

## A COMPARATIVE CLINICAL STUDY ON AGNIKARMA AND KATIBASTI IN GRADHRASI

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### ABSTRACT

Sciatica describes leg pain that is localized in the distribution of one or more lumbosacral nerve roots, typically L4-S2, with or without neurological deficit. The varied post operative complications like continued pain, Nerve trauma, Incontinence, Spinal instability of the contemporary surgical methods, it is wise to adopt Snehadi kriya by using the concept of Swedana, to manage the Gradhrasi. In this present study the classical concepts of Agnikarma and Swedana were utilized in the modified form to enhance the acceptance rate of treatment. A total of 30 patients, divided into 2 groups of 15 patients each were subjected to one sitting of Agnikarma (Group A) and Kati Basti (Group B) with pretest and post-test design. Among the two varieties of Gradhrasi, Vataja type was frequently encountered. Statistically significant improvement was observed in objective parameters like SLRT, Tenderness, and in subjective parameters like Sthamba, Toda, Grahana, Range of movements around the trunk especially at the end of the 14<sup>th</sup> day after the treatment. Comparing the effect of both treatments separately, Kati Basti has shown better clinical and statistical significance than the Agnikarma.

**KEYWORDS:** Gradhrasi, Sciatica, Lumbar radiculopathy, Katibasti, Agnikarma.

### INTRODUCTION

Low back pain (LBP) is defined as chronic after 3 months because most normal connective tissues heal within 6-12 weeks, unless patho-anatomic instability persists. An estimated 15-20% develops protracted pain, and approximately 2-8% has chronic pain. Of those individuals who remain disabled for more than 6 months, fewer than half return to work, and after 2 years of LBP disability, a return to work is even more unlikely.<sup>[1]</sup>

Lumbosacral radiculopathy, results from nerve root impingement and/or inflammation that has progressed enough to cause neurologic symptoms in the areas that are supplied by the affected nerve root(s).

An entity termed *Gradhrasi* is mentioned in our classics under Vatavyadhi. The lumbar pain along with radiation to lower limb through buttocks, posterior aspect of thigh and calf till toe, associated with restriction of extension of legs is

defined as Gradhrasi. Sciatica has similar definition, leg pain that is localized in the distribution of one or more lumbosacral nerve roots, typically L4-S2, with or without neurological deficit.<sup>[2]</sup>

Men and women are affected equally, but in those older than 60 years, women report LBP symptoms more often than men. The incidence of LBP peaks in middle age and declines in old age when degenerative changes of the spine are universal. Sciatica usually occurs in patients during the fourth and fifth decades of life; the average age of patients who undergo lumbar discectomy is 42 years.

### Complications of lower back surgery<sup>[3]</sup>

**Continued Pain:** One of the most common complications of any spinal operation involves the patient continuing to experience pain after surgery. In fact, the trauma of the surgery may cause the pain to increase due to swelling around the nerve root, although this effect should subside within the first three months. Numbness and tingling in the leg, however, may take up to a year to resolve.

**Nerve Trauma:** Nerve damage in lumbar laminectomy procedures occurs in about one in 1,000 cases. Trauma during surgery can cause permanent muscle weakness or paralysis in the affected area.

**Spinal Instability:** Five to 10 percent of patients undergoing lumbar Laminectomy experience instability in the spine after surgery.

**Incontinence:** The spinal nerves in the lumbar area of the back feed the lower extremities and the pelvic area. Injury to the nerves in this region can cause incontinence as well as chronic constipation and bladder spasms.

So, by observing varied post operative complications of the contemporary surgical methods, it is wise to adopt *Snehadi kriya* by using the concept of Swedana, to manage the *Gradhrasi*. Sushruta Samhita Sutrasthana 24/3 explains that do not to perform *Shastradi kriya* when the disease is *Snehadi kriya Sadhya*.<sup>[4]</sup>

