



Research Article

## COMPARATIVE CLINICAL STUDY ON THE EFFICACY OF *KATI VASTI* AND *KATI PICHU* WITH *SAHACHARA TAILA* WITH *SINHASYA DANTEE KASHAYA* IN THE MANAGEMENT OF *GRIDHRASI*

Rajakaruna B.G.M.K<sup>1\*</sup>, Jayawardhane N.D.N.<sup>2</sup>

<sup>1</sup>Senior Registrar, Dept. of Kayachikithsa, Postgraduate Institute of Indigenous Medicine, <sup>2</sup>Senior Lecturer, Department of Ayurveda Medicine and Indigenous Medicine, Faculty of Indigenous Medicine, University of Colombo, Sri Lanka.

### Article info

#### Article History:

Received: 16-02-2026

Accepted: 29-03-2026

Published: 06-05-2026

### KEYWORDS:

*Gridhrasi, Sciatica, Kati Vasti, Kati Pichu, Sahachara Taila, Sinhasya Dantee Kashaya.*

### ABSTRACT

Sciatica described in modern medicine closely resembles *Gridhrasi*, which is mentioned in classical Ayurvedic texts. The present study aimed to compare the efficacy of *Sahachara Taila (ST)* with *Kati Vasti (KV)* and *Kati Pichu (KP)* along with oral administration of *Sinhasya Dantee Kashaya (SDK)* in the management of *Gridhrasi*. A randomized clinical trial was conducted on 60 patients of *Gridhrasi* who were randomly allocated into two groups. Group A received *KV* with *ST* along with oral *SDK*, while Group B received *KP* with *ST* along with the same internal medication for 14 consecutive days. Assessment was carried out using subjective parameters such as *Ruk* (pain) *Toda* (pricking sensation) *Aruchi* (loss of appetite), *Stambha* (stiffness), and *Spandana* (twitching), *Suptata* (numbness), *Ayama* (stretching sensation), and *Daha* (burning sensation) and objective parameters including Visual Analog Scale (VAS) and Straight Leg Raising Test (SLRT). Both groups showed statistically significant improvement in pain intensity and clinical symptoms ( $p < 0.001$ ). Group A demonstrated comparatively better improvement in *Ruk*, *Toda* *Ayama*, *Suptata*, and *Daha*, whereas Group B showed relatively better improvement in *Ruk*, *Toda* *Stambha*, and *Spandana*. Overall clinical improvement and vertebral mobility were better in the *Kati Vasti* group. The study concludes that combined therapy of oral *Sinhasya Dantee Kashaya* with *Sahachara Taila Kati Vasti* is more effective than the combination with *Kati Pichu* in the management of *Gridhrasi*.

### INTRODUCTION

Human beings and other vertebrates possess a highly evolved locomotor system that enables complex physical activities. The development of a sophisticated axial skeleton during evolution has allowed vertebrates to perform coordinated and efficient movements. Humans, in particular, maintain an erect posture while standing and walking on two lower limbs, which shifts the center of gravity vertically and places considerable mechanical stress on the vertebral column.

Routine activities such as prolonged standing, repetitive bending, lifting heavy loads, and extended periods of sitting can exert excessive strain on the lumbar and sacral vertebrae as well as the surrounding muscles, ligaments, and nerves. Continuous exposure to these mechanical stresses predisposes individuals to various musculoskeletal and neurological disorders affecting the lower back and lower limbs [1].

In Ayurveda, *Vata Vyadhi* constitutes a broad group of neurological and musculoskeletal disorders primarily caused by the vitiation of *Vata Dosha*. Among these conditions, *Gridhrasi* is one of the most common and clinically significant disorders. *Gridhrasi* is classified under the eighty types of *Nanatmaja Vata Vyadhi* described in classical Ayurvedic literature [2]. The term "*Gridhrasi*" is derived from the word "*Gridhra*" (vulture), indicating the characteristic gait of patients who walk with difficulty due to severe pain, resembling the movement of a vulture. This condition

#### Access this article online

Quick Response Code



<https://doi.org/10.47070/ayushdhara.v13i2.2648>

Published by Mahadev Publications (Regd.)  
publication licensed under a Creative Commons  
Attribution-NonCommercial-ShareAlike 4.0  
International (CC BY-NC-SA 4.0)

significantly impairs locomotion and functional capacity. Clinically, *Gridhrasi* is characterized by symptoms such as *Ruja* (pain), *Toda* (pricking sensation), and *Stambha* (stiffness). These symptoms usually begin in the *Sphik* (gluteal region) and gradually radiate distally to the *Kati-Prishtha* (lumbar region), *Uru* (thigh), *Janu* (knee), *Jangha* (leg), and finally the *Pada* (foot).<sup>[3]</sup>

Classical Ayurvedic texts provide detailed descriptions of the etiopathogenesis and clinical features of *Gridhrasi*. In Charaka Samhita, *Gridhrasi* is described as a condition in which pain originates from the hip region and gradually radiates to the waist, back, thigh, knee, leg, and foot, accompanied by stiffness, distress, piercing pain, and occasional twitching. These symptoms are primarily attributed to the aggravation of *Vata Dosha*. However, when *Kapha Dosha* is associated with *Vata*, additional features such as *Tandra* (drowsiness), *Gaurava* (heaviness), and *Aruchi* (loss of appetite) may also occur.<sup>[4]</sup> According to Sushruta Samhita, *Gridhrasi* occurs when aggravated *Vata* affects the ligaments of the heel and toes, resulting in obstruction of the normal movement of the leg<sup>[5]</sup>. Similarly, in Ashtanga Hridaya, Acharya Vagbhata explains that when the tendons of the foot are vitiated by *Maruta (Vata)*, pain radiates towards the ankle or toes and makes lifting of the thigh difficult, which is termed as *Gridhrasi*.<sup>[6]</sup>

The clinical manifestations of *Gridhrasi* closely resemble those of sciatica described in contemporary medicine. Sciatica is a clinical condition characterized by radicular pain originating from the lumbar region and radiating along the posterolateral aspect of the thigh and leg. Typically, the pain begins in the gluteal region and spreads along the posterior thigh, lateral side of the leg, and dorsum of the foot. In severe cases, symptoms such as numbness, muscular weakness, and gait disturbances may occur due to impaired movement of the lower limbs. Diagnosis is usually based on the history and distribution of pain and can be confirmed by clinical examinations such as the Straight Leg Raising Test and Lasegue's sign, as well as imaging techniques including X-ray and magnetic resonance imaging (MRI).<sup>[7]</sup>

