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A COMPARATIVE STUDY ON THE EFFECT OF VIRECHANA AND RAKTHAMOKSHANA IN THE MANAGEMENT OF SCIATICA

Research article

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ABSTRACT

Sciatica refers to pain or tingling in the leg radiate down from the lower back region through outside or front of the leg. This condition can be correlated with *Gridrasi*, which is categorized among eighty types of *vata vyadhis* (*Vata* disorders) in Ayurveda and the name is indicating the patient's abnormal posture and gait resembling a vulture. In Ayurveda management, it has recommended *deepana* (*Agni* stimulating), *pachana* (Increase *Ama* digestive power), *vamana* (Emesis), *virechana* (Purgative), *agnikarma* (Cauterization) and *rakthamokshana* (Bloodletting) for *gridrasi*. The aim of this study was to compare and evaluate the efficacy of *Raktamokşana* and *Virechana* on sciatica. Patients were selected from Gampaha Wickramarachchi Ayurveda Teaching Hospital and they were randomly assigned into 2 groups A and B. Group A was treated with *Śirāvedana* (venipuncture) and Group B was treated with *Virechana karma* (Purgation treatment). No oral drugs were given. Evaluation was done with both subjective and objective criteria before and after treatment. The majority of patients were in the 30-39 age group (40%) and female (52.5%). Considering occupations, housewives, drivers, farmers, labors are more affected. The majority of patients were reported to be overweight (52.5%) and obese (27.5%). *Raktamokşana* (Bloodletting treatment) improved pain, SLRT, walking time, and stepping time which is highly significant ($p<0.001$) and the improvement of spasms, *sthabdha* (Stiffness) and tenderness is significant ($p<0.05$). *Virechana* improved spasms, tenderness, muscle power and SLRT which is highly significant ($p<0.001$) and improved pain, Femoral Stretch test, Walking Time and Stepping Time which is significant ($p<0.05$). Considering the results of the study overall effects, it was seen that *Raktamokşana*, *Virechana* are equally effective on improving subjective as well as objective parameters of Sciatica.

Key Words: *Raktamoksana, Virechana, Gridrasi*, Sciatica, *Nanatmajavatavyadhi*

INTRODUCTION

Lower back pain and radiating lower back pain are very common and prevalence is high in present era of Sri Lanka. The prevalence is higher in men more than women and is most frequent in the working population. Globally, 619 million persons suffered from low back pain (LBP) in 2020; by 2050, cases are expected to rise to 843 million, primarily due to ageing and population growth. (WHO)[1].

Sciatica is a medical ailment characterized by lower back pain radiating down the leg.

Caused by trauma and pressure on the sciatic nerve, arising from 4-5 Lumbar vertebrae and 1-2 sacral vertebrae. This pain may go down the back, outside, or front of the leg. Lower back pain is not always present. Affected foot and leg may have multiple areas of weakness or numbness[2].

Sciatica, can be correlated with *Gridhrasi* which is common and categorized among eighty types of *Vatavyadhi* in Ayurveda[3]. This condition terms *"Grdhrasi"* indicating the patient's abnormal posture and gait resembling a Vulture caused by severe pain[4]. It is observed in this condition, patient's gait is altered as his leg become tense, and slightly curved due to pain. In the end, a patient's gait resembles a vulture's. Another theory says *Gridhrasi* is the pain caused by the claws of the vulture rather than the vulture itself[5]. It implies the typical gait of the patient, slightly tilted at the affected side and affected leg in the flexed position and another leg being extended[6]. *Gridrasi* is such a common disease, which carry little threat to life and interfere greatly with living also.

When considering the treatment of this condition, apart from the internal medicine Ayurveda *Panchakarma* has proven to be successful in managing this disease. Recommended treatment procedure for this condition can be found in various chapters in authentic Ayurveda texts. *Chikithsasuthra* has mentioned *Agni deepana, Pachana, Vamana, Virechana* and *Vasthi karma* in *nirama* (devoid of *Ama*) condition[7]. *Acharya charaka* described *vasti karma, siravyadhana* and *agnikarma* (Cauterization) in the management of *gridrasi* condition.[8].According to *acharya Susrutha*, diseases those are not relieved so quickly by *Snehana* and *Lepanadi* (Medicinal paste application) therapeutic measures, in this condition *Siravyadha* is an emergency management to achieve better results[9].

NEED OF STUDY

When considering the treatment and management of *Gridrasi* condition apart from *Deepana, Pachana aushadha* and external applications, *Virechana* and *Rakthamokshna* in the form of *siravyadhana* are less practiced methods. Modern medicine is having no specific treatment especially for this condition. So an elaborate case study has been undertaken to have an in depth knowledge about the concept of sciatica in Ayurveda terms with clinical approach.

