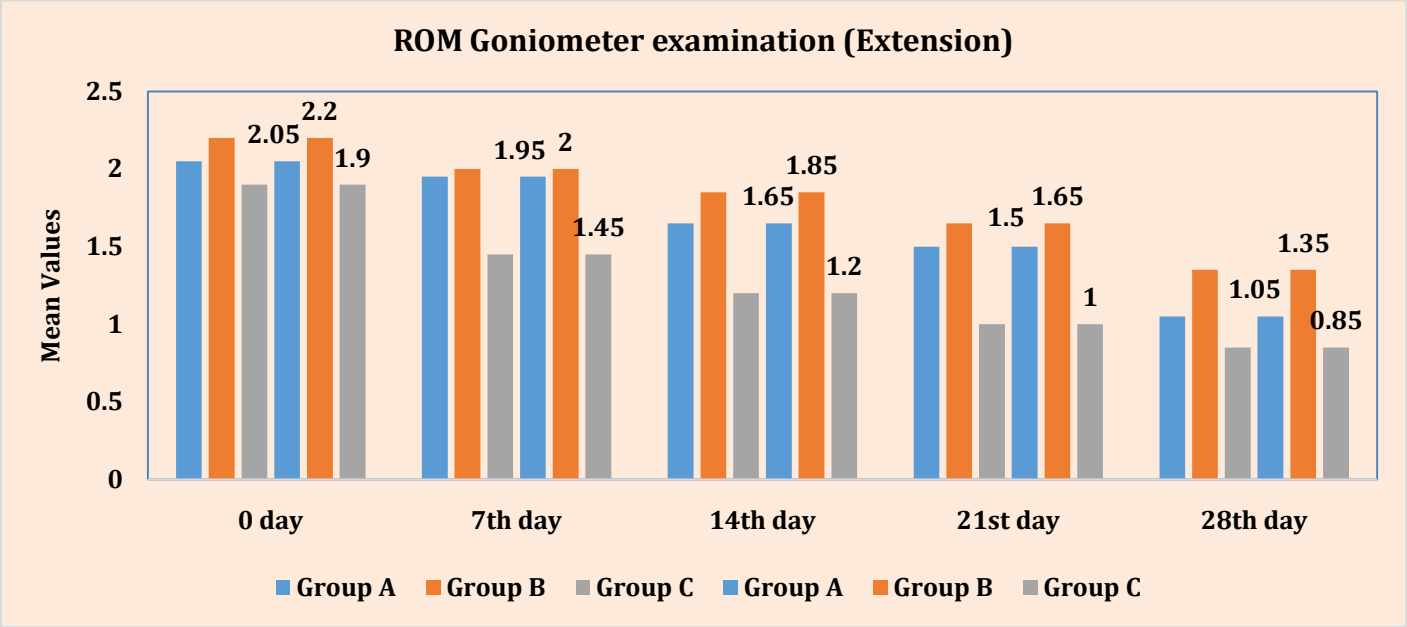
Extension

Table 12: Effect of the treatment on ROM Goniometer examination (Extension) across different study groups

ROM Goniometer examination (Extension)		0 day	7th day	14th day	21st day	28th day	Within group p-value
Group A	**Mean**	2.05	1.95	1.65	1.50	1.05	<0.001 (*)
	Std. Deviation	.224	.224	.489	.513	.224	
	Median	2.00	2.00	2.00	1.50	1.00	
	First quartile	2.00	2.00	1.00	1.00	1.00	
	Third Quartile	2.00	2.00	2.00	2.00	1.00	
Group B	**Mean**	2.20	2.00	1.85	1.65	1.35	<0.001 (*)
	Std. Deviation	.410	.000	.366	.489	.489	
	Median	2.00	2.00	2.00	2.00	1.00	
	First quartile	2.00	2.00	2.00	1.00	1.00	
	Third Quartile	2.00	2.00	2.00	2.00	2.00	
Group C	**Mean**	1.90	1.45	1.20	1.00	.85	<0.001 (*)
	Std. Deviation	.447	.510	.410	.000	.366	
	Median	2.00	1.00	1.00	1.00	1.00	
	First quartile	2.00	1.00	1.00	1.00	1.00	
	Third Quartile	2.00	2.00	1.00	1.00	1.00	
Between group p-value		0.052	<0.001(*)	<0.001(*)	<0.001(*)	0.001(*)	
Groups between which mean value was significant			Group A v/s Group C Group B v/s Group C	Group A v/s Group C Group B v/s Group C	Group A v/s Group C Group B v/s Group C	Group A v/s Group C Group B v/s Group C	