Most Ayurvedic classics describe *Gridhrasi* under the broader category of *Vata Vyadhi* and do not specify exclusive causative factors. Therefore, the general *Nidana* (etiological factors) responsible for *Vata* disorders are considered relevant in its pathogenesis. These factors are broadly classified into *Aharaja Nidana* (dietary causes) and *Viharaja Nidana* (behavioral and lifestyle causes). *Aharaja Nidana* includes excessive consumption of dry, cold, pungent, bitter, and astringent foods, as well as irregular dietary

habits such as *Adhyashana* (overeating) and *Vishamashana* (irregular eating patterns). *Viharaja Nidana* includes excessive physical exertion, prolonged night vigil, day sleep, fasting, trauma, carrying heavy loads, excessive sexual activity, mental stress, grief, fear, and long-distance travel<sup>[8]</sup>.

From the perspective of modern medicine, sciatica may result from true sciatic neuritis or mechanical compression of nerve roots. Common etiological factors include lumbar disc herniation, spinal stenosis, piriformis syndrome, pregnancy, endometriosis, inflammation, infection, and malignancy. In addition, several risk factors have been identified, including modifiable factors such as smoking, obesity, and occupational strain, as well as non-modifiable factors such as increasing age, male gender, and a prior history of low back pain<sup>[9]</sup>.

The global burden of low back pain and sciatica is substantial. The lifetime prevalence of low back pain has been reported to range from 50% to 70%, while clinically significant sciatica occurs in more than 40% of cases associated with the lumbago-sciatica syndrome<sup>[10]</sup>. The prevalence of sciatica varies from 3.8% in the working population to 7.9% in the non-working population. In Sri Lanka, the burden of low back pain has increased considerably over recent decades. The annual years of healthy life lost due to low back pain have increased by approximately 20.3% since 1990. In 2013, the reported rate was 2,321.5 per 100,000 men and 1,469.6 per 100,000 women.<sup>[11]</sup>

Conventional management of sciatica includes analgesics, physiotherapy, and surgical interventions. However, long term use of analgesic medications is often associated with adverse drug reactions, and surgical procedures are expensive and may lead to complications or recurrence of symptoms. Ayurveda provides several therapeutic approaches for the management of *Gridhrasi*, including *Siravyadha*, *Agnikarma*, *Vasti Karma*, *Snehana*, *Swedana*, and internal medications described in classical texts such as Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya, and Bhela Samhita.<sup>[12-16]</sup>

Among external therapeutic procedures, *Kati Vasti* is widely practiced as a *Bahya Upakrama* that provides both *Snehana* (oleation) and *Swedana* (sudation) effects.

Although both *Kati Vasti* and *Kati Pichu* are widely used in clinical practice for the management of *Gridhrasi*, there is a paucity of comparative clinical studies evaluating their relative efficacy. Therefore, the present study was designed to compare the efficacy of *Sahachara Taila Kati Vasti*<sup>[17,18]</sup> and *Kati Pichu*<sup>[19-21]</sup>

along with internal administration of *Sinhasya Dantee Kashaya*<sup>[22,23]</sup> in the management of *Gridhrasi*.

**MATERIALS AND METHODS**

**Study Design:** The present study was conducted as a randomized comparative clinical trial to evaluate the efficacy of *Kati Vasti* and *Kati Pichu* with *Sahachara Taila* along with internal administration of *Sinhasya Dantee Kashaya* in the management of *Gridhrasi* (sciatica). The study was carried out among patients attending the Outpatient Department (OPD) and Inpatient Department (IPD) of the National Ayurveda Teaching Hospital, Borella, Sri Lanka. The final sample size was 30 patients per group, making a total of 60 patients.

**Sampling Technique:** Patients diagnosed with *Gridhrasi* and fulfilling the inclusion criteria were selected using a simple random sampling technique. Written informed consent was obtained prior to inclusion. Group A, 30 patients were treated with *Sinhasya Dantee Kashaya* (oral administration) and *Kati Vasti* with *Sahachara Taila*. Group B, 30 patients received: *Sinhasya Dantee Kashaya* (oral administration) and *Kati Pichu* with *Sahachara Taila*.

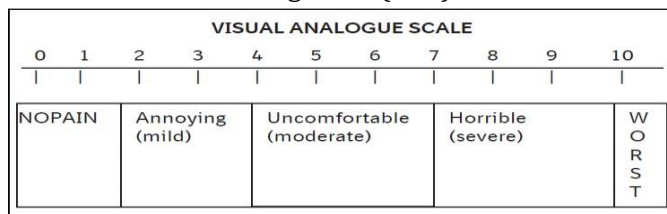
**Intervention**

Internal medications were *Sinhasya Dantee Kashaya* - Dose: 120ml twice daily, time: before meals (6.00 AM and 6.00 PM), duration: 14 days and *Anupana*: 15ml castor oil.

External therapies were, *Kati Vasti*- A circular frame made of dough was placed over the lumbar region. Warm *Sahachara Taila* was poured into the frame and retained over the affected area for 30 minutes daily and *Kati Pichu*- A sterile cotton pad soaked in warm *Sahachara Taila* was applied to the

lumbar region and kept in place for 30 minutes daily. Both procedures were performed for 14 consecutive days.

**Assessment Criteria:** The therapeutic response was assessed using both subjective and objective parameters before and after treatment. Subjective parameters symptoms evaluated including *Ruk* (pain), *Toda* (pricking sensation), *Stambha* (stiffness), *Spandana* (twitching), *Gaurava* (heaviness), *Tandra* (drowsiness) and *Aruchi* (loss of appetite). These symptoms were graded using standardized scoring scales and Visual Analog Scale (VAS).



**Figure:1 Visual Analog Scale (VAS)**

**Objective Parameters:** The following clinical parameters were used: Straight Leg Raising (SLR) Test and vertebral column movements. The SLR angle was measured using a goniometer before and after treatment.