MATERIAL AND METHODS

Study Design

Open labeled, Randomized study.

Inclusive criteria

Age between 20-60 years

Both male and female patients

Chronicity less than 03 years

Both *Vataja* and *Vata kaphaja Gridrasi* patients

Exclusive criteria

Age below 20 years and above 60 years

Chronicity more than 03 years.

Patient with chronic diseases (DM,Heart disease, CKD, Carcinoma, Hypertension.)

Patients with history of bleeding disorders

Pregnant patients

Grouping

The study was conducted at Gampaha Wickramarachchi Ayurveda Teaching Hospital using 40 patients diagnosed with sciatica and who has given written consent for participate to this study. They were randomly assigned in to 02 groups A and B consisting of 20 patients for each group. Patients were included in the study without a gender discrimination.

Group A was treated with *Siravedana* and Group B was treated with *Virechana karma*[10]. Duration of the treatment was dependent on the time taken to complete the selected *karma*. No oral drugs were given.

TREATMENT PROCEDURE

Group A

Siravedha was done twice with the gap of 7 days. Affected lower limbs were subjected to *abhyanga* with sesame oil and *nadisveda* for 10 minutes. Medial side of ankle joint was cleaned with isopropyl alcohol and applied tourniquet 4 inches above the puncture site. *Siravedha* was done with disposable scalp vein set No.21-23 with all aseptic precautions at the site of Greater saphenous vein at the ankle joint. 40 ml of bloodletting was done and then dressing of punctured site was done.

Group B

Grithapana started with 30 ml of plain *gogritha*. Each day, 30ml was increased until *samyak snigdha lakshana* appeared. Next 02 days patients were subjected to full body steam without any oral medicaments, on the 4th day morning the patients were given *Vatanagankushavati* 250mg as *Virechana* drug[11]. After drug administration, patients were observed for proper *kaphanthaka virechana lakshana*[12,13] and presentation of proper number of bouts of *virechana* (*Virechana Vega*)[14]. Patients who were in *heenayoga* condition were given hot water repeatedly in little quantities. If *virechana* was still not induced, they were administered *virechana* medicine on next day.

Data collection

Data were collected using a specially prepared research proforma. Parameters measures were recorded before and after treatment. Both subjective and objective parameters were employed for assessment of the impact of the treatment.

- Clinical features such as Pain, Spasm, Stiffness, Tenderness, and muscle power before and after treatment.
- Improvement in range of motion of lumbar spine by SLR, CLSLRT, FST, FT tests and Walking Time and Stepping Time tests

Table 1-Subjective criteria

Sign and symptom	Criteria	score
Pain [15]	Numeric pain scale 8-10	5
	Numeric pain scale 6-8	4
	Numeric pain scale 4-6	3
	Numeric pain scale 2-4	2
	Numeric pain scale 0-2	1
	Numeric pain scale 0	0
Spasm[16]	Normal movement without pain	0
	Mild pain with slight restriction of movements	1
	Moderate degree of pain with considerable restriction of movement	2
	Absolute restriction of movements	3
Stiffness[17]	No stiffness or stiffness lasting for 05 minutes	0
	Stiffness lasting 5mins- 1 hour	1
	Stiffness lasting 1 hour-2 hours	2
	Stiffness lasting 2 hours-4 hours	3

	Stiffness lasting>4 hours	4
Tenderness[18]	No tenderness	0
	Subjective experience of tenderness	1
	Wincing of face on pressure	2
	Wincing of face and withdrawal of the affected part on pressure	3
	Resist touch	4
Muscle power[19]	No contraction present	0
	Flicker of movement which can be seen and felt	1
	Muscle contraction with gravity eliminated	2
	Muscle contraction against gravity	3
	Muscle contraction against gravity and resistance	4
	Normal muscle contraction	5

Table 2 - Objective criteria

Sign and symptom	**Criteria**	**Score**
SLR Test[20]	More than 90º	4
	71º - 90º	3
	51º-70º	2
	31º-50º	1
	Up to 30º	0
CLSLR Test[21]	More than 90º	4
	71º - 90º	3
	51º-70º	2
	31º-50º	1
	Up to 30º	0
FS test[22]	Measurement of goniometer	Degree of Goniometer
FABER Test[23]	Measurement (rotation)of goniometer	Degree of Goniometer
Walking time[24] (To walk 25ft distance in a straight line in maximum speed possible and time taken in second)	>= 100s	0
	100-75s	1
	75-50s	2
	50-25s	3
	25-0 s	4
Stepping time[25] (Time taken for 25 steps in stepping action)	>= 100s	0
	100-75s	1
	75-50s	2
	50-25s	3
	25-0 s	4

