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Comparison of nerve flossing and conventional therapy with only conventional therapy for sciatica

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ABSTRACT

Background

Sciatica is one of the most common painful and disabling conditions affecting about 40% of low back pain cases and 1.6% - 43% of adult population annually. Many conventional physiotherapeutic modalities have been used to manage sciatica but the effect of Nerve Flossing Technique (NFT), which is a cost effective treatment option in the management of acute sciatica is yet to be investigated.

Aim

This study was therefore conducted to compare nerve flossing and conventional therapy with only conventional therapy for sciatica.

Methods

A pretest-posttest control experimental design, involving 30 participants from DR. Ulhas patil college and hospital, with sciatica were randomly assigned into two groups; Group A (control group) received only Conventional Physiotherapy that is traction and TENS and group B (Experimental group) received NFT in addition with Conventional Physiotherapy. The outcome of the study was assessed using visual analogue scale (VAS) and Straight Leg Raise (SLR).

Results

The result of this study revealed the experimental group had significant ($P < 0.01$) improvement in both outcome measures when compared to the control group.

Conclusion

Nerve Flossing Technique reduced sciatica and improved hip range of motion hence can be utilized in the treatment of patient with sciatica.

Keywords: Nerve Flossing Technique, Acute sciatica, Conventional physiotherapy, Hip range of motion, Visual analog scale.

INTRODUCTION

Sciatica was thought to be due to pressure alone on the sciatic nerve root by a herniated disc [2]. The prevalence of sciatica varies from 1.6% in the general population to 43% in a selected working population. [3, 4, 5] Newer understanding is chemical factors may be important in addition to mechanical factors [2]. Sciatica is a set of symptoms which includes radiating pain, tingling sensation, numbness and weakness along the distribution of the sciatic nerve, that may be caused by compression and/or irritation of one or more of the five sciatic spinal nerve roots in one or both lower limbs [1, 6, 7] In approximately 90% of cases, sciatica is caused by a herniated intervertebral disc (postero-lateral) involving nerve root compression or irritation by hyaluronic acid, contained in the disc substance when in contact with the nerve root. [3, 8] It can also be caused by lumbar canal stenosis, spondylolisthesis, spinal tumors, piriformis syndrome, cyst of the hip or lumbar, vascular malformations or intra-pelvic aneurysm. [6, 9] Although the prognosis is good in most patients, a substantial proportion continues to have pain for 1 year or longer. [10]

Physiotherapy treatment of sciatica includes cold therapy, rest, manual therapy (spinal manipulation and soft tissue mobilization), traction and electrotherapy. [11] Other forms of management include aerobic conditioning, core muscle strengthening, stretching of tight structures, mechanical traction and corsets. [8, 12] However, there are still contentions on the physiotherapy treatment protocols which produce a rapid improvement in patients with sciatica. [8, 11] Nerve Flossing Technique (NFT) has been suggested by research to relieve acute radiculopathy including sciatica. [8, 13]

NFT involves movement of peripheral nerves from a mean position along its bed. [15] It can be initiated from either one or both ends of the nerve bed. It has been shown that significantly less nerve excursion occurs during nerve flossing exercise initiated from one end of the nerve bed using a single joint movement, compared to nerve flossing initiated from both ends of the nerve and with multiple joints. [15] However, the underlying mechanisms associated with clinical improvements following nerve flossing technique remain unclear [16] There are many theories that have been

postulated, including physiological effects (removal of intraneural oedema), central effects (reduction of dorsal horn and supraspinal sensitization) and Mechanical effects (enhanced nerve excursion)

It is anticipated that NFT (sliders) might be effective in the management of sciatica, since it has been shown to be effective in the management of neuropathic conditions like carpal tunnel syndrome [16] low back pain [17] and other radiculopathies. [13, 14] However, there is dearth of evidence on its use in the management of acute sciatica. This study was therefore aimed at investigating the influence of NFT in the management of sciatica and Hip Range of motion and is assessed by VAS scale and SLR test.

Title

Comparison of nerve flossing and conventional therapy with only conventional therapy for sciatica.