**Table 1: Straight Leg Raising Test**

Score	Angle
0	≥80°-90°
1	70°-79°
2	50°-69°
3	30°-49°
4	10°-29°

**Table 2: Vertebral Column Movements**

Movement	0	1	2	3
Flexion	No impairment	Mild	Moderate	Severe
Extension	No impairment	Mild	Moderate	Severe
Right lateral bending	No impairment	Mild	Moderate	Severe
Left lateral bending	No impairment	Mild	Moderate	Severe
Rotation	No impairment	Mild	Moderate	Severe

**Outcome Measures:** Clinical assessment was performed on the 14-day treatment period.

**Subjective Outcome:** Improvement was assessed based on reduction of symptoms and improvement in functional capacity and wellbeing.

**Objective Outcome:** Improvement was assessed using: SLR test findings, spinal mobility

Ethical Considerations were granted by Ethics Review Committee Faculty of Indigenous Medicine (ERCFIM) University of Colombo at 96<sup>th</sup> Ethical Review Committee (Project No: ERC22/178). Statistical Analysis were performed by using of SPSS statistical software

## RESULTS

**Table 3: Frequency Distribution of the Sociodemographic characteristics of the respondents**

Characteristics	Group A (n=30)		Group B (n=30)		Total(N=60)	
	n	%	n	%	N	%
<b>Age (Years)</b>						
20-40	6	20.0	7	24.4	13	21.67
41-60	17	56.7	10	33.3	27	45.00
61-80	7	23.3	13	43.3	20	33.33
<b>Gender</b>						
Male	13	43.3	10	33.3	23	38.3
Female	17	56.7	20	66.7	37	61.7
<b>Civil Status</b>						
Married	19	63.3	16	54.4	35	58.3
Single	5	16.7	7	23.3	12	20.0
Divorced	2	6.7			2	3.3
Widowed	4	13.3	7	23.3	11	18.3
<b>Economic level</b>						
Poor	6	20.0	2	6.7	8	13.3
Middle class	18	60.0	22	73.3	40	66.7
High Class	6	20.0	6	20.0	12	20.0
<b>Occupation</b>						
Sedentary	2	6.7	8	26.7	10	16.7
Active	10	33.3	16	53.3	26	43.3
Labour	6	20.0	2	6.7	8	13.3
Other	12	40.0	4	13.3	16	26.7
<b>Ethnicity</b>						
Sinhala	29	96.7	24	80.9	53	88.4
Muslim	1	3.3	2	6.7	3	5.0
Tamil			2	6.7	2	3.3
Other			2	6.7	2	3.3
<b>Level of education</b>						
Primary	15	50.0	8	26.8	23	38.3
Secondary	14	46.7	17	56.7	31	51.7
Tertiary	1	3.3	5	16.7	6	10.0

The table 3 presented the socio-demographic characteristics of participants in Group A (n = 30) and Group B (n = 30), with a total sample size of 60. The majority of participants belonged to the 41–60 years age group i.e. 45%, indicating a predominantly middle-aged study population. In Group A, most participants were aged 41–60 years (56.7%). In Group B, the highest proportion was in the 61–80 years category (43.3%). Females constituted the majority of the sample (61.7%), while males accounted for 38.3%. Group A had 56.7% females and 43.3% males. Group B had a higher proportion of females (66.7%). Most participants were married (58.3%), followed by single (20.0%) and widowed (18.3%) individuals. Married participants were more common in Group A (63.3%) than Group B (54.4%). The majority of participants belonged to the middle-class economic level (66.7%). Group B had a higher proportion of middle-class participants (73.3%) compared to Group A (60.0%). Poor and high-class

participants each constituted 13.3% and 20.0% of the total sample respectively. The most common occupational category was active work (43.3%), followed by other occupations (26.7%). Group A had a higher proportion of participants in the ‘other’ occupation category (40.0%). Group B showed a higher percentage of sedentary workers (26.7%) and active workers (53.3%). The sample was predominantly *Sinhala* (88.3%), reflecting the ethnic composition of the study setting. Group A had a higher proportion of *Sinhala* participants (96.7%) compared to Group B (80.0%). Minority ethnic groups (Muslim, Tamil, and others) together constituted 11.7% of the total population. More than half of the participants had secondary education (51.7%), followed by primary education (38.3%). Group A participants were mostly educated up to the primary level (50.0%). Group B had a higher proportion of participants with secondary (56.7%) and tertiary education (16.7%).

**Table 4: Effect of the symptoms before and after on the treatment of group A, B by using Wilcoxon signed rank test**

Symptoms	Group A				Group B			
	Z value	Mean Rank		P value	Z value	Mean Rank		P value
		Negative	Positive			Negative	Positive	
<i>Ruk</i>	-4.829	15.5	0.00	0.001	-4.724	15.5	0.00	0.001
<i>Stambha</i>	-1.414	1.50	0.00	0.157	-2.000	2.50	0.00	0.046
<i>Toda</i>	-4.821	15.5	0.00	0.001	-4.799	15.5	0.00	0.001
<i>Spandana</i>	-1.732	2.00	0.00	0.083	-2.236	3.00	0.00	0.025
<i>Ayama</i>	-3.742	0.00	7.50	0.001	-1.000	2.5	2.5	0.317
<i>Tandra</i>	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
<i>Gaurava</i>	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
<i>Aruchi</i>	1.000	0.000	0.000	0.317	1.000	1.000	0.000	0.317
<i>Suptata</i>	-2.000	2.000	0.000	0.046	-1.732	2.000	0.000	0.083
<i>Shosha</i>	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
<i>Vibandha</i>	-1.000	1.00	0.00	0.317	0.000	1.00	0.00	1.000
<i>Daha</i>	-2.449	3.50	0.00	0.049	-1.000	1.00	0.00	0.317
Vertebral movement-Right Lateral	-5.765	21.62	16.50	0.001	-3.874	9.50	0.00	0.001
Vertebral movement-Left Lateral	-5.709	21.11	16.50	0.001	-3.917	11.15	8.00	0.001
Vertebral movement-Flexion	-6.002	22.50	0.00	0.001	-3.900	8.50	0.00	0.001
Vertebral movement-Extension	-6.300	24.50	0.00	0.001	-4.134	10.50	0.00	0.001
Vertebral movement-Rotation	-6.241	24.50	0.00	0.001	-4.053	10.50	0.00	0.001

**Z value:** The test statistic from Wilcoxon test; shows the magnitude and direction of change. Mean Rank (Negative/Positive): Average ranks of symptom changes; “Negative” often refers to a reduction in symptom severity, “Positive” refers to worsening or increase. P value: Significance of the change. A  $p < 0.05$  indicates a statistically significant difference after treatment.