OBSERVATIONS

Table 3-Observation

Observation maximum	**Group A**	**Group B**	**Total**	**Percentage**

Age (30-39)	9	7	16	40%
Female gender	11	10	21	52.5%
Housewives in occupation	7	7	14	35%
Married state	18	148	36	90%
Mixed diet habits	18	20	36	95%
Alcohol consumption	5	4	9	22.5%
Over weight constituent	10	11	21	52.5%
Madhya koshta	12	15	27	67.5%
Vishamagni	12	15	27	67.5%
Pain,stiffness,tenderness	20	20	40	100%

RESULTS Group – A (*Siravedha*)

Table 4-Results on subjective parameters

Parameter	Mean		SD		Z	P
	BT	AT	BT	AT		
Pain	2.56	1.61	0.51	0.60	-3.69	P<0.001
Spasms	2.50	1.50	0.51	0.78	-3.14	P<0.05
Stiffness	3.17	1.83	0.85	1.24	-2.95	P<0.05
Tenderness	3.21	1.44	0.80	0.70	-3.47	P<0.05
Muscle power	3.11	3.61	0.75	0.91	-1.63	P>0.05

The mean value of pain was reduced (from 2.56 ± 0.51 to 1.61± 0.60) which is statistically highly significant (P<0.001) whereas the mean value of spasm (from 2.50 ± 0.51 to 1.50± 0.78), stiffness (from 3.17 ± 0.85 to 1.83 ± 1.24), and tenderness (from 3.21 ± 0.80 to 1.44 ± 0.70), was reduced statistically significant (P<0.05). The mean value of muscle power (from 3.11 ± 0.75 to 3.61 ± 0.921) was increased which is statistically insignificant (P>0.05)

Table 5-Results on objective parameters

Parameter	Mean		SD		Z	P
	BT	AT	BT	AT		
SLRT	25.28	59.17	9.77±2.30	8.78±2.07	-17.65	P<0.001
FT	0.44	0.39	0.51±0.12	0.50±0.11	1.00	P>0.05
FST	0.56	0.56	0.51±0.12	0.51±0.12	0.00	P>0.05
WT	1.22	2.89	1.11±0.26	0.83±0.19	-8.414	P<0.001
ST	1.00	2.28	1.08±0.25	1.12±0.26	-5.32	P<0.001

The mean value of SLRT (from 25.28 ± 9.77 to 59.17 ± 8.78) ,WT (from 1.22 ± 1.11 to 0.83± 0.19), ST (from 1.00 ± 1.08 to 2.28 ± 1.12) increased which is statistically highly significant (p<0.001), FT (from 0.44 ± 0.51 to 0.39 ± 0.50), was decreased in statistically insignificant (P>0.05). The mean value of FST (from 0.56 ± 0.51 to 0.56 ± 0.51) was unchanged is also statistically insignificant (P>0.05)

Group – B (*Virechana*) Table 6-Results on subjective parameters

Parameter	Mean		SD		Z	P
	BT	AT	BT	AT		
Pain	2.80	2.10	0.36	0.85	-2.83	P<0.05

Spasms	2.55	1.00	0.75	1.21	-3.65	P<0.001
Stiffness	2.35	2.05	0.98	2.39	-0.82	P>0.05
Tenderness	2.65	1.05	0.48	0.99	-3.37	P<0.001
Muscle power	3.10	4.40	0.55	0.75	-3.72	P<0.001

The mean value of spasm (from 2.55 ± 0.75 to 1.00± 1.21), tenderness (from 2.65± 0.48 to 1.05 ± 0.99), muscle power (from 3.10 ± 0.55 to 4.40 ± 0.75) were reduced which is statistically highly significant (P<0.001). The mean value of pain was reduced (from 2.85 ± 0.36 to 2.10 ± 0.85) which is statistically significant (P<0.05). The mean value of stiffness was (from 2.35 ± 0.98 to 2.05 ± 2.39) which is statistically insignificant (P>0.05)

Table 7-Results on objective parameters

Parameter	Mean		SD		Z	P
	BT	AT	BT	AT		
SLRT	36.00	56.50	14.92±3.33	13.28±2.97	-5.34	P<0.001
CSLRT	0.25	0.25	0.44±0.099	0.44±0.99	0.00	P>0.05
FT	0.40	0.45	0.50±0.11	0.51±0.11	-0.56	P>0.05
FST	0.45	0.25	0.51±0.11	0.44±0.09	2.17	P<0.05
WT	2.10	3.05	0.96±0.21	0.60±0.13	-3.70	P<0.05
ST	1.80	2.65	1.00±0.22	0.87±0.19	-3.84	P<0.05