### OBJECTIVES

1. To evaluate the therapeutic effect of Agnikarma and Katibasti in cases of *Gradhrasi*.

### MATERIAL AND METHODS

S.no	Components	Details
1	Sample size	Minimum of 30 patients with signs and symptoms of Gradhrasi vis a vis Sciatica were selected
2	Group	Patients were divided into two groups, 15 patients in each as Group A (Agnikarma) and Group B (Kati basti).
3	Design of the study	It is a Single Blind Comparative Clinical study with pretest and post-test design, wherein 30 patients with Gradhrasi vis a vis Sciatica were randomly selected.  The signs and symptoms were scored on the basis of subjective and objective parameters and analyzed statistically by applying paired 't' test to reveal the significance of means within the group and unpaired 't' test to reveal the significance of means between the group
4	Inclusion criteria	<b>Patients with</b> 1. Cardinal symptoms of Gradhrasi vis-à-vis Sciatica. 2. Age between 18 years to 70 years. 3. Among the following examinations, if any 3 were present, i. Straight leg raising,

		ii. Lasegue's sign, iii. Bragard's sign, iv. Bowstringing's sign (Popliteal compression test), and v. Flip test. <sup>[5]</sup>
5	Exclusion criteria	<b>Patients with</b> 1. Age below 18 years and above 70 years. 2. Evidence of Spinal tuberculosis, Neoplasms and Traumatic conditions. 3. Pregnancy
6	Assessment criteria	The condition of patient was assessed before and after the treatment. A grading method was adopted to assess these criteria. Subjective and objective parameters were assessed on before treatment (day 1), after treatment (7th day and 14th day).
7	Subjective parameters	Sthambha (Stiffness), Grahana (Restricted Movements), Toda (Pricking Sensation), Spandana (Twitching), were scored as follows-  <b>No- Grade 0</b> <b>Mild- Grade 1</b> <b>Moderate- Grade 2</b> <b>Severe- Grade 3.</b> <b>Tenderness</b>  <b>1. No pain – Grade 0</b> <b>2. Patient says, it is paining – Grade 1</b> <b>3. Patient winces – Grade 2</b> <b>4. Patient winces and withdraws the part- Grade 3</b> <b>5. Patient does not allow to touch the paining area – Grade 4.</b>
8	Objective parameters	<b>Sakti utkshhepa nigrahana- Degree of Straight leg raising.</b> The degree of SLR was measured by using Gonio meter. The grades were given as below on the degree of SLR- <b>1. More than 90 degree- Grade 0</b> <b>2. Between 71 to 90 degree – Grade 1</b> <b>3. Between 51 to 70 degree –Grade 2</b> <b>4. Between 31 to 50 degree –Grade 3</b> <b>5. 30 degree and below 30 degree –Grade 4.</b>  <b>II. Extension, Flexion, Lateral Flexion and Rotation</b> were scored on these following grades- <b>1. Can easily extend/flex/laterally flex/rotate–Grade 2.</b> <b>2. Can extend/flex/laterally flex/rotate with difficulty –Grade 1.</b> <b>3. Can't extend/flex/laterally flex/rotate-Grade 0.</b>

### OBSERVATIONS

In this study, the effect of Agnikarma and Kati basti was studied on 15 patients in each Group (Group A- Agnikarma & Group B- KatiBasti) in cases of Gridhrasi. During the study, the observations were made before (1st) and after the treatment at 7th day and 14th day.

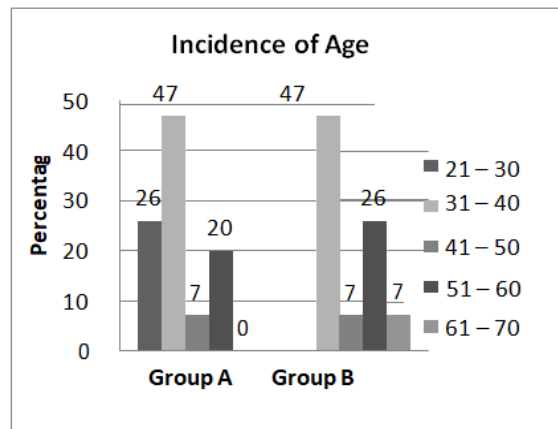
**DISTRIBUTION OF 30 PATIENTS ACCORDING TO DIFFERENT CRITERIA**

**1. Distribution of 30 patients on the basis of Age**

**Table No. 1**

Age	Group A		Group B	
	No.	%	No.	%
< 20	0	0	0	0
21 – 30	4	26	2	13
<b>31 – 40</b>	<b>7</b>	<b>47</b>	<b>7</b>	<b>47</b>
<b>41 – 50</b>	<b>1</b>	<b>7</b>	<b>1</b>	<b>7</b>
51 – 60	3	20	4	26
61-70	0	0	1	7