In Group A, a statistically highly significant improvement ( $p < 0.001$ ) was observed in the symptoms *Ruk*, *Ayama* and *Toda*, as indicated by negative Z values with higher positive mean ranks. This denotes a marked

reduction in pain intensity and related symptoms following treatment. A statistically significant improvement ( $p < 0.05$ ) was also seen in *Suptata*, and *Daha*, suggesting moderate effectiveness of the intervention on these symptoms. However, *Stambha*, *Spandana*, *Vibandha*, and *Aruchi* did not show statistically significant changes ( $p > 0.05$ ), indicating limited or no treatment effect. Symptoms such as *Tandra*, *Gaurava*, and *Shosha* showed no change before and after treatment, reflected by Z values of 0.000 and  $p = 1.000$ . In Group B, VAS, *Ruk*, and *Toda* demonstrated a highly significant reduction ( $p < 0.001$ ) after treatment, similar to Group A, indicating strong analgesic and symptomatic relief. *Spandana* ( $p = 0.025$ ) showed statistically significant improvement, which was comparatively better than Group A for these parameters. Other symptoms such as *Ayama*, *Suptata*, *Daha*, *Vibandha*, and *Aruchi* did not reach statistical significance ( $p > 0.05$ ). No change was observed in *Tandra*, *Gaurava*, and *Shosha*, as indicated by non-significant Z values and  $p = 1.000$ . In both group vertebral movements right lateral, left lateral, flexion, extension and rotation were highly significant improvement ( $P = 0.001$ ).

**Table 5: The comparison of symptoms among the group A & B after the treatment by using Mann-Whitney U test**

Symptoms	Z value	Mean Rank		p value
		Group A	Group B	
<i>Ruk</i>	-2.49	25.17	35.83	0.014
<i>Stambha</i>	-.523	29.5	31.6	0.601
<i>Toda</i>	-2.569	24.95	36.05	0.010
<i>Spandana</i>	-.256	31	30	0.798
<i>Ayama</i>	.000	30.5	30.5	1.000
<i>Tandra</i>	-2.68	31	30	0.788
<i>Gaurava</i>	-.512	31.5	29.5	0.609
<i>Aruchi</i>	.000	30.5	30.5	1.000
<i>Suptata</i>	.000	30.5	30.5	1.000
<i>Shosha</i>	.000	30.5	30.5	1.000
<i>Vibandha</i>	.000	30.5	30.5	1.000
<i>Daha</i>	-2.560	26.5	34.5	0.010
Vertebral movement- Right Lateral	-.682	29.07	31.93	0.495
Vertebral movement- Left Lateral	-.008	30.48	30.52	0.994
Vertebral movement- Flexion	-1.077	28.3	32.7	0.282
Vertebral movement- Extension	-2.252	26.08	34.92	0.024
Vertebral movement- Rotation	-2.482	25.45	35.55	0.013

**Z value:** Test statistic indicating the difference between groups. Mean Rank (Group A/Group B): Average rank of scores in each group value: Significance of the difference.  $p < 0.05$  indicates a significant difference between groups. The table 5 showed the comparison of symptoms between Group A and B after treatment. Significant improvements in *Ruk* ( $p = 0.014$ ), *Toda* ( $p = 0.010$ ), *Daha* ( $p = 0.010$ ), vertebral movement extension and rotation ( $p = 0.024, 0.013$ ). No significant difference: *Stambha*, *Spandana*, *Ayama*, *Tandra*, *Gaurava*, *Aruchi*, *Suptata*, *Shosha*, *Vibandha*, vertebral movement- right lateral, left lateral, flexion ( $p > .05$ ).

**Table 6: Effect of the treatment on VAS and SLRT R/S.L/S before and after within the group A by using Paired sample T test**

	Mean		Mean Def.	Std. D.	SEM	95% C.I.D		t	df	P value
	BT	AT				Lower	Upper			
VAS	4.42	3.37	1.050	4.378	.565	-.081	2.181	1.858	59	0.068
SLRT R/S	2.53	1.25	1.283	1.106	.143	.998	1.569	8.987	59	<b>0.001</b>
SLRT L/S	1.87	1.13	.733	.821	.106	.521	.945	6.922	59	<b>0.001</b>

The table 6 showed the effect of treatment on VAS and SLRT (right/left) within Group A using the paired sample t-test. VAS: Mean decreased from 4.42 to 3.37;  $t = 1.858$ ,  $p = 0.068$  and not statistically significant. SLRT Right Side (R/S): Mean decreased from 2.53 to 1.25;  $t = 8.987$ ,  $p = .001$  and highly significant improvement. SLRT Left Side (L/S): Mean decreased from 1.87 to 1.13;  $t = 6.922$ ,  $p = 0.001$  and highly significant improvement.

**Table 7: Effect of the treatment on VAS and SLRT R/S.L/S before and after within the group B by using Paired sample T test**

	Mean		Mean Def.	Std. D.	SEM	95% C.I.D		t	df	P value
	BT	AT				Lower	Upper			
VAS	7.23	2.97	4.267	1.856	.339	3.574	4.960	12.593	29	.001
SLRT R/S	2.33	1.30	1.033	.964	.176	.673	1.393	5.869	29	.001
SLRT L/S	1.93	1.17	.767	.898	.164	.431	1.102	4.678	29	.001

The table 7 showed the effect of treatment on VAS and SLRT (right/left) within Groups B using the paired sample t-test. VAS: Mean decreased from 7.23 to 2.97;  $t = 12.593$ ,  $p = .001$  and not statistically significant. SLRT Right Side (R/S): Mean decreased from 2.33 to 1.30;  $t = 5.869$ ,  $p = .001$  and highly significant improvement. SLRT Left Side (L/S): Mean decreased from 1.93 to 1.17;  $t = 4.678$ ,  $p = .001$  and highly significant improvement.

