



EFFECT OF AṄGAMARDAPRAŚAMANA MAHĀKAŚĀYA GHANA VAṬI IN THE MANAGEMENT OF REPETITIVE STRESS INJURY - AN OPEN LABELLED, NON- COMPARATIVE CLINICAL STUDY – A NOVEL APPROACH.

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ABSTRACT:

Background: Repetitive strain injury (RSI) is an occupational disease that considerably impacts on workers' lives and has significant socio-economic repercussions. Repetitive strain injuries can be defined as injuries caused or aggravated by repetitive or sustained submaximal exertion of the body's soft tissue structures including muscles, tendons, ligaments and nerves leading to severe pain & other working disabilities. As per recent study, 57% of working age adults reporting with Shoulder pain. **Aim:** To evaluate the efficacy of Aṅgamardaprasāmana Mahākaśāya ghanavaṭi in Repetitive stress injury. **Material & Method:** Present study is an open labelled, Non-Comparative clinical study, conducted on 20 subjects afflicted with Repetitive stress injury, treated with Aṅgamardaprasāmana ghanavaṭi. Subjective assessment was done based on DASH Questionnaire. **Results:** Subjects responded well for treatment. Significant results were observed on major components of DASH Questionnaire. **Conclusion:** Aṅgamardaprasāmana Mahākaśāya ghanavaṭi shown significant results in Repetitive stress injury.

Keywords: Repetitive stress injury, Aṅgamardapraśamana Mahākaśāya ghanavaṭi, DASH Questionnaire.

INTRODUCTION:

Repetitive stress injury is one among the conventional issue among population. RSI result from Overuse & repeated stress to the body's soft tissue structures including muscles, tendons, and nerves. RSI is also called by other names such as "cumulative trauma disorder," "overuse injury," and "repetitive strain injury."¹ They often occur in subjects who perform repetitive movements either in their jobs or in extracurricular activities. In the workplace forearm pain is associated with work involving frequent repetition, high forces, and prolonged abnormal postures².

RSI mainly develops in four phases³: **Phase I:** Starts with a tired feeling, stiffness, tingling in fingers, wrists and hands. Progressing into a nagging and sharp pain which disappears with rest. **Phase 2:** Problems do not disappear overnight, continuous light pain or nagging ache accompanying all daily activities. After a long period of rest, the pain goes away but returns easily when similar work is done. **Phase 3:** Pain is continuous often combined with reduced strength and less accurate control. At work the pain is intensified, when rested the pain remains. In serious cases patients wake up at night or cannot sleep because of pain. **Phase 4:** Symptoms of contracture with permanent disability develops.

The current management of RSI includes Analgesics & steroid administration as primary protocol, which is associated with long term complications. Hence, there proves need for effective & promising medicine for overcoming this issue.

Āyurveda is one among the oldest science. Principles mentioned in Āyurveda is applicable till today. These principles are guidelines to treat the new emerging diseases. Aṅgamardapraśamana Mahākaśāya⁴ is one such combination, mentioned in carakasamhitā sutrasthāna, ṣaḍvirēcanaśatāśritiṅ'ō'dhyāyaḥ. AMP Mahākaśāya helps to reduce pain, along with other symptoms through its multi-disciplinary activities. Hence an attempt had been taken to evaluate its efficacy on RSI.

AIM & OBJECTIVE:

To evaluate the efficacy of Aṅgamardapraśamana Mahākaśāya ghanavaṭi Repetitive stress injury.

MATERIALS & METHODS:

The study got approved by institutional ethical committee (no.: **IRC-EC/SS (1)/2019-20**) & trial was registered in Clinical trial registry of India (Reg.No. **CTRI/2021/02/031222**).

Study sample: Aṅgamardapraśamana daśēmāni dravyās as mentioned in Caraka samhitā i.e., Vidārīgandhā, Pṛṣṇīparṇī, Bṛhatī, Kaṅṭakārika, Eraṇḍa, Kākōlī, Candana, Uśīra, Elā & Madhukā which are authenticated

by Indian pharmacopeia were selected & prepared in the form of ghanavaṭi, from Sanjeevini pharmacy, Kengeri, Bengaluru & the same GMP Certified Medicine was utilized for the study.

Study design: The study was a single arm, open-labelled, non-comparative, Pre-post interventional test design.

Sample size: 20 subjects [n=20]

Sampling method: For present study, 20 Subjects were taken from OPD & IPD of Government Āyurveda Medical College, Mysuru. At the screening visit, all eligible cases willing to participate in the study were given detailed description about the study. Only subjects who met the requirements & signed an informed consent form were included in the study.