**Fig. No. 2**



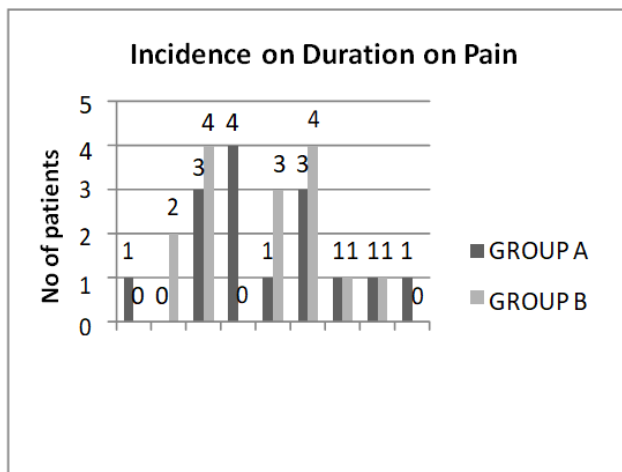
In this study, majority of the patients (47%) belonged to the age Group of 31-40 years and minimum (7%) in the age group of 41-50 in both the Groups, 61-70 years of age in Group B.

**2. Distribution of 30 patients according to Duration of pain**

**Table No. 2**

DURATION	Gp A	Gp B
< 3 days	1	0
10-15 days	0	2
1 – 3 months	3	4
4 to 6 months	4	--
< 1 year	1	3
>1 to 2 year	3	4
>2 to 4 year	1	1
>4 to 5 year	1	1
10 year	1	0

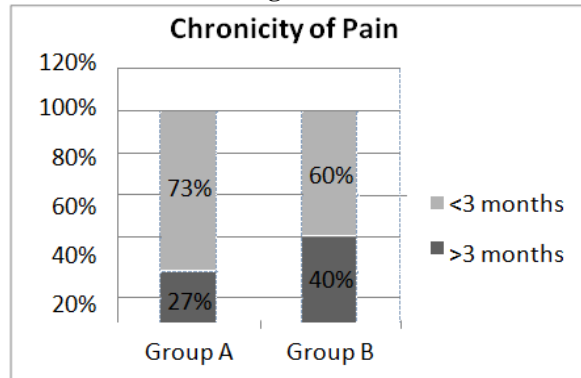
**Fig. No. 2**



**Table No. 3**

Chronicity	Group A		Group B	
	No	%	No	%
Recent onset (< 3 months)	4	27	6	40
Chronic onset (> 3 months)	11	73	9	60

**Fig. No. 3**



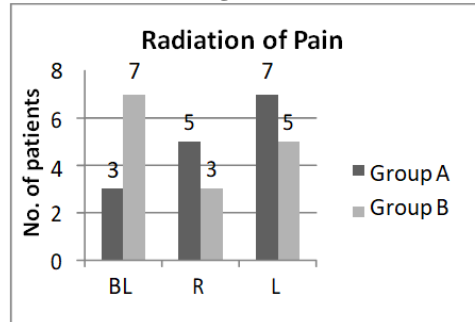
73% of patients in Group A, 60% of patients in Group B, presented with chronic onset of pain (more than 3 months of history of pain).

**3. Distribution of 30 patients according to the Radiation of pain**

**Table No. 4**

	Group A		Group B	
	No	%	No	%
Bilateral	3	20	7	47
Right	5	33	3	20
Left	7	47	5	33

**Fig. No. 4**



In Group A- 47% patients presented with radiation of pain to left leg, in 33% of patients presented with radiation of pain to right leg, 20% with radiation of pain to both legs.

In Group B - 47% of patients presented with radiation of pain to both legs, 33% with radiation of pain to left leg and 20% with radiation of pain to right leg.