Between Group p-value computed using Kruskal Waliis test. Post hoc analysis done using Mann-Whitney test to know which two groups differ significantly.
Within Group p-value compared using Friedman test. Pair wise comparisons w.r.t 0 day value done using Wilcoxon signed rank test.
(a)Denotes that mean value was significant in comparison to 0 day value (Within group comparison).
p-value <0.05 has been considered as significant and is denoted with (*)

Figure 5: Showing effect of the treatment on ROM Goniometer examination (Extension) across different study groups



It was observed that mean score for ROM Goniometer examination (Extension) at baseline in Group A was 2.05, which reduced to 1.05 at 28th day (Mean change = 1.0). In Group B, mean change from baseline to 28th day was 0.85. While in Group C, mean score at day 0 was 1.90, which reduced to 0.85 after 28 days of treatment (Mean change = 1.05). Between group comparisons revealed that effect of the treatment was much better in group C as compared to Group A and Group B. Between group p-value at all the subsequent visits was significant (p-value < 0.001). Pair-wise compassions revealed that effect of the treatment between Group B and Group C differ significantly.

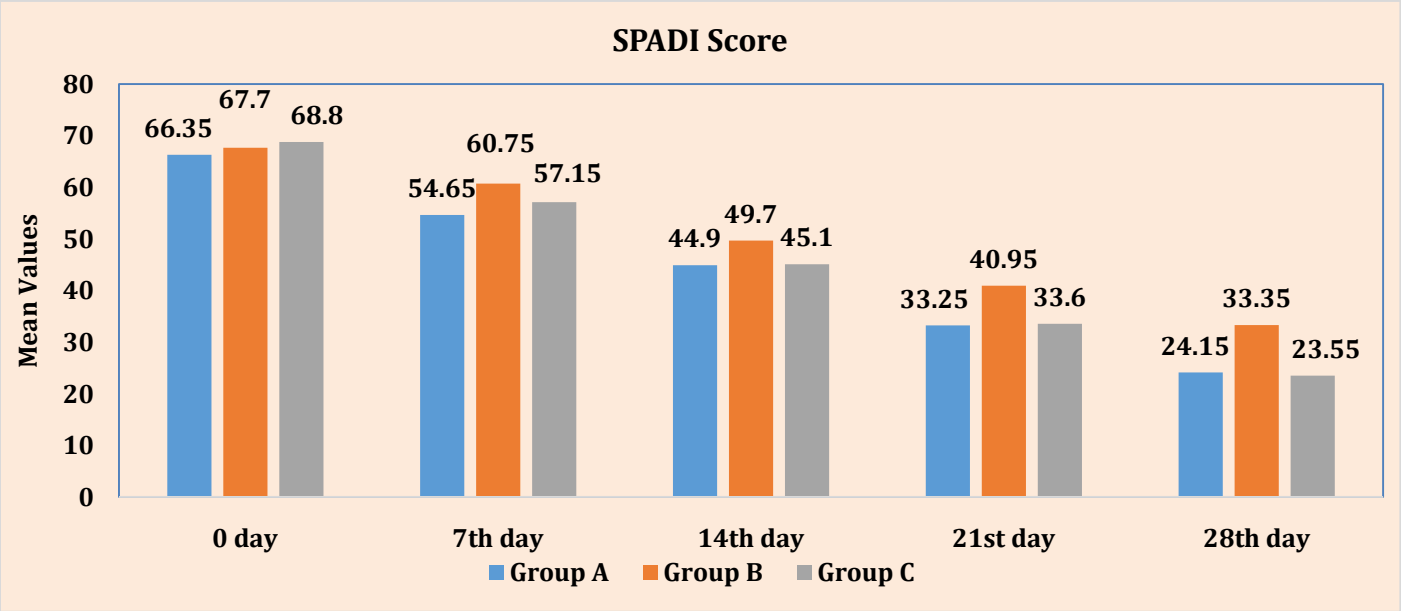
SPADI Score

Table 13. Effect of the treatment on SPADI Score across different study groups

SPADI Score	Group A (n = 20)		Group B (n = 20)		Group C (n = 20)		Between Group p-value	Groups between which mean value was significant
	Mean	SD	Mean	SD	Mean	SD		
0 day	66.35	8.487	67.70	9.269	68.80	4.959	0.612	
7th day	54.65(a)	8.418	60.75(a)	8.699	57.15(a)	5.641	0.050	
14th day	44.90(a)	8.447	49.70(a)	7.868	45.10(a)	4.909	0.068	
21st day	33.25(a)	6.406	40.95(a)	6.962	33.60(a)	5.093	<0.001(*)	Group A v/s Group B Group B v/s Group C
28th day	24.15(a)	5.905	33.35(a)	5.743	23.55(a)	4.839	<0.001 (*)	Group A v/s Group B Group B v/s Group C
Within group p-value	<0.001(*)		<0.001(*)		<0.001(*)			