At the baseline visit (Day 0), the symptoms of Repetitive stress injury was assessed using DASH Questionnaire & Aṅgamarda was measured using pain scale. Later subjects were provided with Aṅgamardaprasāmana ghanavaṭi (500mg Tablets) & advised to consume 2 vati's Thrice a day, after food with uṣṇajala as anupāna continuously for about 24 days. On 25th day patient symptoms were assessed using DASH Questionnaire.

Intervention Details:

TABLE No. 1 DETAILS OF INTERVENTION	
Disease Condition	Repetitive stress injury
Intervention	Aṅgamardaprasāmana Mahākaṣāya Ghanavaṭi
Dose	500mg 2 vati's TID
Time of Intervention	After Food
Anupāna	Uṣṇajala
Duration	24 Days

DETAILS OF RASAPANCHAKA OF AṄGAMARDAPRAŚAMANA MAHĀKAŚĀYA DRAVYAS

TABLE No. 2 OVERVIEW OF AṄGAMARDA PRAŚAMANA MAHĀKAŚĀYA DRAVYĀ'S⁵						
SL. No	DRAVYA	RASA	GUṆA	VĪRYA	VIPĀKA	DŌṢAGHNATA
1.	Vidārigandhā	Madhura, Tikta	Guru, Snigdha	Uṣṇa	Madhura	Tridōṣaśāmaka
2.	Pṛśniparṇī	Madhura, Kaṭu	Laghu, Sara	Uṣṇa	Madhura	Tridōṣaśāmaka
3.	Bṛhatī	Kaṭu, Tikta	Laghu, Rooksha	Uṣṇa	Kaṭu	Kapha-Vāta Śāmaka
4.	Kaṇṭakārika	Kaṭu, Tikta	Laghu, Rooksha, Tikṣṇa	Uṣṇa	Kaṭu	Kapha-Vāta Śāmaka
5.	Ēraṇḍa	Madhura, Anurasa: Kaṭu, Kashaya	Snigdha, Tikṣṇa, sukṣma	Uṣṇa	Madhura	Kapha-Vāta Śāmaka
6.	Kākōlī	Madhura	Guru, Snigdha	Śīta	Madhura	Tridōṣaśāmaka
7.	Candana	Tikta, Madhura	Laghu, Rukṣa	Śīta	Kaṭu	Kapha-Pittahara
8.	Uśīra	Tikta, Madhura	Rooksha, Laghu	Śīta	Kaṭu	Vāta-Pitta Śāmaka
9.	Sūkṣmailā	Kaṭu , Madhura	Laghu, Rukṣa	Śīta	Kaṭu	Kapha –Vāta Śāmaka
10	Madhukā	Madhura	Guru, Snigdha	Śīta	Madhura	Vāta-Pitta Śāmaka

DIAGNOSTIC CRITERIA:

- Routine Lab Investigations to exclude other medical conditions from Chronic fatigue syndrome.
- Standard pain scale to measure āngamarda⁶.
- DASH Questionnaire for Repetitive stress injury⁷.

INCLUSION CRITERIA⁸:

- Subjects of age group 25-45 years
- Subjects using computer >40 hours/ week (Approx.5-6 hours/day)
- Stage III Repetitive stress injury subjects fulfilling diagnostic criteria.
- Subjects willing to participate.

EXCLUSION CRITERIA⁸:

- Any H/O upperlimb fracture
- Any H/O pathological disorders of upperlimb
- All regular exercisers
- Subjects with Congenital anomalies

CRITERIA FOR ASSESSMENT:

Subjects were assessed after the treatment with:

- Standard pain scale for assessment of Angamarda.
- DASH Questionnaire for Repetitive stress injury.

Pre- assessment will be done on 0th Day & finally Post- assessment on 25th Day.

[Note: Assessment is mainly based on variation in Pre & Post assessment scorings.]

DASH [Disabilities of the Arm, Shoulder & Hand] QUESTIONNAIRE:

TABLE No. 3 COMPONENTS OF DASH QUESTIONNAIRE

Sl. No:	Difficulty	No Difficulty	Mild Difficulty	Moderate Difficulty	Severe Difficulty	Unable
Q1	Open a tight or new jar	1	2	3	4	5
Q2	Write	1	2	3	4	5

Q3	Turn a key	1	2	3	4	5
Q4	Prepare a meal	1	2	3	4	5
Q5	Push open a heavy door	1	2	3	4	5
Q6	Place an object on a shelf above your head	1	2	3	4	5
Q7	Do heavy household chores (e.g., wash walls, wash floors).	1	2	3	4	5
Q8	Garden or do yard work.	1	2	3	4	5
Q9	Make a bed.	1	2	3	4	5
Q10	Carry a shopping bag or briefcase.	1	2	3	4	5
Q11	Carry a heavy object (over 10 lbs.)	1	2	3	4	5
Q12	Change a light bulb overhead.	1	2	3	4	5
Q13	Wash or blow dry your hair.	1	2	3	4	5
Q14	Wash your back.	1	2	3	4	5
Q15	Put on a pullover sweater.	1	2	3	4	5
Q16	Use a knife to cut food.	1	2	3	4	5
Q17	Recreational activities which require little effort (e.g., card playing, knitting, etc.).	1	2	3	4	5
Q18	Recreational activities in which you take some force or impact through your arm, shoulder or hand (e.g., golf, hammering, tennis, etc.).	1	2	3	4	5