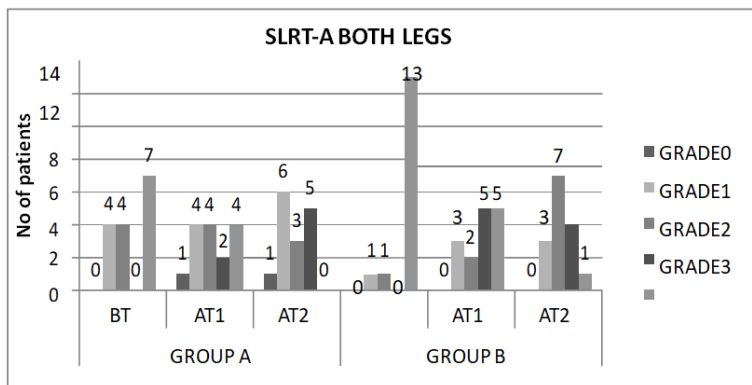
**RESULTS**

**1. EFFECT OF TREATMENT ON SLRT - BOTH LEGS**

**Table No. 5**

Grade	Group A			Group B		
	BT	AT1	AT2	BT	AT1	AT2
0	0	1	1	0	0	0
1	4	4	6	1	3	3
2	4	4	3	1	2	7
3	0	2	5	0	5	4
4	7	4	0	13	5	1

**Fig. No. 5**



Before treatment, majority of patients in Group A (7 patients) and in Group B (13 patients) belonged to grade 4(SLR degree less than 30)

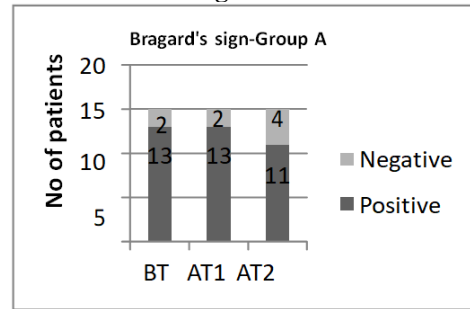
There was steady increase in the SLR degree from 7<sup>th</sup> day to 14<sup>th</sup> day in both groups.

2. EFFECT OF TREATMENT ON BRAGARD'S SIGN

Table No. 6

Group A	BT		AT1		AT2	
	No	%	No	%	No	%
Positive	13	87	13	87	11	73
Negative	2	13	2	13	4	27

Fig. No. 6

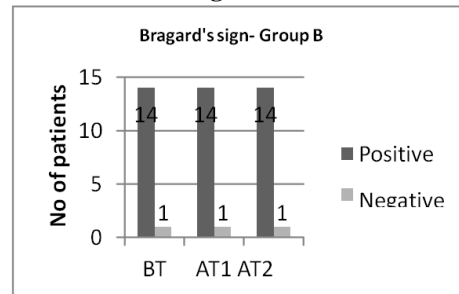


In Group A, before to the treatment, patients with positive Bragard's sign were 13. On 14<sup>th</sup> day, the number reduced to 11.

Table No. 7

Group B	BT		AT1		AT2	
	No	%	No.	%	No	%
Positive	14	93	14	93	14	93
Negative	1	7	1	7	1	7

Fig. No. 7



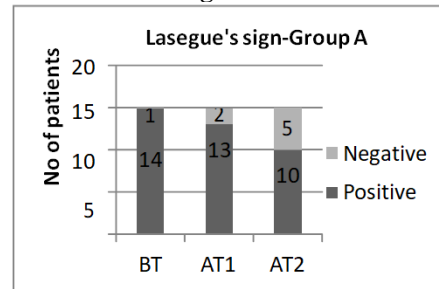
In Group B, patients with positive Bragard's sign were 14. The number remained same till 14<sup>th</sup> day also.

3. Effect of treatment on laesegue's sign

Table No. 8

Group A	BT		AT1		AT2	
	No	%	No	%	No	%
Positive	14	93	13	87	10	67
Negative	1	7	2	13	5	33

Fig. No. 8

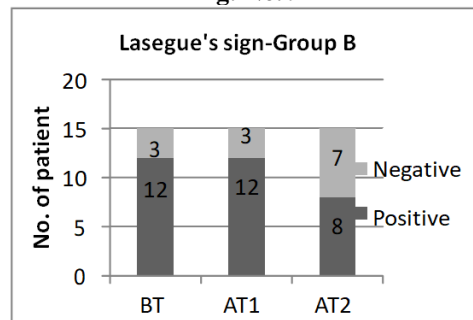


In Group A, before the treatment, 14 patients were positive with Lasegue's sign. On 14<sup>th</sup> day, the number reduced to 10.