**Table 8: Comparison of the treatment on VAS and SLRT R/S.L/S among group A & B after the treatment by using independent sample T test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	p value	Mean Diff.	SEM.	95% C.I.D	
									Lower	Upper
VAS	Equal variances assumed	0.719	0.400	-10.250	58	0.001	-2.733	0.267	-3.267	-2.200
	Equal variances not assumed			-10.250	57.947	0.001	-2.733	0.267	-3.267	-2.200
SLRT RS	Equal variances assumed	0.537	0.467	-0.384	58	0.703	-0.100	0.261	-0.622	0.422
	Equal variances not assumed			-0.384	57.963	0.703	-0.100	0.261	-0.622	0.422
SLRT LS	Equal variances assumed	0.002	0.967	-0.227	58	0.821	-0.067	0.293	-0.654	0.521
	Equal variances not assumed			-0.227	57.978	0.821	-0.067	0.293	-0.654	0.521

Levene's Test for Equality of Variances: Checks whether the variances of the two groups are equal. Sig. > 0.05: Variances are equal → use "Equal variances assumed" Sig.<0.05: Variances are unequal → use "Equal variances not assumed" row.t, df, p-value: Standard t-test outputs., Mean Diff. & 95% CI: Shows difference in means and confidence interval.

The table 8 showed the comparison between Group A and B after treatment using the independent sample t-test. VAS:  $t = -10.250$ ,  $p = .001$  and significant difference; Group A had a greater reduction in pain compared to Group B. SLRT Right Side (R/S):  $t = -.384$ ,  $p = .703$  no significant difference between groups. SLRT Left Side (L/S):  $t = -.227$ ,  $p = .821$  no significant difference between groups.

**Table 9: Effect of the symptoms before and after follow up on the treatment of group A, B by using Wilcoxon signed rank test**

Symptoms	Z value	Group A			Group B			
		Mean Rank		P value	Mean Rank		P value	
		Negative	Positive		Negative	Positive		
Ruk	-4.819	15.5	0.00	0.001	-4.806	15.5	0.00	0.001
Stambha	-4.243	9.50	0.00	0.001	-4.690	11.50	0.00	0.001

<i>Toda</i>	-4.821	15.5	0.00	0.001	-4.818	15.5	0.00	0.001
<i>Spandana</i>	-4.829	15.5	0.00	0.001	-4.472	10.5	0.00	0.001
<i>Ayama</i>	-2.235	3.00	7.50	0.025	-3.873	8.00	0.00	0.001
<i>Tandra</i>	-3.317	6.00	0.00	0.001	-3.162	5.5	0.00	0.002
<i>Gaurava</i>	-3.873	6.000	0.000	0.001	-3.742	7.500	0.000	0.001
<i>Aruchi</i>	3.464	6.500	0.000	0.001	3.464	6.500	0.000	1.000
<i>Suptata</i>	-4.000	8.500	0.000	0.001	-3.873	8.0	8.000	0.001
<i>Shosha</i>	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
<i>Vibandha</i>	-4.583	11.00	0.00	0.001	-4.472	10.5	0.00	0.001
<i>Daha</i>	-2.827	4.50	0.00	0.006	-3.317	6.0	0.00	0.001

Table 4.16 showed most symptoms improved significantly after treatment in both groups, as indicated by very low p-values (<0.05). *Aruchi* (loss of appetite) improved significantly in Group A (p = 0.001) but not in Group B (p = 1.000), suggesting a treatment difference between groups. *Shosha* (dehydration or dryness) did not improve in either group (p = 1.000). Symptoms with the largest Z values (absolute value) like *Ruk*, *Toda*, *Spandana* show strong improvement p-values (<0.001). *Ayama*, *Tandra*, *Daha* showed moderate improvement but still statistically significant in both groups p-values (<0.05).

**Table 10: Effect of the treatment on VAS and SLRT R/S.L/S before and after follow up within the group A by using Paired sample T test**

	Mean		Mean Def.	Std. D.	SEM	95% C.I.D		t	df	P value
	BT	AT				Lower	Upper			
VAS	4.42	.35	4.067	3.313	.428	3.211	4.923	9.507	59	.001
SLRT R/S	2.53	.23	2.300	1.740	.225	1.851	2.749	10.240	59	.001
SLRT L/S	1.87	.27	1.600	1.689	.218	1.164	2.036	7.336	59	.001

Table 4.17 reflected VAS (Visual Analog Scale for pain): Before treatment, mean = 7.17 (high pain). After treatment, mean = 0.13 (almost no pain). t = 24.626, p = 0.001, shows extremely significant pain reduction. SLRT (Straight Leg Raise Test) R/S and L/S: right side improved from 2.73 to 0.23; t = 7.626, p = 0.001. Left Side improved from 1.80 to 0.23; t = 5.254, p = 0.001. Both sides show statistically significant functional improvement after treatment.

**Table 11: Effect of the treatment on VAS and SLRT R/S.L/S before and after follow up within the group B by using Paired sample T test**

	Mean		Mean Def.	Std. D.	SEM	95% C.I.D		t	df	P value
	BT	AT				Lower	Upper			
VAS	7.23	.30	6.933	1.741	.318	6.283	7.583	21.817	29	.001
SLRT R/S	2.33	.23	2.100	1.689	.308	1.469	2.731	6.811	29	.001
SLRT L/S	1.93	.30	1.633	1.771	.323	.972	2.295	5.051	29	.001

Table 4.17 reflected VAS (Visual Analog Scale for pain): Before treatment, mean = 7.23 (high pain). After treatment, mean = 0.3 (almost no pain). t = 21.817, p = 0.001, shows extremely significant pain reduction. SLRT (Straight Leg Raise Test) R/S and L/S: Right side improved from 2.33 to 0.23; t = 6.811, p = 0.001. Left side improved from 1.93 to 0.3; t = 5.051, p = 0.001. Both sides show statistically significant functional improvement after follow up.