Q19	Recreational activities in which you move your arm freely (e.g., playing frisbee, badminton, etc.).	1	2	3	4	5
Q20	Manage transportation needs (getting from one place to another).	1	2	3	4	5
Q21	Sexual activities.	1	2	3	4	5
		Not at all	Slightly	Moderately	Quite a bit	Extremely
Q22	During the past week, to what extent has your arm, shoulder or hand problem interfered with your normal social activities with family, friends, neighbours or groups? (circle number)	1	2	3	4	5
		Not limited at all	Slightly limited	Moderately limited	Very limited	Unable
Q23	During the past week, were you limited in your work or other regular daily activities as a result of your arm, Shoulder or hand problem? (circle number)	1	2	3	4	5
		None	Mild	Moderate	Severe	Extreme
Q24	Arm, shoulder or hand pain.	1	2	3	4	5
Q25	Arm, shoulder or hand pain when you Performed any specific activity.	1	2	3	4	5

Q26	Tingling (pins and needles) in your arm, shoulder or hand.	1	2	3	4	5
Q27	Weakness in your arm, shoulder or hand.	1	2	3	4	5
Q28	Stiffness in your arm, shoulder or hand.	1	2	3	4	5
		No Difficulty	Mild Difficulty	Moderate Difficulty	Severe Difficulty	So much difficulty that I can't sleep
Q29	During the past week, how much difficulty have you had Sleeping because of the pain in your arm, shoulder or hand? (circle number)	1	2	3	4	5
		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
Q30	I feel less capable, less confident or less useful Because of my arm, shoulder or hand problem. (circle number)	1	2	3	4	5

STATISTIAL ANALYSIS:

TABLE No. 4 STAISTICAL METHODS APPLIED IN THE ANALYSIS OF DATA	
Descriptive Statistics	Inferential Statistics
▪ Frequency	▪ Chi-square test

▪ Percent	▪ Paired Sample 'T' test
▪ Mean	▪ Repeated Measure ANOVA
▪ Standard Deviation	

OBSERVATIONS:

For present study, total 29 subjects were registered. Around 25 subjects were completed the treatment & 4 subjects due to personal reason didn't came for follow-up. Among 25 subjects, 20 subjects were considered for present study.

Among 20 subjects, Maximum 12 (60%) subjects were Male, 17 (85.0%) subjects were Hindu, 12 (60.0%) subjects were married, 13 (65.0%) subject was from Urban, 19 (95%) subjects were from Middle class family & 15 (75%) subjects were from IT Profession.

Among 20 subjects all patients are present with upper limb pain with varied presentation i.e. 10 (50.0%) subjects with shoulder pain, 12 (60.0%) subjects with Arm pain, 13 (65.0%) subjects with Elbow pain, 10 (50.0%) subjects each with Forearm pain & Wrist pain, 9 (45.0%) subjects with hand & fingers pain. Associated with stiffness in 19 (95.0%) subjects, heaviness in 10 (50.0%) subjects, tingling sensation in 20 (100.0%) subjects, feeling of tiredness in 17 (85.0%) subjects & reduced strength in 13 (65.0%) subjects.

RESULTS:

Results were assessed based on Standard DASH questionnaire before and after the intervention. Results are presented systematically by adopting Chi square & Paired T test.

	Nature	Frequency		Percent	
		BT	AT	BT	AT
Q1	No Difficulty	0	9	0.0%	45.0%
	Mild Difficulty	4	11	20.0%	55.0%
	Moderate Difficulty	6	0	30.0%	0.0%
	Severe Difficulty	10	0	50.0%	0.0%
Q2	No Difficulty	2	12	10.0%	60.0%
	Mild Difficulty	4	07	20.0%	35.0%
	Moderate Difficulty	9	1	45.0%	5.0%

	Severe Difficulty	5	0	25.0%	0.0%
Q3	No Difficulty	3	13	15.0%	65.0%
	Mild Difficulty	3	07	15.0%	35.0%
	Moderate Difficulty	12	0	60.0%	0.0%
	Severe Difficulty	2	0	10.0%	0.0%
Pearson Chi-Square Significant Value: .001					