Table No. 9

Group B	BT		AT1		AT2	
	No	%	No	%	No	%
Positive	12	80	12	80	8	53
Negative	3	20	3	20	7	47

Fig. No. 9



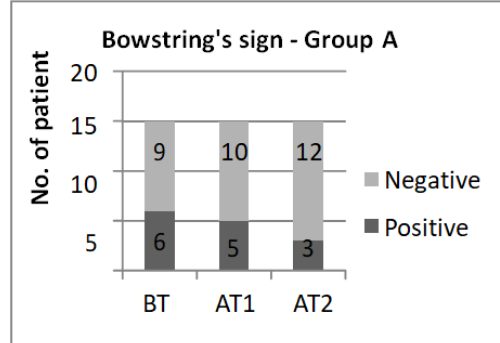
Before the treatment, in Group B, 12 patients were with positive for Lasegue’s sign. After the treatment, number reduced to 8.

4. EFFECT OF TREATMENT ON BOWSTRING’S SIGN

Table No. 10

Group A	BT		AT1		AT2	
	No	%	No	%	No	%
Positive	6	40	5	33	3	20
Negative	9	60	10	67	12	80

Fig. No. 10

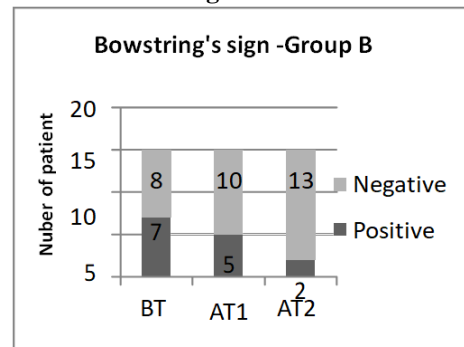


Among the 15 patients in Group A, 6 patients presented with positive Bowstring’s test before treatment. The number reduced to 3 on 14<sup>th</sup> day.

Table No. 11

Group B	BT		AT1		AT2	
	No	%	No	%	No	%
Positive	7	47	5	33	2	13
Negative	8	53	10	67	13	87

Fig. No. 11



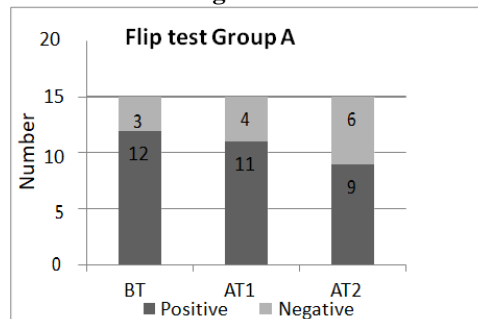
Among 15 patients of Group B, in 7 patients Bowstring’s test was positive before treatment. On 14<sup>th</sup> day, the number reduced to 2.

5. EFFECT OF TREATMENT ON FLIP TEST

Table No. 12

Group A	BT		AT1		AT2	
	No	%	No	%	No	%
Positive	12	80	11	73	9	60
Negative	3	20	4	27	6	40

Fig. No. 12

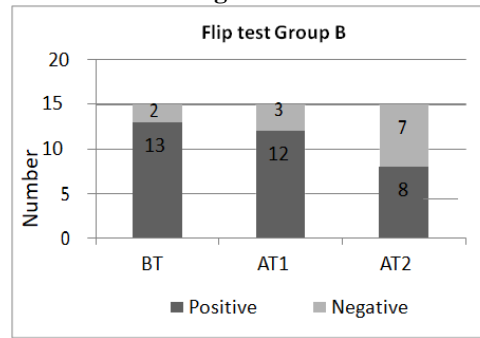


Among 15 patients of Group A, in 12 patients Flip test was positive before treatment and number reduced to 9 on 14<sup>th</sup> day.

