



Research Article

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A RANDOMIZED CONTROLLED CLINICAL TRIAL TO EVALUATE THE EFFICACY OF PUNARNAVADI PINDA SVEDA IN KATIGRAHA

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ABSTRACT

Introduction: Low back ache is a common orthopaedic condition and has a ubiquitous distribution. It is said to affect about 60-80% of the population at least once in a lifetime. Low back pain of mechanical origin is usually confined to the lumbosacral region, buttock or thigh and does not radiate beyond the knee. Katigraha is vatajananatmaja vyadhi having pain and stiffness as prominent features. Due to its resemblance in clinical characteristics, Katigraha may be paralleled to non-specific or mechanical low back aches. Materials and methods: Forty patients between 20-70 years of either sex, satisfying inclusion and exclusion criteria, were randomly selected from OPD and IPD of the department of Panchakarma Alva's Ayurveda Medical College. 20 Patients each were randomly allocated into two groups, Group KP and Group PP, and were treated with kolakulathadi pinda sveda and punarnavadi pinda sveda, respectively. Result: Both punarnavadi pinda sveda and kolakulathadi pinda sveda has shown highly significant result on the Numerical Pain Rating Scale (NPRS), stiffness, pain intensity, and pain affecting the activity of daily living such as personal care, lifting weight, walking, sitting, standing, and travelling, changing the degree of pain, forward bending, RLF and LLF (P<0.001). A statistically significant result (P<0.05) was noted in both groups' tenderness and rotation. In comparing the group, significant changes were noted in NPRS, pain intensity, pain affecting the ability to lift the weight, standing social life, changing the degree of pain, backward bending, and left lateral flexion. Conclusion: There is a significant effect of punarnavadi pinda sveda over kolakulathadi pinda sveda in katigraha.

Keywords: Katigraha, Low Back Ache, Punarnavadi Pinda Sveda, Kolakulathadi Pinda Sveda.

INTRODUCTION

Katigraha is one among 80 Vatavyadhi¹. It is caused by sthanasamshraya of vitiated vata in kati pradesha. Vata, either shuddha or sama, is involved in its pathogenesis². Katigraha involves shoola and stambha pertaining to kati pradesha, i.e., between uraha and nitamba³. In modern parlance, it can be simulated as nonspecific low back ache or mechanical low back ache. The lifetime prevalence of Low back pain in the world is about 60-80%. A higher incidence rate is found in young adults affecting their daily activity⁴. It affects their performance in their personal and professional life. Owing to its higher incidence rate and impact on quality of life, an effective remedy is the need of the hour. The present study selected pinda sveda with punarnavadi and kolakulathi choorna. The study was intended to analyse the effect of pinda sveda on both the choornas in the management of katigraha.

Objectives

1. To evaluate the effect of punarnavadi pinda sveda in katigraha.
2. To compare the effect of punarnavadi pinda sveda with kolakulathadi pinda sveda in katigraha.

MATERIALS AND METHODS

Study design: Randomized Controlled Clinical Study.

Sample source: Patients suffering from katigraha were selected from the Panchakarma OPD and IPD of Alva's Ayurveda Medical College and Hospital, Moodbidri camps and other referrals. The study was carried out after obtaining ethical clearance. The CTRI registration number is CTRI/2021/03/031635.

Sample Size: A total of 40 patients of katigraha were enrolled in the study and were randomly allocated into two groups of 20 each.

Trial Drug Detail: Punarnavadi choorna comprises Punarnava (*Boerhavia diffusa* Linn.), Eranda (*Ricinus communis* Linn.), Yava (*Hordeum vulgare* Linn.), Atasi (*Linum usitatissimum* Linn.), Masha (*Vigna mungo*), Karpasa Asti (*Gossypium herbaceum* Linn.)⁵ These drugs were taken in equal quantity, mixed and stored in an airtight container.

Control Drug Detail: Kolakulathadi choorna includes Kola (*Ziziphus jujube*), Kulatha (*Dolichos biflorus*), Suradaru (*Cedrus deodara*), Rasna (*Alpinia galangal*), Masha (*Vigna mungo*), Atasi (*Linum sitaissimum*), Tila (*Sesamum indicum*), Kushta (*Saussurea lappa*), Vacha (*Acorus calamus*), Shatahwa (*Anethum sowa*) and Yava (*Hordeum vulgare*)⁶.

Criteria for selection of patients

Diagnostic Criteria

- Shoola in kati pradesha associated with tenderness.
- Stambha in kati pradesha associated with restricted movement.

Inclusion Criteria

- Patients presenting symptoms of katigraha.
- Age group 20-70 years of either sex.
- The low back ache of mechanical origin and IVDP without radiating pain.
- Patients who are fit for svedana karma.