TABLE No 6: OBSERVATION of 20 SUBJECTS ACCORDING TO Q4-Q6					
	NATURE	Frequency		Percent	
		BT	AT	BT	AT
Q4	No Difficulty	2	18	10.0%	90.0%
	Mild Difficulty	10	2	50.0%	10.0%
	Moderate Difficulty	7	0	35.0%	0.0%
	Severe Difficulty	1	0	5.0%	0.0%
Q5	No Difficulty	0	6	0.0%	30.0%
	Mild Difficulty	0.0%	14	0.0%	70.0%
	Moderate Difficulty	1	0	5.0%	0.0%
	Severe Difficulty	15	0	75.0%	0.0%
	Unable	4	0	20.0%	0.0%
Q6	No Difficulty	0	6	0.0%	30.0%
	Mild Difficulty	2	14	10.0%	70.0%
	Moderate Difficulty	2	0	10.0%	0.0%
	Severe Difficulty	8	0	40.0%	0.0%
	Unable	8	0	40.0%	0.0%
Pearson Chi-Square Significant Value: .001					

TABLE No 7: OBSERVATION of 20 SUBJECTS ACCORDING TO Q7-Q9					
	NATURE	Frequency		Percent	
		BT	AT	BT	AT
Q7	No Difficulty	0	11	0.0%	55.0%
	Mild Difficulty	1	9	5.0%	45.0%
	Moderate Difficulty	7	0	35.0%	0.0%
	Severe Difficulty	12	0	60.0%	0.0%
Q8	No Difficulty	0	12	0.0%	60.0%
	Mild Difficulty	1	8	5.0%	40.0%
	Moderate Difficulty	17	0	85.0%	0.0%
	Severe Difficulty	2	0	10.0%	0.0%
Q9	No Difficulty	0	14	0.0%	70.0%
	Mild Difficulty	1	6	5.0%	30.0%
	Moderate Difficulty	18	0	90.0%	0.0%
	Severe Difficulty	1	0	5.0%	0.0%
PEARSON CHI-SQUARE SIGNIFICANT VALUE: .001					

TABLE No 8: OBSERVATION of 20 SUBJECTS ACCORDING TO Q10-Q12					
	NATURE	Frequency		Percent	
		BT	AT	BT	AT
Q10	No Difficulty	0	6	0.0%	30.0%
	Mild Difficulty	2	14	10.0%	70.0%
	Moderate Difficulty	11	0	55.0%	0.0%
	Severe Difficulty	7	0	35.0%	0.0%
Q11	No Difficulty	0	2	0.0%	10.0%
	Mild Difficulty	3	16	15.0%	80.0%

	Moderate Difficulty	15	2	75.0%	10.0%
	Severe Difficulty	2	0	10.0%	0.0%
Q12	No Difficulty	0	7	0.0%	35.0%
	Mild Difficulty	1	12	5.0%	60.0%
	Moderate Difficulty	3	1	15.0%	5.0%
	Severe Difficulty	16	0	80.0%	0.0%
PEARSON CHI-SQUARE SIGNIFICANT VALUE: .001					

TABLE No 9: OBSERVATION of 20 SUBJECTS ACCORDING TO Q13-Q15					
	NATURE	Frequency		Percent	
		BT	AT	BT	AT
Q13	No Difficulty	0	16	0.0%	80.0%
	Mild Difficulty	2	4	10.0%	20.0%
	Moderate Difficulty	18	0	80.0%	0.0%
	Severe Difficulty	0	0	0.0%	0.0%
Q14	No Difficulty	0	7	0.0%	35.0%
	Mild Difficulty	0	13	0.0%	65.0%
	Moderate Difficulty	18	0	90.0%	0.0%
	Severe Difficulty	2	0	10.0%	0.0%
Q15	No Difficulty	0	6	0.0%	30.0%
	Mild Difficulty	1	13	5.0%	65.0%
	Moderate Difficulty	14	1	70.0%	5.0%
	Severe Difficulty	5	0	25.0%	0.0%
PEARSON CHI-SQUARE SIGNIFICANT VALUE: .001					

TABLE No 10: OBSERVATION of 20 SUBJECTS ACCORDING TO Q16-Q18

		Frequency		Percent	
		BT	AT	BT	AT
Q16	No Difficulty	3	17	15.0%	85.0%
	Mild Difficulty	13	3	65.0%	15.0%
	Moderate Difficulty	3	0	15.0%	0.0%
	Severe Difficulty	1	0	5.0%	0.0%
Q17	No Difficulty	4	19	20.0%	95.0%
	Mild Difficulty	14	1	70.0%	5.0%
	Moderate Difficulty	2	0	10.0%	0.0%
	Severe Difficulty	0	0	0.0%	0.0%
Q18	No Difficulty	1	13	5.0%	65.0%
	Mild Difficulty	9	7	45.0%	35.0%
	Moderate Difficulty	9	0	45.0%	0.0%
	Severe Difficulty	1	0	5.0%	0.0%
PEARSON CHI-SQUARE SIGNIFICANT VALUE: .001					