Table No. 13

Group B	BT		AT1		AT2	
	No	%	No	%	No	%
Positive	13	87	12	80	8	53
Negative	2	13	3	20	7	47

Fig. No. 13



Among 15 patients of Group B, 13 patients were presented with positive Flip test before treatment. The number reduced to 8 on 14<sup>th</sup> day.

1. Effect on treatment on intensity of pain

TABLE No. 14

Gp	MEAN		MD	SD		SE		t	p	S
	BT	AT1		BT	AT1	BT	AT1			
A	2.13	1.80	0.33	0.35	0.41	0.09	0.10	2.64	0.019	S
B	2.13	1.53	0.60	0.35	0.51	0.09	0.13	4.58	<0.0001	HS

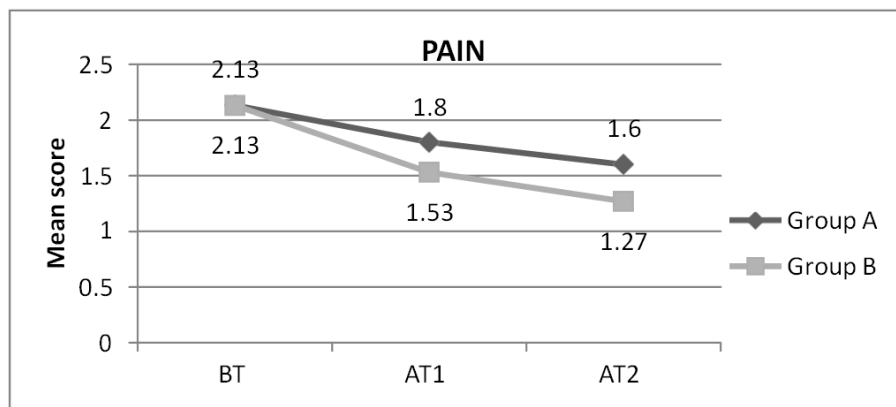
TABLE No. 15

Gp	MEAN		MD	SD		SE		t	p	S
	AT1	AT2		AT1	AT2	AT1	AT2			
A	1.80	1.60	0.20	0.41	0.50	0.10	0.13	1.87	0.08	NS
B	1.53	1.27	0.26	0.51	0.45	0.13	0.11	2.25	0.04	NS

TABLE No. 16

Gp	MEAN		MD	SD		SE		t	p	S
	BT	AT2		BT	AT2	BT	AT2			
A	2.13	1.60	0.53	0.35	0.50	0.09	0.13	3.22	0.006	S
B	2.13	1.27	0.86	0.35	0.45	0.09	0.11	6.53	<0.0001	HS

Fig. No. 14



There was a gradual reduction in mean scores in both the groups.

In group A- Statistical analysis of mean scores of BT vs. AT1 showed statistically significant ( $p < 0.05$ ), whereas of AT1 vs. AT2, showed statistically not significant ( $p > 0.05$ ). The mean scores of BT vs. AT2 showed statistically significant



(p<0.05).

In group B- Statistical analysis of mean scores of BT vs. AT1 showed statistically highly significant (p<0.0001), whereas of AT1 vs. AT2 showed statistically not significant (p>0.05). The mean scores of BT vs. AT2 showed statistically highly significant (p<0.0001).

2. Effect on tenderness

TABLE No. 17

Gp	MEAN		MD	SD		SE		t	p	S
	BT	AT1		BT	AT1	BT	AT1			
A	1.93	1.46	0.47	0.45	0.51	0.11	0.13	2.82	0.0135	S
B	1.93	1.46	0.467	0.70	0.63	0.18	0.16	3.50	0.0035	HS