Between Group p-value computed using One-way ANOVA. Post hoc analysis done using Independent sample t-test to know which two groups differ significantly.
Within Group p-value compared using Repeated Measure ANOVA. Pair wise comparisons w.r.t 0 day value done using Bonferroni equality.
(a)Denotes that mean value was significant in comparison to 0 day value (Within group comparison).
p-value <0.05 has been considered as significant and is denoted with (*)

Figure 6: Showing Effect of the treatment on SPADI Score across different study groups



Mean SPADI score at day 0 in Group A was 66.35, which reduced to 24.15 at 28th day (% change = 63.6%). In Group B, mean SPADI score reduced from 67.70 at baseline to 33.35 after 28 days of treatment (% change = 50.7%). In Group C, mean SPADI score at day 0 was 68.80 which reduced to 23.35 after 28 days of treatment 9% change = 65.7%). It was observed that there was a significant difference in all the three groups from day 0 to day 28th (p-value <0.001). However, the results in Group C were more promising, as revealed by % change and between group analysis.

Statistical Analysis: In Group A, In Group B and In Group C

All three groups were analysed independently using the Chi-square test, Friedman's ANOVA, and Repeated Measures ANOVA to look for differences between them. VAS score, SPADI score, and ROM Goniometer score grade mean values were measured on day 0, day 7, day 14, day 21, and day 28. Using these analyses, we determined:

- Whether the effect of Group A treatment was significant in reducing VAS score, SPADI score and score grade of ROM Goniometer examination on Day 0, Day 7, Day 14, Day 21 and Day 28.?
- Whether the effect of Group B treatment was significant in reducing VAS score, SPADI score and score grade of ROM Goniometer examination on Day 0, Day 7, Day 14, Day 21 and Day 28?
- Whether the effect of Group C treatment was significant in reducing VAS score, SPADI score and score grade of ROM Goniometer examination on Day 0, Day 7, Day 14, Day 21 and Day 28?

a. Group A

Patients in Group A showed remarkable improvement at each consecutive follow-up, with VAS scores, SPADI scores, and ROM Goniometer test score grades all decreasing considerably between Day 0 and Day 28. It follows that *Mahamasha Taila Brihana Nasya* helps *Avabahuka* patients in terms of these measures.

b. Group B

Patients in Group B showed remarkable improvement at each consecutive follow-up, with VAS scores, SPADI scores, and ROM goniometer assessment scores all decreasing considerably between Day 0 and Day 28. Therefore, it may be stated that *Agnikarma* helps *Avabahuka* patients in enhancing these measures.

c. Group C

At consecutive follow-ups on Day 0, Day 7, Day 14, Day 21, and Day 28, VAS score, SPADI score, and scoring grade of ROM Goniometer assessment all dropped considerably in Group C patients. Therefore, it is safe to say that both (*Mahamasha Taila Brihana Nasya* and *Agnikarma*) are helpful in enhancing these parameters in *Avabahuka* patients.

The VAS score, SPADI score, and ROM goniometer test grade were all shown to be reduced more in the combination group (*Mahamasha Taila Brihana Nasya* and *Agnikarma*) than in any of the individual treatments alone.