TABLE No 11: OBSERVATION of 20 SUBJECTS ACCORDING TO Q19-Q21

	Nature	Frequency		Percent	
		BT	AT	BT	AT
Q19	No Difficulty	0	7	0.0%	35.0%
	Mild Difficulty	1	13	5.0%	65.0%
	Moderate Difficulty	17	0	85.0%	0.0%
	Severe Difficulty	2	0	10.0%	0.0%
Q20	No Difficulty	0	9	0.0%	45.0%
	Mild Difficulty	4	11	20.0%	55.0%

	Moderate Difficulty	15	0	75.0%	0.0%
	Severe Difficulty	1	0	5.0%	0.0%
Q21	No Difficulty	20	20	100.0%	100.0%
PEARSON CHI-SQUARE SIGNIFICANT VALUE: .001					

TABLE No 12: OBSERVATION of 20 SUBJECTS ACCORDING TO Q22				
NATURE	Frequency		Percent	
	BT	AT	BT	AT
Not At All	0	6	0.0%	30.0%
Slightly	0	14	0.0%	70.0%
Moderately	14	0	70.0%	0.0%
Quite A Bit	6	0	30.0%	0.0%
PEARSON CHISQUARE SIGNIFICANE: .001				

TABLE No 5.54: OBSERVATION of 20 SUBJECTS ACCORDING TO Q23				
NATURE	Frequency		Percent	
	BT	AT	BT	AT
Not Limited At All	0	7	0.0%	35.0%
Slightly Limited	1	13	5.0%	65.0%
Moderately Limited	14	0	70.0%	0.0%
Very Limited	5	0	25.0%	0.0%
PEARSON CHISQUARE SIGNIFICANE: .001				

TABLE No 13: OBSERVATION ACCORDING TO Q24-Q28

	CATEGORY	Frequency		Percent	
		BT	AT	BT	AT
Q24	None	0	2	0.0%	10.0%
	Mild	0	18	0.0%	90.0%
	Moderate	0	0	0.0%	0.0%
	Severe	15	0	75.0%	0.0%
	Extreme	5	0	25.0%	0.0%
Q25	None	0	1	0.0%	5.0%
	Mild	0	19	0.0%	95.0%
	Moderate	0	0	0.0%	0.0%
	Severe	14	0	70.0%	0.0%
	Extreme	6	0	30.0%	0.0%
Q26	None	0	11	0.0%	55.0%
	Mild	0	9	0.0%	45.0%
	Moderate	11	0	55.0%	0.0%
	Severe	9	0	45.0%	0.0%
	Extreme	0	0	0.0%	0.0%
Q27	None	0	13	0.0%	65.0%
	Mild	0	7	0.0%	35.0%
	Moderate	14	0	70.0%	0.0%
	Severe	6	0	30.0%	0.0%
	Extreme	0.0%	0	0.0%	0.0%
Q28	None	1	13	5.0%	85.0%
	Mild	0	7	0.0%	15.0%
	Moderate	17	0	85.0%	0.0%
	Severe	2	0	10.0%	0.0%

	Extreme	0	0	0.0%	0.0%
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TABLE No 14: OBSERVATION of 20 SUBJECTS ACCORDING TO Q29				
NATURE	Frequency		Percent	
	BT	AT	BT	AT
No Difficulty	0	8	0.0%	40.0%
Mild Difficulty	1	12	5.0%	60.0%
Moderate Difficulty	15	0	75.0%	0.0%
Severe Difficulty	4	0	20.0%	0.0%
PEARSON CHISQUARE SIGNIFICANCE: .001				

TABLE No 15: OBSERVATION of 20 SUBJECTS ACCORDING TO Q30				
NATURE	Frequency		Percent	
	BT	AT	BT	AT
Strongly Disagree	0	19	0.0%	95.0%
Disagree	15	1	75.0%	5.0%
Neither Agree Nor Disagree	5	0	25.0%	0.0%
Agree	0	0	0.0%	0.0%
Strongly Agree	0	0	0.0%	0.0%
PEARSON CHISQUARE SIGNIFICANCE: .001				

OBSERVATION ON PAIN:

Before the intervention, maximum of 18 (90%) subjects had severe pain & 2 (10%) Subject had Moderate pain. After Intervention, all 20 (100%) subjects had only mild pain. Intervention was highly significant with P value .001

TABLE No 16 OBSERVATION ON PAIN SCALE				
NATURE	Frequency		Percent	
	BT	AT	BT	AT
NO PAIN	0	0	0.0%	0.0%
MILD	0	20	0.0%	100.0%
MODERATE	2	0	10.0%	0.0%
SEVERE	18	0	90.0%	0.0%

RESULT:

The overall effect of the intervention on RSI baseline & After intervention, is given below. The statistical analysis revealed that the mean score of assessment scale, which was 92.65 before intervention, was reduced to 44.70 after the intervention. The change from baseline to After intervention, was statistically Highly significant (with P value .001).