Exclusion Criteria

- Patients with low backache of non-mechanical origin include infection/tumour/pathological fracture and congenital deformities of the spine.
- Patients with a history of trauma
- Post-surgical backache.
- Sciatica.

INTERVENTION

Poorvakarma

Preparation of medicine: 300 g of Punarnavadi choorna was mixed with 400 ml of Kanji. The obtained mixture was made into 2 pottali weighing 300 g each. The same procedure was carried

Assessment criteria

out for the preparation of kolakulathadi pinda sveda. The pottali is heated in kanji.

Preparation of patient: The patient was made to lie in the prone position with kati pradesha exposed. Sthanika abhyanga was done with moorchitha tila taila.

Pradhana karma: The pottalis were steamed by placing them over a vessel containing Kanji. The temperature of the pottali was tested by placing it over the dorsum of the hand. The pottali heated to a comfortably hot temperature was gently applied over the lumbar region. The treatment was carried out for a period of 30 minutes.

Paschat karma

The patient was asked to lie down and rest for 10-15mins following which a bath with lukewarm water was advised.

Duration of treatment

The treatment was carried out for seven days. The patient's assessment was done before and after treatment (on the 7th day) and during follow-up (on 14th day).

A total of 20 patients were enrolled in Group PP (trial group), and there was no dropout in this group. In group KP (control group), 21 subjects were enrolled, and one dropped out.

Table 1: Subjective parameter

Parameter	Finding/ Scale	Grading
Pain	Numerical pain rating scale (NPRS)	Numbers from 0 to 10 were given based on patient response.
	Revised Oswestry Low Back Ache Disability Questionnaire	There is a total of 10 subunits in the questionnaire. Each sub-unit has six questions, and grading from 0-5 was based on severity.
Stiffness	No stiffness	0
	Mild stiffness	1
	Stiffness restricting the range of motion	2
Tenderness	No tenderness	0
	Tenderness to palpation without a grimace	1
	Tenderness to palpation with a grimace	2
	Tenderness with withdrawal	3
	Jump sign with non-noxious stimuli.	4

Objective parameter

Restricted Movement of Hip

- Forward bending (Schober's test)
- Backward bending
- Lateral flexion
- Rotation

Functional assessment - Walking time (duration taken for walking 50ft)

OBSERVATION AND RESULT

In the present clinical trial, it was observed that most of the patients enrolled belonged to the age group of 20-30 years (46.34%); 56.09% were female. 85.36% of patients were believers of Hindu ideology, and 80.40% were from a middle-class family. 56.09% presented with chronicity of fewer than six months. 46.34% of patients had knee joint pain as an associated complaint. The dietary habit of 75.60% of patients was a mixed

diet. 75.60 % of patients were employed in sectors demanding prolonged standing and excess walking. 73.71% of patients performed less exercise. Prakriti assessment revealed that 41.46% of subjects belonged to vata kaphaja prakriti. 63.41% of patients enrolled in the study had avara satva.

The subjective and objective criteria were recorded before, after, and on the 14th day. The obtained data were statistically analysed. Comparative analysis of the overall effect of the treatments in both the groups was done statistically with Mann-Whitney Rank Sum Test, Unpaired T Test and within the group comparison with Wilcoxon Signed Rank Test and Paired T-Test.

Effect of treatment during follow up

The treatment effect was almost maintained in both groups during the follow-up. However, statistical insignificance was noted in left lateral flexion in group PP, in backward bending and walking time in group KP.

Table 2: Effect of treatment in both the groups and between the group comparison of subjective criteria

Parameters		Group PP		Group KP		Between the groups
		P value	%	P value	%	P value
NPRS		<0.001	61.29	<0.001	43.75	<0.05
Stiffness		<0.001	100	<0.001	95	>0.05
Based on the revised Oswestry disability index	Pain intensity	<0.001	86.20	<0.001	56.66	<0.05
	Personal care	<0.001	76.31	<0.001	55.26	>0.05
	Lift weight	<0.001	68.08	<0.001	34.14	<0.05
	Walking	<0.001	87.5	<0.001	51.61	>0.05
	Sitting	<0.001	57.44	<0.001	40.90	>0.05
	Standing	<0.001	64.2	<0.001	34.78	<0.001
	Sleep	>0.05	100	>0.05	66.66	>0.05
	Social Life	<0.001	71.87	<0.05	29.03	<0.05
	Travelling	<0.001	56.41	<0.001	34.78	>0.05
Changing the degree of pain		<0.001	61.90	<0.001	41.50	<0.05

Table 3: Effect of treatment in both the groups and between the group comparison of objective criteria