METHODOLOGY

Type of study : Proprioceptive experimental study

Sample size : 30

Place of study: Dr. ulhas Patil College of Physiotherapy

Duration of study : 5month

Methods of sample selection: Sample of convenience

Variables of study: Traction, TENS, and SLR test

Inclusion criteria

1. Age group between 35-50
2. Patients experiencing sciatica due to low back ache
3. Patient with unilateral involvement
4. Positive SLR

Exclusion criteria

1. Patients with systemic disease.
2. Patients with congenital deformity.
3. Patients having sciatica with vascular disorder and diabetic neuropathy.
4. Patients having sciatica due to tumour.
5. Patients with any psychosomatic and psychological disease.
6. Any infection or inflammation of spine.

Treatment duration: 45 minutes 3 sessions in a week

Outcome measure

1. SLR test.
2. VAS scale.

STATISTICAL ANALYSIS

- Paired 't' test was used for in group analysis.
- Unpaired 't' test was used for between group analysis.

Table no.1: Comparison of pre and post test VAS scores of group A

	Pre test score	Post test score	P value	Level of significance
Group A	7.73	7.26	0.04	significant

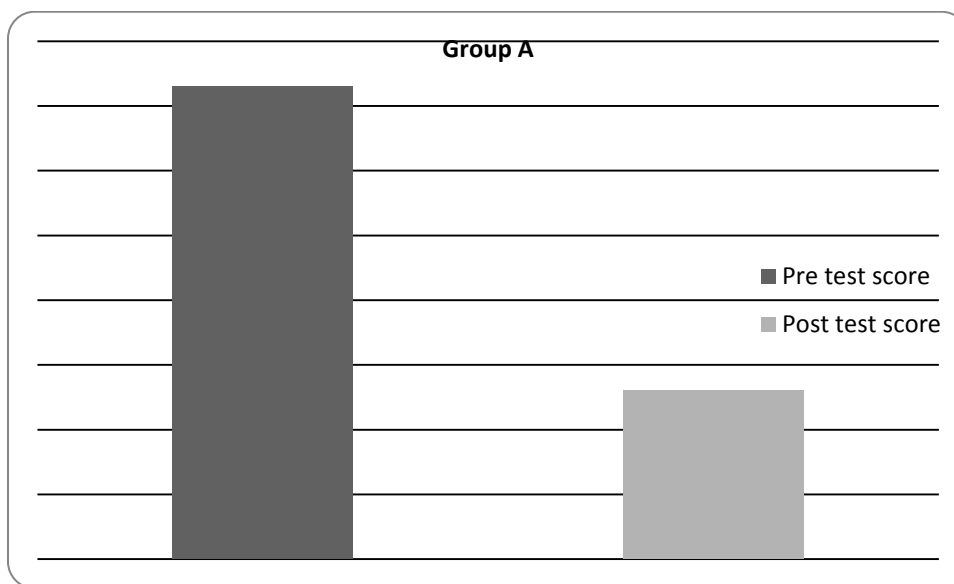


Table no. 2: Comparison of pre and post range of motion of group A

	Pre	Post	P value	Level of significance
Group A	49.6	50.8	0.01	significant

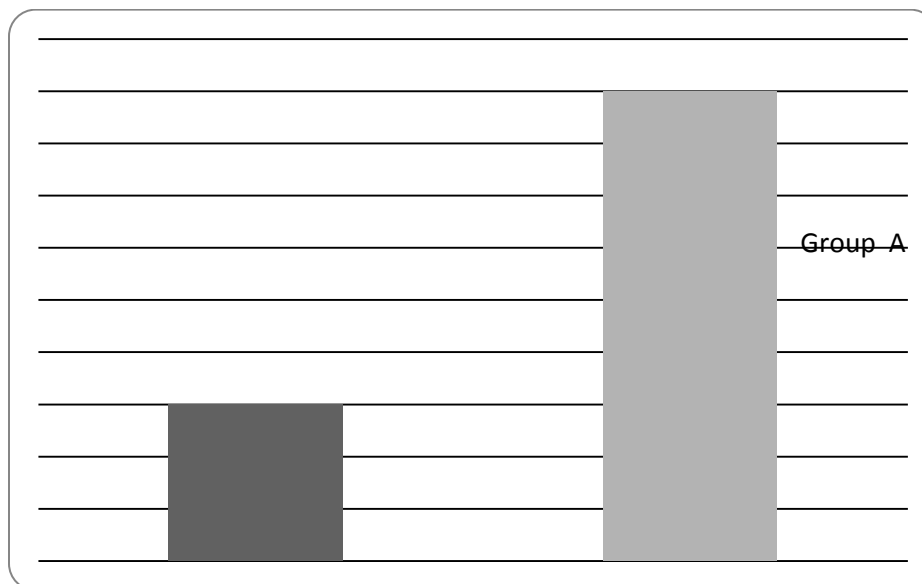


Table no.3: comparison of pre and post VAS scores of group B

	pre	post	P value	Level of significance
Group B	7.6	2.26	<0.0001	Extremely significant