TABLE No 17 PAIRED SAMPLES STATISTICS				
	Mean	N	Std. Deviation	Std. Error Mean
TOTAL BT	92.65	20	7.471	1.671
TOTAL AT	44.70	20	3.895	.871

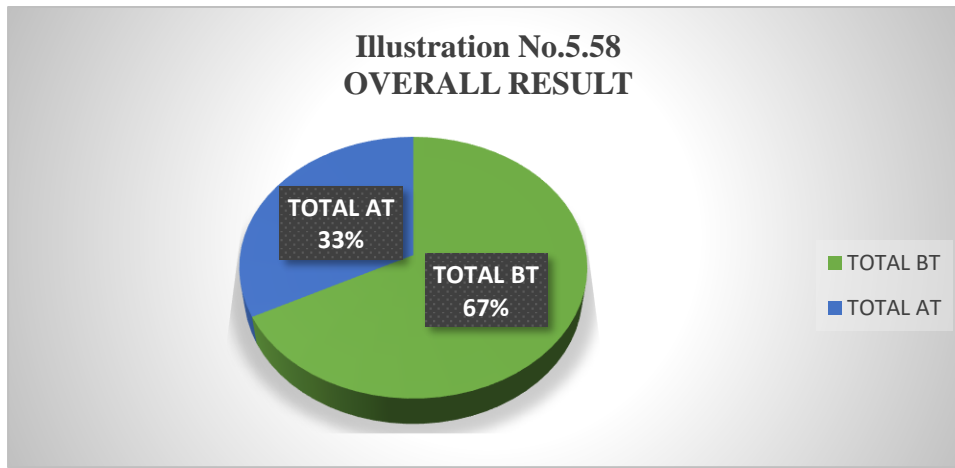


TABLE NO 18 PAIRED SAMPLES TEST			
	t	df	Sig. (20.0% tailed)
TOTAL BT 0.0% TOTAL AT	38.257	19	.001

DISCUSSION:

AMP Mahākaṣāya is one such combination with multidisciplinary action. Analysis of rasadi pancaka of dravya reveals its efficacy in Repetitive stress injury as follows.

- **Rasa:** among 10 dravyās, of mahākaṣāya, 5 dravyās are of madhura rasa pradhāna, 3 dravyās are kaṭu rasa pradhāna & 2 dravyās are tikta rasa pradhāna.
- **Guṇa:** 5 dravyās are having Laghu-Rūkṣa guṇa, 3 are having Guru-Snighdha guṇa
- **Vīrya & Vipāka:** Among 10 dravyās, 5 dravyās are Śīta vīrya & remaining 5 are of Uṣṇa vīrya. Similarly, 5 with Madhura vipāka & Remaining 5 with Kaṭu vipāka.
- **Dōṣagnata:** Among 10 dravyās, 3 dravyās are Tridōṣa śāmaka, 4 are Kapha-vāta śāmaka, 1 with Kapha-Pittahara & 2 with Vāta-Pitta śāmaka.

Table No. 19: KARMUKATA OF AṄGAMARDAPRAŚAMANA DAŚĒMĀNI BASED ON PRADHĀNA RASA		
Sl.No.	Rasa	Karma
	Madhura ⁹	<ul style="list-style-type: none"> ➤ Āyusyaḥ, Ṣaḍindriya prasādaka, Pitta-viṣa-mārutaghaṇaḥ, Balyaḥ, Prīṇana, Jīvana, Tarpaṇa, Bṛhmaṇa, Sthairyakara, Mūrchāpraśamaṇaḥ ➤ Rasa-Rakta-Māmsa-Mēdō-Asthi-Majja-Ōjaḥ-Śukra-Stanyavardhana

Rasa	Kaṭu ¹⁰	➤ Agnim Dīpayati, Mārgān Vivṛṇōti , Ślēṣmāṇam Śamayati ➤ Dīpana, Pācana, Rōcana, Ālasya Praśamana
	Tikta ¹¹	➤ Mūrchāpraśamanaḥ , Sthirīkaraṇa, Dīpana, Pācana ➤ Dīpana, Mūrchāpraśamanaḥ
Guna	Laghu & Rooksha Guṇa	Is beneficial in removing the kapha (In terms of Āma also), which is the reason for Srōtōrodha.
	Guru & snigdha guṇa	Beneficial in alleviating aggravated Vāta dōṣa.
Vīrya	Uṣṇa Vīrya dravyās ¹²	Pacifies Vāta-Kapha dōṣa
	Śīta Vīrya dravyās ¹²	Pacify Pitta dōṣa.
Vipāka	Madhura vipāka dravyās	Vāta-pitta sāmaka, does the action of Santarpaṇa & Dhatu poshana.
	Kaṭuvipāka dravyās	Act as kapha sāmaka, does the action of Pachana followed by Deepana & anulomana.