The mean value of SLRT (from 36.00 ± 14.92 to56.50 ± 13.38)which is statistically highly significant (p<0.001), the mean value of FST (from 0.45 ± 0.51 to 0.25 ± 0.44), WT (from 2.10 ± 0.96 to 3.05± 0.60), ST (from 1.80 ± 1.00 to 2.65 ± 0.87) were increased which is statistically significant (P<0.05).The mean value of CSLRT (from 0.25 ± 0.44 to 0.25 ± 0.44) was unchanged is also statistically insignificant (P>0.05). The mean value of FT (from 0.40 ± 0.50 to 0.45 ± 0.51) was increased which is also statistically insignificant (P>0.05).

Results on the comparative effect of *Raktha mokshana* and *Virechana*

Table 8-Results on the comparative effect of subjective parameters of *Raktha mokshana* and *Virechana*

Parameter	D of mean	D of SD	Z	P
Pain	0.89	0.68	-0.53	P>0.05
Spasm	1.28	0.95	-1.86	P>0.05
Stiffness	1.26	1.17	-0.44	P>0.05
Tenderness	1.71	1.06	-0.35	P>0.05
Muscle power	1.21	0.74	-1.02	P>0.05

The difference of mean of pain (0.89±0.68), spasm (1.28±0.95, stiffness (1.26±1.17), tenderness (1.71±1.06) and muscle power (1.21±0.74) between group A and B was statistically insignificant (p>0.05)

Table 9-Results on the comparative effect of objective parameters of *Rakthamokshana*and *Virechana*

Parameter	D of mean	D of SE	t	P
SLRT	-13.38	4.43	-3.01	P<0.05
CSLRT	-0.05	0.05	-0.94	P>0.05
FT	0.05	0.23	0.07	P>0.05
FST	-0.14	0.11	-1.31	P>0.05

WT	-0.29	0.29	-1.00	P>0.05
ST	0.00	0.27	0.00	P>0.05

The difference between the mean of SLRT (-13.38±4.43) between group A and B was statistically significant (P<0.05). The difference of mean of CSLRT (-0.05±0.05), FST (-0.14±0.11), WT (-0.29±0.29) and ST (0.00±0.27) between group A and B were statistically insignificant (P>0.05)

DISCUSSION

In this study, the majority of patients were 30-39 age group, followed by 40-49 age group. Collectively, it indicating sciatica is more common (77.5%) in elderly population (age 30-49). Thus, the 4th decade of life appears to be the initial stage of *Vataprakopa* and the periods of active age, most people are heavy workers. According to modern science here is a progressive decrease in the degree of hydration if intervertebral discs with age, leading to the cycle of degeneration. Hence, indicates the prevalence of sciatica is high in middle-aged people. This result is supported by the previous study conducted by Braunwald E.(Braunwald E 2001.p.73)

Considering the gender, the majority were female (52.5%). Household work in abnormal posture for long periods triggers much wear and tear and high loads on their spine cause damage to the spinal cord. After menopause, degenerative changes are developed resulting in female bone density being comparatively lower than male. This may be the reason for higher incidence of sciatica in female gender. A similar result has been reported in another study (Ropper and Zafonate 2015) considering the occupation, *Grdhrasi* was common among housewives, drivers, farmers, teachers and laborers, mechanics, carpenters and machine operators. A large proportion of the patients (35%) were housewives and drivers (20%). Housewives are involved in working in abnormal posture for long periods and so there is much wear and tear and higher loads on their spine. Drivers too show high prevalence because of the long time sitting and heavy work that they do. Considering marital status, the majority were married (90%) and had mixed dietary patterns (95%) for which a defined conclusion cannot be made. The majority were addicted to smoking (22.5%), alcohol (17.5%), and betel chewing and spicy food. The majority of patients were reported to be overweight (52.5%) and obese (27.5%). Excess body weight produces extra pressure on the vertebral column causing in pathological process of sciatica including narrowing of cartilage and nerve compression. In this sample, majority of patients were *Madhya koshta* (67.5%), followed by *krurakoshta* (22.5%), *vishamagni* (67.5%) and *mandagni* (22.5%). These entities give rise to *vata and kaphaprakopa. Krurakoshta* (Constipation) aggravates the symptoms of sciatica.

CONCLUSION

Both the groups showed marked relief in the management of *Gridhrasi*. Based on the results, it may be seen that both of the treatments are equally effective on improving subjective as well as objective parameters. There is no need to hospitalize patient in case of *Siravedha*. No major adverse or side effects were encountered during the course of the study.

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