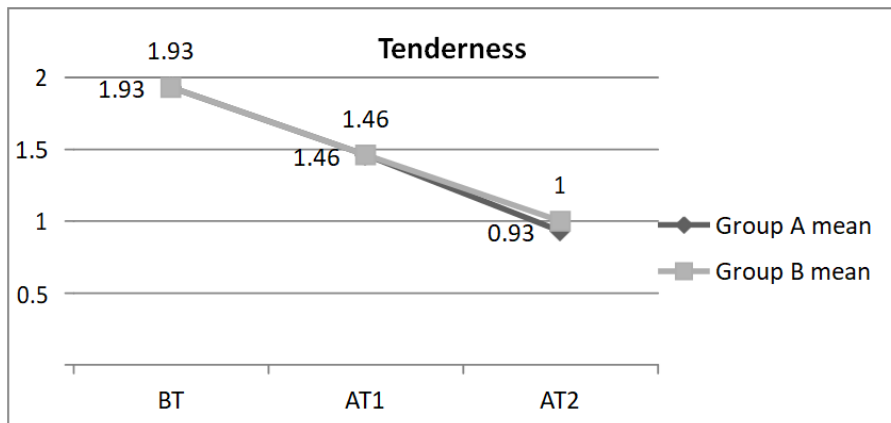
TABLE No. 18

Gp	MEAN		MD	SD		SE		t	p	S
	AT1	AT2		AT1	AT2	AT1	AT2			
A	1.46	0.93	0.53	0.51	0.25	0.13	0.06	4.0	0.001	HS
B	1.46	1.00	0.46	0.63	0.37	0.16	0.09	3.5	0.003	HS

TABLE No. 19

Gp	MEAN		MD	SD		SE		t	p	S
	BT	AT2		BT	AT2	BT	AT2			
A	1.93	0.93	1.0	0.45	0.25	0.11	0.06	5.19	<0.0001	HS
B	1.93	1.0	0.93	0.70	0.37	0.18	0.09	7.89	<0.0001	HS

Fig. No. 14



The mean score of tenderness in Group A was 1.93 before the treatment. It reduced to 1.46 at AT1, 0.93 at AT2. On paired t test, comparison of mean scores of BT vs. AT1 showed statistically significant (p <0.05), of AT1 vs. AT2, of BT vs. AT2 showed statistically highly significant (p=<0.0001).

The mean score of tenderness in Group B was 1.93 before the treatment. It reduced to 1.46 at AT1, 1.0 at AT2. On paired t test, comparison of mean scores of BT vs. AT1, of AT1 vs. AT2, of BT vs. AT2 showed statistically highly significant (p =0.0035,0.003, <0.0001 respectively.).

3. Effect on stambha

TABLE No. 20

Gp	MEAN		MD	SD		SE		t	p	S
	BT	AT1		BT	AT1	BT	AT1			
A	1.06	0.80	0.26	1.1	0.8	0.28	0.22	1.74	0.10	NS
B	1.20	0.93	0.27	1.01	0.79	0.26	0.20	2.256	0.04	S

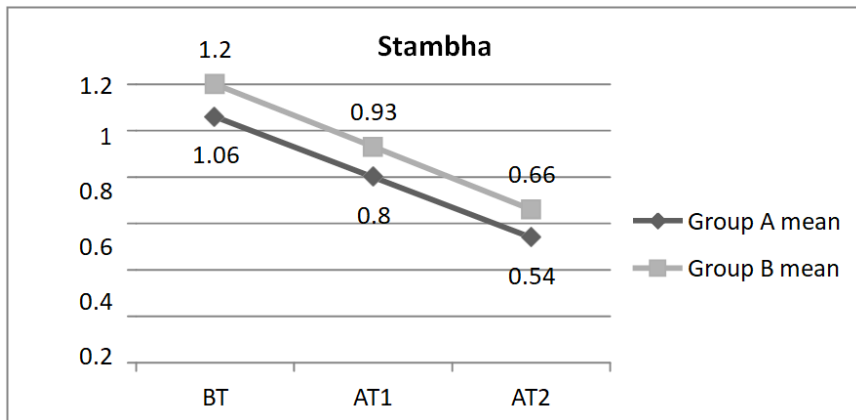
TABLE No. 21

Gp	MEAN		MD	SD		SE		t	p	S
	AT1	AT2		AT1	AT2	AT1	AT2			
A	0.80	0.54	0.26	0.80	0.60	0.22	0.16	2.25	0.04	S
B	0.93	0.66	0.27	0.79	0.61	0.20	0.11	2.25	0.04	S

TABLE No. 22

Gp	MEAN		MD	SD		SE		t	p	S
	BT	AT2		BT	AT2	BT	AT2			
A	1.06	0.54	0.52	1.1	0.60	0.28	0.16	2.47	0.026	S
B	1.20	0.66	0.54	1.01	0.61	0.26	0.11	3.22	0.006	HS

Fig. No. 15



The mean score of Stambha in Group A was 1.06 before the treatment. It reduced to 0.80 at AT1, 0.54 at AT2. On paired t test, comparison of mean scores of BT vs. AT1 showed statistically not significant ( $p > 0.05$ ), of AT1 vs. AT2, of BT vs. AT2 showed statistically significant ( $p < 0.05$ ).