Figure 7: Showing pictures of *Nasya Karma* before, during and after procedure

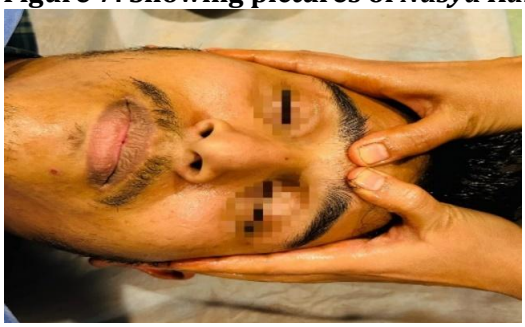


Figure 7.1. *Mukhabhyanga*

Figure: 7.2. *Swedana*

Figure 7.3. *Nasya Karma*

Figure No: 7.4. *Dhumpana*

Figure 8: Showing pictures of *Agnikarma* before, during and after procedure

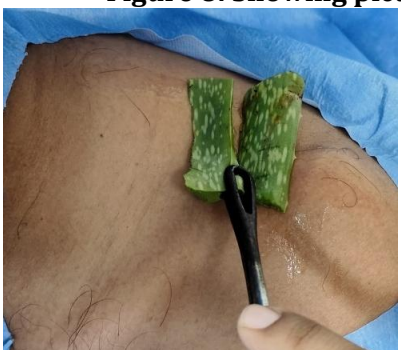


Figure: 8.1. Before procedure

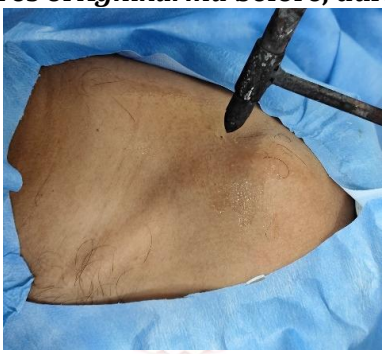


Figure: 8.2. During procedure

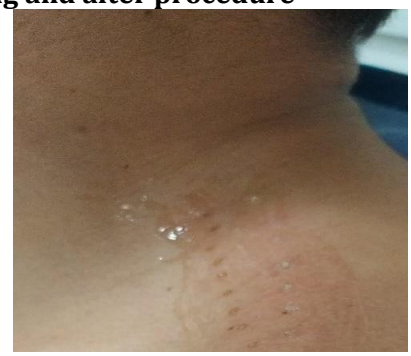


Figure: 8.3. After procedure

DISCUSSION

Data was then analysed statistically to draw interference. All the three groups were having statistically significant differences between the means of the *Nasya Karma* group, the *Agnikarma* group and the combined group (*Nasya Karma* and *Agnikarma*) on Day 0 and Day 28 in the parameters i.e., VAS score, SPADI score and ROM Goniometer examination. Group C (77.1%) was found better in reducing VAS score than Group A (67.1%) and Group B (63.8%). Group C (65.7%) was found better than Group A (63.6%) and Group B (50.7%) in reducing SPADI score. Group C was found better than Group A and Group B in improving ROM goniometer examination. So, it can be concluded that administration of combined therapy (*Mahamasha Taila Brihana Nasya* and *Agnikarma*) was found effective in management of *Avabahuka* (Frozen shoulder). As *Avabahuka* is one of the 80 types of *Vataja Nanatmaja Vikara*. In ayurveda it is mentioned that *Vata* is vitiated either by *Avarana* or by *Dhatu Kshaya*[12]. In initial stage when *Vata* gets accumulated in *Kapha Sthana*, then there is *Anubandhana* of *Kapha* in disease but in later stage it becomes *Kevala Vata* disorder. *Nasya* is considered as best treatment for *Urdhwajatrugata Vikara* so, *Brihana Nasya* with *Mahamasha Taila* is used in this condition. Drugs which are present in *Mahamasha Taila* are antagonist to *Gunas* of *Vata Dosha,* so it pacifies the *Vata* and helps in breaking the *Samprapti* of the disease and probably helped in decreasing the degenerative changes in *Avabahuka* along with *Vatashamaka* and *Brihana* property. *Mahamasha Taila* is medicated oil prepared by *Til Taila* as base and then processed with different drugs. It contains 50 drugs and *Masha* is the main content, which is *Balya, Brihana, Dhatu Vardhaka* and *Vatahara* in property and *Avabahuka* is a disorder of shoulder joint in which *Sira* gets affected due to increase in *Khara* property of *Vata* which results in restricted movement of shoulder joint. It has anti-inflammatory properties and provides nourishment to

Sira, Snayu, Asthi, Sandhi and *Kandara*. According to *Ayurveda,* every *Dhatu* (tissue) have its own *Dhatvagni* and when it becomes low, diseases begin to manifest. In this condition, *Agnikarma* works by giving external heat there by increasing the *Dhatvagni* and *Malabhutagni* which helps to digest the aggravated *Dosha*. It also clears the *Srotoavrodha* by eliminating *Malabhuta Doshas* as shown by dramatic reduction in *Avabahuka* symptoms and helps in obtaining significant result in VAS score, SPADI score and ROM goniometric examination.

CONCLUSION

Avabahuka is a disease which occurs due to vitiation of *Vata Dosha* and which hampers the day-to-day activities of an individual. It can be compared with frozen shoulder due to similarity in presenting symptoms. All the three groups were having statistically significant result in the parameters i.e., VAS score, SPADI score and ROM goniometric examination. But in inter group comparison, Group C was found better in reducing VAS score, SPADI score and improving ROM goniometric examination. Combined therapy (*Nasya* and *Agnikarma*) was found effective in *Avabahuka* (Frozen shoulder). No major adverse reaction or side effect was observed during study in all the three groups. There is further scope for new researchers to compare only *Shodhana Chikitsa* against *Shamana Chikitsa.* The present work could be conducted with more sessions of *Nasya Karma* which might give better results.