Along with this, 3 dravyās are endowed with Tridōṣa sāmaka, 4 with Kapha-vāta sāmaka, 1 with Kapha-Pittahara & 2 with Vāta-Pitta sāmaka karma. With this categorisation one can infer that Aṅgamardapraśamana daśēmāni dravyās are capable enough to do **tridōṣasāmaka karma**.

Many of **Aṅgamardapraśamana dravyas** also present in other **Mahākaṣāya varga** mentioned in **Kashaya varga of caraka saṁhitā**. Through which one can infer that Aṅgamardapraśamana also help in doing other Santarpaṇa karmas like Jīvanīya, Bṛhmaṇīya & Balya, addressing other comorbid conditions like Kāśahara, Chardinigrahaṇa etc. Hence through this Multidisciplinary action of Aṅgamardapraśamana can be known. it also helps in repair and re-establishment of the dhātus through its Rāśayana Karma.

▲ **DISCUSSION ON EFFECACY OF INTERVENTION:**

The **Disabilities of the Arm, Shoulder and Hand (DASH)** questionnaire is a 30-item questionnaire that looks at the ability of a patient to perform certain upper extremity activities. This questionnaire is a self-report questionnaire that patients can rate difficulty and interference with daily life on a 5 point Likert scale.

Components of DASH Questionnaire is mainly oriented towards assessment of **pain** & its impact on personal & social activities. Hence to overcome the condition, intervention which is capable enough to reduce pain effectively & does Rasayana is beneficial. This was successfully seen in AMP Mahākaṣāya dravya.

- ▲ For the discussion point of view this Questionnaire was categorized under 3 headings:
 - a) Efficacy of intervention on pain i.e., from question 1-25.
 - b) Efficacy of intervention on associated symptoms like Tingling, weakness, stiffness & difficulty in sleeping posture i.e., from question 26-29.
 - c) Efficacy of intervention on Psychological impact of Disease condition i.e., question 30.

▲ **Efficacy of intervention on pain i.e., from question 1-25**

Pain (in terms of Aṅgamarda or śūla) is vāta dōṣa prakōpa lakṣaṇa. As 5 dravyās are with Madhura rasa which is processing Vāta śāmaka property & maximum dravyās had Vātaśāmaka dōṣagnata karma, significant Improvements were noted.

▲ **Efficacy of intervention on associated symptoms like Tingling, weakness, stiffness & difficulty in sleeping posture i.e., from question 26-29.**

Associated symptoms like tingling sensation & difficulty in sleeping posture was due to Vāta dōṣa, Weakness & Stiffness was due to Kapha dōṣa duṣṭi; As discussed earlier, angamardaprasāmana dravyās are capable enough to do tridōṣāhāra karma, madhura rasa is having Balya, jīvanīya, tarpaṇa & Sthiri Kāraṇa karma, kaṭu rasa had slēṣmāṇām śamayati & Ālasya prasāmana karma through which significant improvements were noted in vāta & kapha duṣṭi respectively.

▲ **Efficacy of intervention on Psychological impact of Disease condition i.e., question 30.**

As majority of subjects disagreed the question, conclusion can't be drawn.

▲ **DISCUSSION ON OVERALL EFFECT OF INTERVENTION ON RSI:**

TABLE No. 20: SHOWING COMMON PATHOLOGY INVOLVED & EFFECT OF INTERVENTION		
<u>COMMON FACTORS</u>	<u>RSI</u>	<u>EFFECT OF INTERVENTION</u>