The mean score of Stambha in Group B was 1.20 before the treatment. It reduced to 0.93 at AT1, 0.66 at AT2. On paired t test, comparison of mean scores of BT vs. AT1, AT1 vs. AT2, showed statistically significant ( $p < 0.05$ ) and of BT vs. AT2 showed statistically highly significant ( $p = 0.006$ ).

DISCUSSION

In this study, total 30 patients were included randomly. Group of 15 patients each were subjected to Agnikarma (Group A) and Kati basti (Group B). All patients completed the treatment. No drop out was there. There must be further clinical studies on these procedures on larger sample size to highlight which one is more efficacious in the same disease.

**On incidence of age**

Among 30 patients, majority of patients belonged to age group of 31-40(47%) in both the groups. This shows higher incidence of Sciatica in this age group. This supports textual reference that the impairments of back and spine are ranked as the most cause of limitation of activity in people younger than 45 years.<sup>[6]</sup>

**Discussion on duration of pain**

In this study, there were majority of patients with chronic history of pain in both groups in comparison to the minimum number of patients with recent onset of pain (< 3 months of history). This variation may be due to random sampling of the design.

**On radiation of pain**

There was even distribution of patients with bilateral and unilateral radiation of pain.

**On effect of treatment on SLRT**

Within the groups, the statistical significance ( $p < 0.05$ ) was observed. The patients belonging to grade 4 and grade 3 in both the groups before the treatment were fairly distributed to lower grades (Grade 0, 1 & 2) on 14<sup>th</sup> day. This shows the clinical improvement in both the groups. But, group B (Kati basti) has shown high statistical significance on the effect of treatment compared to group A (Agnikarma). However, it has to be noted that patients in group B were in more higher grades before treatment.

**On effect of treatment on intensity of pain**

There was gradual reduction in the mean scores of intensity of pain. Statistical analysis within the group showed at BT vs. AT2 in group B was statistically highly significant ( $p < 0.0001$ ) and in group A was statistically significant ( $p < 0.05$ ).

Majority of patients were presented with grade 2(moderate pain) before the treatment in both groups. In group A (Agnikarma), 40% patients were improved to grade 1 (mild) whereas in group B (Kati basti) 74% patients. We can infer by these observations that Kati basti has better effect on pain reduction than Agnikarma.

**On effect of treatment on tenderness**

There was a gradual reduction in mean scores during the course of therapy.

Statistical analysis of mean scores of tenderness in within each group on before the treatment, on AT1 and AT2, has shown significance at  $p < 0.05$ . This implied that reduction in tenderness was similar in both groups.

**On effect of treatment on stambha**

There was a gradual reduction in mean scores of Stambha during the course of therapy (BT, AT1, and AT2).

The statistical analysis revealed that mean scores between BT and AT1 of group B were not significant ( $p > 0.05$ ). Other than this value, in both the groups, mean scores have shown significant values at  $p < 0.05$ .

**CONCLUSION**

Gradhrasi is a Shoola and Stambha pradhana vyadhi. Applying the Samanya and Vishesh Siddhanta, Shoolahara and Stambhahara line of treatments like application of heat on the lumbar area in two forms were studied. In one form, application of substances heated to moderate degree of temperature on the highest point of tenderness on lumbar region

for a minimum time period of 3 seconds (in Agnikarma group) and in another, application of heat by retaining the hot Oil on Kati by maintaining nearly constant temperature for 30 minutes for 6 days (in Kati Basti group) was adopted in this study.

A total of 30 patients, divided into 2 groups of 15 patients each were subjected to one sitting of Agnikarma (Group A) and Kati basti (Group B) with pretest and post-test design. Among the two varieties of Gridhrasi, Vaataja type was frequently encountered. Majority of the patients presented with lumbar radiculopathy who were clinically diagnosed as Sciatica syndrome were due to IVDP.

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