REFERENCES

1. Sushruta M, Shastri AD. Avarniya Adhyaya In: Sushruta Samhita. Reprint-2014. Varanasi: Chaukhamba Sanskrit Sansthan; 2014. p. 163. (Kashi Sanskrit Series; vol. 1).
2. Sushruta M, Shastri AD. Vatavyadhinidana. In: Sushruta Samhita. Reprint-2014. Varanasi: Chaukhamba Sanskrit Sansthan; 2014. p. 304. (Kashi Sanskrit Series; vol. 1).
3. Brahmanand Tripathi. Vatvyadhi Adhyaya 15/42. In: Astanga Hridayam. Reprint: 2012. Delhi: Chaukhamba Sanskrit Pratishthan; p. 542. (Vrajajivan Ayurvijnan Granthamala).
4. Baig MO, Naseem A. Pain Modulation in Frozen Shoulder by Electrotherapy Versus Exercise Therapy. 2011. 17(3):245.
5. Manske RC, Prohaska D. Diagnosis and management of adhesive capsulitis. Curr Rev Musculoskelet Med. 2008. 1007 PMID: 19468904 DOI: . /s12178-008-9031-6; 1: 180–189.
6. Challoumas D, Biddle M, McLean M, Millar NL. Comparison of Treatments for Frozen Shoulder: A Systematic Review and Meta-analysis. JAMA Netw Open. 2020 Dec 1; 3(12): e2029581.
7. Chokkalingam M, Saradha S, Navitha A. Incidence and clinical profile of patients with a frozen shoulder after cardiac surgery y. J Clin Prevent Cardiol 2017; 6(4): 142.
8. Prevalence and determinants of frozen shoulder in patients with diabetes: a single center experience from Pakistan. Cureus. 2017. 9(8): 1544.
9. Vagbhata, Yadunandana Upadhayaya. Vatvyadhi chikitsa. In: Gupta KA, editor. Astanga hridayam. Reprint-2015. Varanasi: Chaukhamba Prakashan; 2015. p. 566.
10. Tripathy RN, Otta SP. A Pilot Study Of Agnikarma On Frozen Shoulder (Avabahuka). Tyagi M, author. International Journal of Applied Ayurved Research. 2013 Sep; 1(1).
11. Sushruta M, Shastri AD. Vatavyadhichikitsa. In: Sushruta Samhita. Reprint-2014. Varanasi: Chaukhamba Sanskrit Sansthan; 2014. p. 34. (Kashi Sanskrit Series; vol. 1).
12. Yogeshwar R Chippa, Sachin S Chandaliya, Varsha N Sane, Pournima Daware and Mayura Jadhav. (2016); Standardization of Bindu for Nasya. Int. J. of Adv. Res. 4 (Apr). 895-901.
13. Hawker GA, Mian S, Kendzerska T, French M. Measures of adult pain: Visual analog scale for pain (vas pain), numeric rating scale for pain (nrs pain), mcgill pain questionnaire (mpq), short-form mcgill pain questionnaire (sf-mpq), chronic pain grade scale (cpgs), short form-36 bodily pain scale (sf-36 bps), and measure intermittent and constant osteoarthritis pain (icoap). Arthritis care & research. 2011 Nov;63(S11): S240-52
14. Revathi, K., Shilpa, A., & Govardhanan, K. (Aug -Sep 2018). A Clinical Study to Evaluate Effect of Nasya with Shudhabala Taila in Apabahuka w.s.r to Frozen Shoulder. International Ayurvedic Medical Journal, 2(6), 1330-1334.
15. Roach, K. E., Budiman-Mak, E., Songsiridej, N., & Lertratanakul, Y. (1991). Development of a shoulder pain and disability index. Arthritis & Rheumatism: Official Journal of the American College of Rheumatology, 4(4), 143-149.

Cite this article as:
Chinky, Anup Jain. Comparative Study to Evaluate the Efficacy of Mahamasha Taila Brihana Nasya and Agnikarma in Treatment of Avabahuka (Frozen Shoulder). AYUSHDHARA, 2023;10(6):52-64.
https://doi.org/10.47070/ayushdhara.v10i6.1450
Source of support: Nil, Conflict of interest: None Declared

***Address for correspondence**
Dr. Chinky
PG Scholar
PG Department of Panchakarma,
Ch. Brahm Prakash Ayurved Charak Sansthan, Khera Dabar, New Delhi.
Email: mahlanchinky17@gmail.com
Contact: 8930711331