Parameter	Group PP		Group KP		Between the Group
	P value	%	P value	%	
Tenderness	<0.05	90.90	<0.05	50	>0.05
Forward Bending	<0.001	8.6	<0.001	6.62	>0.05
Backward Bending	<0.001	7.69	<0.05	2.16	<0.05
Right Lateral Flexion	<0.001	3.09	<0.001	3.01	>0.05
Left Lateral Flexion	<0.001	2.661	<0.001	1.32	<0.05
Rotation	<0.05	12.03	<0.05	4.47	>0.05
Walking Time	<0.05	8.45	<0.001	5.53	>0.05

DISCUSSION

The present study revealed that low back pain had become a common health issue young adults face. In this study, 46.345% of patients were aged between 20-30 years. The patients enrolled in the study were students and youngsters from the working class. The increased incidence may be due to lifestyle and improper posture during working hours. 56.09% of patients were female. Females are more prone to higher musculoskeletal load due to pregnancy, childcare and double workday (domestic tasks plus paid work).

Additionally, physiological characteristics such as less muscle and bone mass and psychological factors may contribute to a higher prevalence of chronic low back aches among them⁷. In the present study, 17.07% of patients were interns, followed by homemakers, 14.63%. The previous research on medical students suggests that a sedentary lifestyle devoid of physical activity such as sports, exercise, yoga and monotonous routine has contributed to the causation of LBA. The same can be considered for an increased incidence of LBA among intern doctors⁸. 73.17% of patients performed less exercise, and studies have shown that hip muscle strength is diminished in physically inactive individuals compared to physically active peers⁹. Weakness of hip muscles may lead to lumbopelvic imbalance, which can contribute to the causation of LBP¹⁰. 75.60% of patients had a nature of work involving excess walking and standing. 58.53% of patients had prolonged sitting, 29.26% had manual labour, travelling as nature of work. Static muscle load and flexion of the lumbar spine have been postulated as risk factors for developing LBP. Thus, prolonged sitting or sitting in an abnormal posture can aggravate LBA¹¹. 46.34% had knee joint pain as an associated complaint. The knee joint and lumbar vertebrae are load-bearing joints.

The pathology of one might affect the other by worsening the load-bearing burden or affecting the body's balance while walking and standing¹². 41.46 % of patients with katigraha enrolled in the study had vatakapaha, and 39.02% had vatapitta prakriti. This signifies that the prakriti of an individual contributes to disease susceptibility. Vata prakriti individuals are

more prone to vata disorders. 63.41% of patients enrolled in the study had avara satva. Psychology plays a chief role in pain perception and determining pain tolerability. They are essential in the prognosis of low back aches. Research studies have reported that fear avoidance, depression and catastrophizing were predictive of progression from acute LBP to CLBP¹³.

The drugs of both groups predominantly possessed madhura, tikta, kashaya rasa, ushna veerya and vatakapaha hara karma. The drugs possessed vedana sthapana and sveda janana properties. Svedana inhibits inflammatory activity by enhancing the action of glucocorticoids via heat shock protein and reduces swelling and pain. On exposure to heat via various means, the cells release protein called HSPs. These proteins prevent protein aggregations, help transport repair proteins, enhance glucose uptake at skeletal muscle, improve circulation and have an anti-inflammatory effect on chronic inflammation¹⁴. An added benefit is attained from the medicinal property of the drug used for inducing svedana. Studies have proven that skin permeability increases with the rise in temperature¹⁵. Free fatty acids, predominantly monounsaturated fatty acids such as oleic acid, may disrupt the skin barrier and act as permeability enhancers. Studies have proven the enhancement of skin penetration by using natural oil¹⁶. Hence the stanika abhyanga with moorchita tila taila would have enhanced the permeability of phytoconstituents of the drug. It was also observed that both groups produced a statistically significant effect on stiffness, and the impact was maintained during follow-up. The heat produced during svedana activates the transient receptor potential (TRP) of the vanilloid one receptor. The activation of TRVP1 receptors in the brain is thought to regulate anti-nociceptive pathways. These mechanisms reduce muscle tonicity and relax muscles, reducing spasms and musculoskeletal pain and increasing muscle flexibility. An increase in temperature tends to reduce the stiffness in tissues¹⁷.

CONCLUSION

Punarnavadi pinda sveda and kolakulathadi pinda sveda showed statistically significant results (P<0.001) on NPRS, stiffness, revised oswestry low back ache disability index, tenderness, and

range of movement. In comparing the group, punarnavadi pinda sveda showed better results with a statistically significant difference of $P < 0.05$. Hence it can be concluded that there is a substantial effect of punarnavadi pinda sveda over kolakulathadi pinda sveda in the management of katigraha.

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