**Table 12: The comparison of symptoms among the group A & B before and after follow-up the treatment by using Mann-Whitney U test**

Symptoms	Z value	Mean Rank		p value
		Group A	Group B	
<i>Ruk</i>	-.502	29.75	31.5	.608
<i>Stambha</i>	.000	30.5	30.5	1.000

<i>Toda</i>	.000	30.5	30.5	1.000
<i>Spandana</i>	.000	30.5	30.5	1.000
<i>Ayama</i>	-1.000	30	31	.317
<i>Tandra</i>	.000	30.5	30.5	1.000
<i>Gaurava</i>	-1.000	31	30	.317
<i>Aruchi</i>	.000	30.5	30.5	1.000
<i>Suptata</i>	.000	30.5	30.5	1.000
<i>Shosha</i>	.000	30.5	30.5	1.000
<i>Vibandha</i>	.000	30.5	30.5	1.000
<i>Daha</i>	.000	30.5	30.5	1.000
Vertebral movement- Right Lateral	-1.964	28.03	32.97	.050
Vertebral movement- Left Lateral	-.796	29.57	31.43	.426
Vertebral movement- Flexion	-.411	29.98	31.02	.681
Vertebral movement- Extension	-.662	29.53	31.47	.508
Vertebral movement- Rotation	-1.145	28.7	32.3	.252

Most symptoms show no significant difference between Group A and Group B after treatment ( $p > 0.05$ ). This indicates that both groups responded similarly to treatment for the majority of symptoms. Vertebral movement- Right Lateral shows marginal significance ( $p = 0.050$ ): Mean rank: Group A = 28.03, Group B = 32.97. Suggests Group B might have slightly better improvement in right lateral vertebral movement. Other vertebral movements (left lateral, flexion, extension, rotation) show no significant differences, indicating similar improvements in both groups.

## DISCUSSION

Sociodemographic characteristics referred to a combination of social and demographic factors, such as age, gender, race, religion as well as including socioeconomic status (SES), which is often measured by an individual's educational attainment, occupation, and income<sup>[24]</sup>. In the present study as shown in Table 3 age group (41-60) were high in proportion, i.e., 45%. In Group A, most participants were aged 41-60 years i.e., 56.7%. In Group B, the highest proportion was in the 61-80 years category i.e., 43.3%. Females constituted the majority of the sample i.e., 61.7%, while males accounted for 38.3%. Group A had 56.7% females and 43.3% males. Group B had a higher proportion of females i.e., 66.7%. Most participants were married i.e., 58.3%, married participants were more common in Group A (63.3%) than Group B (54.4%). The most common occupational category was active work i.e., 43.3%, Group A had a higher proportion of participants in the 'other' occupation category (40.0%). Group B showed a higher percentage of active workers (53.3%). The sample was predominantly *Sinhala* i.e., 88.3%, reflecting the ethnic

composition of the study setting. It was different of the findings of the previous study mentioned that 25% patients were from the age-group of 41-50 years, male and females patients have equal ratio 50% each, 75% patients Hindu, 95.83% were married, 41.67% were housewives, 66.67% were from urban areas.<sup>[25]</sup> Table 3 revealed that Group B tended to include older, more educated, and more sedentary participants, while Group A had a younger, less educated, and occupationally diverse population. These differences considered when interpreting study outcomes. In past study showed that *Prakruti* wise distribution of patients, maximum, that *Vata Kaphaja* i.e., 77.8%<sup>[26]</sup>. In present study *Prakruthi* showed, *Vata-Pitta Prakruthi* was the predominant type (36.7%), followed closely by *Vata-Kapha Prakruthi* (35.0%). *Pitta-Kapha Prakruthi* was observed in 28.3% of respondents. A study showed that the mean BMI was 22.9kg/m<sup>2</sup> (7.2% underweight, 47.9% normal weight, 36.1% overweight, and 8.9% obese)<sup>[27]</sup>. In our study. with respected to Body Mass Index, the overweight respondents in both groups, accounting for 40% in Group A and 43.4% in Group B, with a prevalence of 36.7%

In Group A, a statistically highly significant improvement ( $p < 0.001$ ) was observed in the symptoms VAS, *Ruk*, *Ayama*, *Toda*, *Suptata*, and *Daha*. This denotes a marked reduction in pain intensity and related symptoms following treatment. However, *Stambha*, *Spandana*, *Vibandha*, and *Aruchi* did not show statistically significant changes ( $p > 0.05$ ), indicating limited or no treatment effect. Previous study observed that patients of *Gridhrasi Roga* (sciatica) treated with *Kati Vasti* with *Dashamula taila* presented with significantly improvement in their symptoms of the

disease. It decreased symptoms *Toda*, *Sphurana*, *Gaurava* and *Stambha* which are common symptoms of *Vata Vyadhies*<sup>[28]</sup>. In both studies SLR Test is significantly improved with the *Kati Vasthi* treatment ( $p>0.05$ ). Post-treatment, Group A experienced significantly more pain relief (VAS). *Kati basti* aids in the relief of inflammatory changes, the release of spasms, the strengthening of the supporting tissues that support the spine, and the nourishing of the joints through enhancing circulation. Nerves, muscles, arteries, articularis, and other structures in the lumbosacral area are all implicated. *Kati basti* pacifies the enhanced *Rooksha*, *Laghu*, and *Sheeta guna* of vitiated *Vata* as *Sahachara Thaila* gives sustenance and corrects the *Shelshmakha kapha kshaya* via its *Madhura rasa*, *Snigdha guna*, *Ushna virya*, *Madhura vipaka* and *Vata shamaka guna*<sup>[29]</sup>. In modern concept thermal effect of warm oil effects arising from an increase in blood temperature stimulation of thermos detector in the skin and local temperature increase. Thus, application of heat results in an increase in the local metabolism of the cell and increased transport through the cell membranes. For every increase of one degree celsius within the physiological limits, the metabolic activity increases by about 10%. An increase in the temperature of connective tissue, in particular the collagenous tissue such as skin, muscle, tendon, ligament or articular capsule will be accompanied by an increase in the elasticity. Heat can improve the elasticity of fibrous tissue<sup>[28]</sup>. Further *Kati Vasti* continuous warm Ayurvedic oil application over the low back area for the period of 30 minutes increases the blood flow over the low back area and helps it to get the good nutrition and pain-relieving bio-chemicals of the affected area. It also helps to wash out the local toxins, waste materials and pain producing bio-chemicals from the affected area. By this process it restores the local damage of ligaments, tendons, muscles, bones and inter vertebral discs etc. of that area for chronic low back pain<sup>[30]</sup>.