<u>DŌSA</u>	Vāta Pradhāna Tridōṣa duṣṭi [Vāta Vruddhi, Pitta Sama & Kapha Kṣaya]	<ul style="list-style-type: none"> ▪ <u>Vāta:</u> Vāta śamana occurs due to uṣṇa – snigdha guṇa of kaṭu and madhura rasa. ▪ <u>Pitta:</u> Pitta śamana occurs due to śīta rasa prabhāva of tikta and śīta vīrya prabhāva of madhura rasa along with guru, snigdha guṇa of madhura rasa. ▪ <u>Kapha:</u> Kapha śamana occurs due to uṣṇa vīrya of kaṭu rasa and laghu, rūkṣa guṇa of kaṭu – tikta rasa.
<u>DŪSYA</u>	<ul style="list-style-type: none"> - Rasa-Rakta-Māmsa-Mēda [Initially] - Asthi-Majja [Later] 	<ul style="list-style-type: none"> - <u>Rasa:</u> Kaṭu rasa is slēṣmāṇām śamayati [Similary Rasa], sphuṭikaraṇa of Indriya. - <u>Rakta:</u> madhura rasa is Jīvanīya which is the karma of Rakta. - <u>Māmsa:</u> Madhura rasa is Sthairyakara, balya & Bṛmhaṇa. - <u>Medha:</u> Tikta rasa does lekhaṇa, mārgān vivṛṇōti karma - <u>Asthi:</u> Tikta rasa does asthi pōṣaṇa. - <u>Majja:</u> Madhura & Kaṭu rasa does Murchaprasamana
<u>SRŌTAS</u>	<ul style="list-style-type: none"> - Rasa-Rakta-Māmsa-Mēdhovaha Srōtas [Initially] - Asthi-Majja Srōtas [Later] 	<ul style="list-style-type: none"> - Kaṭu rasa – mārgān vivṛṇōti
<u>AGNI</u>	Jātarāgni & Dhātvāgnimāndhyajanya	Kaṭu – tikta rasa does Agni Dīpana, Pācana & Rōcana.
<u>TYPE OF SAMPRĀPTI</u>	Mārgāvarōdhajanya	<p>As discussed earlier, aṅgamarda prasamana dravyas are capable enough to do mārgān vivṛṇōti karma through Kaṭu rasa. Through which</p> <ul style="list-style-type: none"> - it removes Saṅga / Marga-avarana, - Normalizes Gati of Vitiated dōṣas especially vāta, inturn reduces Aṅgamarda or śūla which is the pratyātma lakshama of Vyādhi.

		<p>- Also corrects Utaottara Dhātu duṣṭi.</p> <p>Does Santarpana & Rasayana Karma at the site of Pathology.</p>
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With this one can infer that Aṅgamarda Praśamana Daśēmāni Mahākaṣāya is capable enough to act on RSI due to which significant results were seen.

- To summarize, the **null hypothesis (H0)** i.e., “Aṅgamarda Praśamana Daśēmāni mahākaṣāya has no effect on RSI” was **rejected** and the **alternative hypothesis (H1)** i.e., “Aṅgamarda Praśamana Daśēmāni mahākaṣāya is effective in RSI” is **accepted**.

CONCLUSION:

RSI is one among the fast'ly growing occupational disorder, which needs a promising & effective remedy to cure such condition. AMP Mahākaṣāya is one such formulation having multi benefits because of its unique combination of drugs. It showed satisfactory results on major components DASH Questionnaire of RSI with P value 0.001 which is due to multi-disciplinary action of AMP Mahākaṣāya. With this one can conclude that AMP Mahākaṣāya is beneficial in counter-acting RSI.

REFERENCES:

- John Ebnezar, Repetitive Stress Injury, Text book of Orthopedics (4th ED) under Section 4: common Back problems of 34th chapter p.no. 461.
- <https://www.britannica.com/science/repetitive-strain-injury>
- Management of Anukta Vata Roga due to repetitive stress injury – an observational study – Dissertation work-KC 2003, GAMC Mysuru, Karnataka.
- Vaidya JT Acharya, editor. Caraka saṁhitā by Agnivesha with Āyurveda Dipika commentary. Varanasi: Chaukhamba Surbharati Prakashan; 2017. P.no.
- Text Book of Dravyaguna Vijnana, by Dr Prakash L. Hegde, & Dr Harini, Chaukhamba Publications: Vol-2.
- https://www.google.com/search?q=VISUAL+ANALOGUE+PAIN+SCALE&sxsrf=ALiCzsbYjjqWuGuijLNlpej9Y2f-cZinLw:1656222614566&source=lnms&tbn=isch&sa=X&ved=2ahUKEwj2u_CEtSr4AhWh2jgGHbCDBcEQ_AUoAXoECAEQAw&biw=1536&bih=754&dpr=1.25#imgsrc=0vSn82UIL9k--M
- <https://www.myoptumhealthphysicalhealth.com/Documents/Forms/DASH.pdf>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1282577/>
- Vaidya JT Acharya, editor. Caraka saṁhitā by Agnivesha with Āyurveda Dipika commentary. Varanasi: Chaukhamba Surbharati Prakashan; 2017. P.no. 144..

10. Vaidya JT Acharya, editor. Caraka samhita by Agnivesha with Āyurveda Dipika commentary. Varanasi: Chaukhamba Surbharati Prakashan; 2017. P.no. 144.
11. Vaidya JT Acharya, editor. Caraka samhita by Agnivesha with Āyurveda Dipika commentary. Varanasi: Chaukhamba Surbharati Prakashan; 2017. P.no. 144-145. .
12. Pt. Hari Sadasiva Sastri Paradakara Bhashagacharya, editor. Ashtanga Hrudaya by Vagbhat with Sarvangasundara commentary by Arunadatta and Āyurvedarasayana commentary by Hemadri. Varanasi: Chaukhamba Surbharati Prakashan; 2014. p.no. 169.