In Group B, VAS, *Ruk*, and *Toda* demonstrated a highly significant reduction ( $p<0.001$ ) after treatment, similar to Group A, indicating strong analgesic and symptomatic relief. Specially *Spandana* ( $p=0.025$ ) showed statistically significant improvement, which was comparatively better than Group A for these parameters. Past study mentioned that *Kati Pichu* covers a larger surface area, enhancing drug absorption, its simplicity makes it preferable in outpatient settings. If *Kati Pichu* demonstrates efficacy comparable to or exceeding that of *Kati Vasti*, it could be adopted as a routine treatment modality for *Gridhrasi*. Further mentioned that *Sukhoshna Taila* is applied to the *Kati Pradesha* (lumbar region),

facilitating spinal oilation and muscular reinforcement. The *Sneha* component, characterized by *Snigdha* (unctuous), *Guru* (heavy), and *Ushna* (warm) properties, counteracts the *Rooksha* (dry), *Laghu* (light), and *Sheeta* (cold) attributes of *Vata*, while its *Ushna* and *Sukoshna* properties aid in pacifying *Kapha*. The deeper absorption through *Srotas* contributes to symptom relief and functional improvement.<sup>[31]</sup>

In present study the table 5 showed the comparison of symptoms between Group A and B after treatment. Significant improvements in *Ruk* ( $p=.014$ ), *Toda* ( $p=.010$ ), *Daha* ( $p=.010$ ), Vertebral movement extension and rotation ( $p=.024$ ,  $.013$ ). Further the comparison between Group A and B after treatment using the independent sample t-test. VAS:  $t = -10.250$ ,  $p = .001$  and significant difference; Group A had a greater reduction in pain compared to Group B. In past study *Kati Vasti* showed highly significant ( $P >0.001$ ) effect in *Gridhrasi*. *Kati Pichu* showed highly significant ( $P >0.001$ ) effect in *Gridhrasi*. On comparing between the group there is no significant difference was found. Hence the conclusion is the both the procedures i.e., *Kati Vasti* and *Kati Pichu* with *Eranda Patra Sadhita Tila taila* are equally efficacious in treating *Gridhrasi*.<sup>[32]</sup>

**Follow up-** The treatment was effective in reducing most symptoms in both groups. Some symptoms responded differently between groups (e.g., *Aruchi*). Symptoms like *Shosha* remained unchanged, which may indicate resistance to treatment or require additional intervention. End of the follow up table 9 showed most symptoms improved significantly after follow up treatment in both groups, *Aruchi* (loss of appetite) improved significantly in Group A ( $p = 0.001$ ) but not in Group B ( $p = 1.000$ ), suggesting a treatment difference between groups. *Shosha* (dehydration or dryness) did not improve in either group ( $p = 1.000$ ). Symptoms with the largest Z values (absolute value) like *Ruk*, *Toda*, *Spandana* show strong improvement p-values ( $<0.001$ ). *Ayama*, *Tandra*, *Daha* showed moderate improvement but still statistically significant in both groups p-values ( $<0.05$ ). Past study revealed that after the follow up the statistical analysis also showed significant improvement in pain ( $P < 0.01$ ) and SLR test ( $P < 0.01$ ) in *Kati Vasti* 7<sup>th</sup> day, 14<sup>th</sup> day and after the treatment.<sup>[33]</sup>

After follow up treatment comparison between groups, both groups achieved almost equal improvement in symptoms, except different from right lateral vertebral movement. In past study observed that the statistical analysis in between the group revealed that there is statistically insignificant difference between the groups in all the parameters except in *Stambha* ( $P=0.039$ ).<sup>[34]</sup> Although both groups

ultimately showed substantial improvement by the end of the follow-up period, the proportion of patients achieving complete functional recovery was slightly higher in Group B during the earlier stages of treatment. The gradual reduction in severe and moderate impairment categories and the corresponding increase in the no-impairment category in both groups clearly indicates the beneficial therapeutic effect of the interventions in improving vertebral mobility and reducing functional disability associated with *Gridhrasi*. Overall, the results of the study demonstrate that both *Kati Vasti* and *Kati Pichu* with *Sahachara Thaila*, when combined with *Sinhasya Dantee Kashaya*, produced considerable improvement in vertebral column extension and functional capacity in patients with *Gridhrasi*. The improvement was progressive throughout the treatment and follow-up periods, with most patients showing marked reduction in impairment levels. The findings suggest that both treatment modalities are effective in managing symptoms of *Gridhrasi*, though *Kati Pichu* appeared to produce comparatively faster improvement in vertebral mobility.

#### CONCLUSION

The present randomized comparative clinical study demonstrated that both treatment protocols-*Sinhasya Dantee Kashaya* administered orally along with *Sahachara Taila Kati Vasti* and *Sinhasya Dantee Kashaya* with *Sahachara Taila Kati Pichu*- produced statistically significant improvement in the clinical features of *Gridhrasi*. Significant reduction was observed in pain intensity (VAS), *Ruk* (pain), and *Toda* (pricking sensation) in both groups, indicating effective symptomatic relief. However, the combination therapy involving *Kati Vasti* showed comparatively better improvement in functional mobility, numbness, and burning sensation, whereas *Kati Pichu* demonstrated moderate improvement in stiffness and twitching. Intergroup comparison revealed greater overall clinical improvement in the *Kati Vasti* group. These findings suggest that *Sinhasya Dantee Kashaya* combined with *Sahachara Taila Kati Vasti* is more effective in the management of *Gridhrasi*, providing significant pain relief and functional recovery. Further studies with larger sample size and longer follow-up are recommended.

#### Acknowledgement

I express my profound and immense gratitude, heartfelt thanks and indebtedness to my supervisor respected Dr. N.D.N. Jayawardhane, Senior lecturer in Ayurveda Kayachikithsa his dedication, honesty, dynamic supervision, scholarly suggestions and clear judgment have always been source of inspiration to me. Also, I am extremely grateful to, present Director

of Post Graduate Institute of Indigenous Medicine Prof SMS Samarakoon and present Director and staff of National Ayurveda Hospital for their kind help to conducting research

#### REFERENCES

1. Kaila-Kangas L, et al. Spine, History of physical work exposures and clinically diagnosed sciatica among working and nonworking Finns aged 30 to 64, 2009; 34: 964-969.
2. Sharma RK, Dash B. Caraka Samhita. Sutrasthana. Vol.1. Varanasi: Chowkhamba Sanskrit Series; 2014. p. 363-364.
3. Sharma RK, Dash B. Caraka Samhita. Chikitsasthana. Vol.5. Varanasi; 2015. p.35.
4. Sharma RK, Dash B. Caraka Samhita. Chikitsasthana. Vol.5. Varanasi; 2015. p.35.
5. Sharma PV. Susruta Samhita. Nidanasthana. Vol.2. Varanasi; 2010. p.15.
6. Srikantha Murthy KR. Astanga Hridaya. Nidanasthana. Vol.2. Varanasi; 1992. p.158.
7. Haslett C, et al. Davidson's Principles and Practice of Medicine. 19<sup>th</sup> ed. Edinburgh; 2002. p.1191.
8. Sharma RK, Dash B. Caraka Samhita. Chikitsasthana. Vol.5. Varanasi; 2014. p.23.
9. Singh MS, et al. Ayurlog Natl J Res Ayu Sci. 2013; 1: 16-20.
10. Babu KV., Surgical Management of Lumbar Disc Prolapse by Fenestration Technique J Orthop. 2006; 3: e6.
11. Armstrong P, et al. Diagnostic Imaging. UK; 2004. p.362.
12. Sharma RK, Dash B. Caraka Samhita. Chikitsasthana. Vol.5; 2014. p.51.
13. Sharma PV. Susruta Samhita. Chikitsasthana. Vol.2; 2010. p.322.
14. Srikantha Murthy KR. Astanga Hridaya. Sutrasthana. Vol.1; 2010. p.310-311.
15. Krishnamurthy KH. Bhela Samhita. Varanasi; 2005.
16. Lavekar GS. Panchakarma Handbook. CCRAS; 2010. p.71.
17. Sharma RK, Dash B. Caraka Samhita. Sutrasthana. Vol.1; 2014. p.275.
18. Sastri HS. Astanga Hridaya Commentary. Varanasi; 2010.
19. Ayurveda Pharmacopoeia. Sri Lanka; 1994.
20. Ayurveda Pharmacopoeia. Sri Lanka; 1985.
21. Bṛhatnighandhuratnakara, Pañcama Bhaga. Kalyan (Mumbai): Lakshmi Venkateshwar Press; Vikram Samvat 1980 (1923-1924 AD). p. 454
22. Chi Quynh Vo et al. Comparing the sociodemographic characteristics of participants

- and non-participants in the population based Tromsø Study. BMC Public Health. 2023; 23: 994.
23. Namita Baishya, Pankaj Kalita. Effects of agni karma in the management of gridhrasi – a clinical study. International Journal of Ayurvedic Medicine, 2013, 4(2), 105-112
24. Chi Quynh Vo, Per-Jostein Samuelsen, Hilde Leikny Sommerseth, Torbjørn Wisløff, Tom Wilsgaard, Anne Elise Eggen, Comparing the sociodemographic characteristics of participants and non-participants in the population-based Tromsø Study, BMC Public Health. 2023 May 29; 23: 994.
25. Rita Khagram<sup>1</sup>, Hetal Vyas, A Clinico-comparative study of matra basti & kati basti with sahacharadi tail in the management of gridhrasi (sciatica), World Journal of Pharmacy and Pharmaceutical Sciences,
26. Namita Baishya, Pankaj Kalita, Effects of agni karma in the management of gridhrasi – a clinical study, International Journal of Ayurvedic Medicine, 2013, 4(2), 105-112
27. D. Samartzis, J. Karppinen, and K. MC Cheung, Body Mass Index and its Association with Lumbar Disc Herniation and Sciatica: A Large-Scale, Population-Based Study, Body Mass Index and its Association with Lumbar Disc Herniation and Sciatica: A Large-Scale, Population-Based Study, Sage Journal, 2017, Volume 4, Issue 1
28. C P Verma and Sushanta Kumar Sahoo trans. 2022. Scientific Understanding of Kati Basti and its Application in Sciatica (Gridhrasi). International Journal of Ayurveda and Pharma Research. 10, 3 (Apr. 2022), 79–82. DOI: <https://doi.org/10.47070/ijapr.v10i3.2314>.
29. Avneesh Kumar Dwivedi<sup>1</sup>, Ajay Kumar Sharma, Clinical evaluation of the efficacy of a and kati basti in the management of herbal preparation clinical evaluation of the efficacy of a herbal preparation in the management of gridhrasi roga sciatica IAMJ: Volume 3; Issue 1; January – 2015
30. Panda Ashok Kumar, Debnath Saroj Kumar, Effectiveness of Kati vasti and exercise in chronic low back pain: a randomize control study, International Journal of Research in Ayurveda & Pharmacy, 2(2), 2011 338-342
31. Kumar S Kumar Y, Kumar A, A comparative study of the effect of Kati Basti and Kati Pichu with Astakatvar Taila in the management of Gridhrasi w.s.r. to Sciatica, J Ayu Int Med Sci 2025; 10(3)
32. Suryaprakash Jokhushankar Dubey, G. S. Hadimani and Akshay Shetty A comparative clinical study to evaluate the efficacy of kati basti and kati pichu with eranda patra sadhita tila tail in gridhrasi wsr sciatica. World Journal of Pharmacy and Pharmaceutical Sciences, Vol 13, Issue 7, 2024.
33. Bali Y, Vijayasarithi R, Ebnezar J, Venkatesh B. Efficacy of Agnikarma over the padakanistakam (little toe) and Katibasti in Gridhrasi: A comparative study. Int J Ayurveda Res. 2010 Oct;1(4):223-30. doi: 10.4103/0974-7788.76786. PMID: 21455450; PMCID: PMC3059445.
34. Geeta V. Sathavane, Darshana H. Pandya, Madhav Singh Baghel, Effect of Vatari Guggulu in the management of Gridhrasi (sciatica) Ayu. Jan-Mar 2015; 36(1)41

**Cite this article as:**

Rajakaruna B.G.M.K, Jayawardhane N.D.N. Comparative Clinical Study on the Efficacy of Kati Vasti and Kati Pichu with Sahachara Taila with Sinhasya Dantee Kashaya in the Management of Gridhrasi. AYUSHDHARA, 2026;13(2):30-41. <https://doi.org/10.47070/ayushdhara.v13i2.2648>

**Source of support: Nil. Conflict of interest: None Declared**

**\*Address for correspondence**

**Dr. Rajakaruna B.G.M.K**

Senior Registrar,  
MD in Ayurveda Kayachikithsa,  
Postgraduate Institute of Indigenous  
Medicine, University of Colombo,  
Sri Lanka.

Email: [manjulabgmk@gmail.com](mailto:manjulabgmk@gmail.com)

Disclaimer: AYUSHDHARA is solely owned by Mahadev Publications - A non-profit publications, dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. AYUSHDHARA cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of AYUSHDHARA editor or editorial board members.