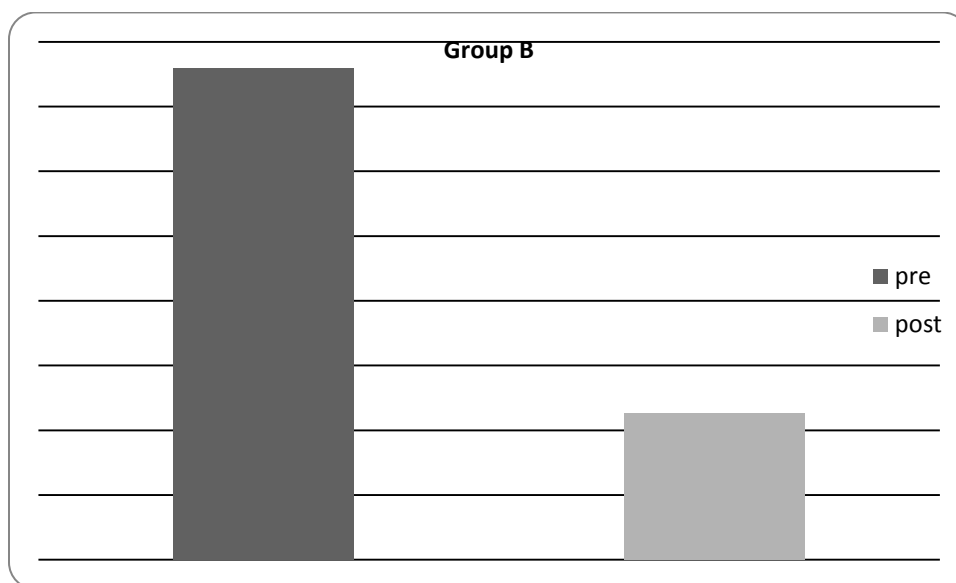


Table no. 4: Comparison of pre and post ranges of motion of group B

	pre	post	P value	Level of significance
Group B	48	61	<0.0001	Extremely significant

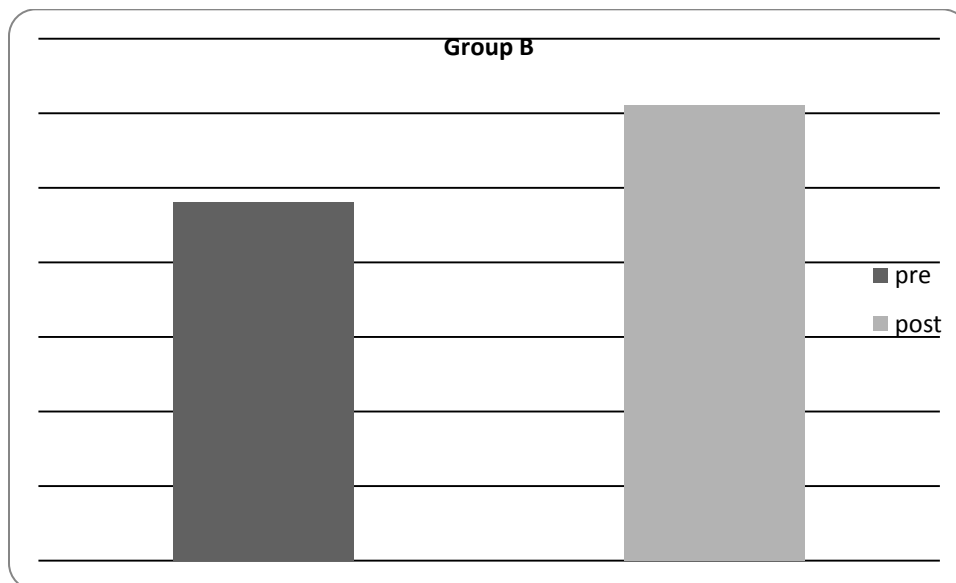


Table no .5 : comparison between pre VAS scores of group A and group B

	Group A	Group B	P value	Level of significance
Pre score	7.73	7.6	0.7	Not significant

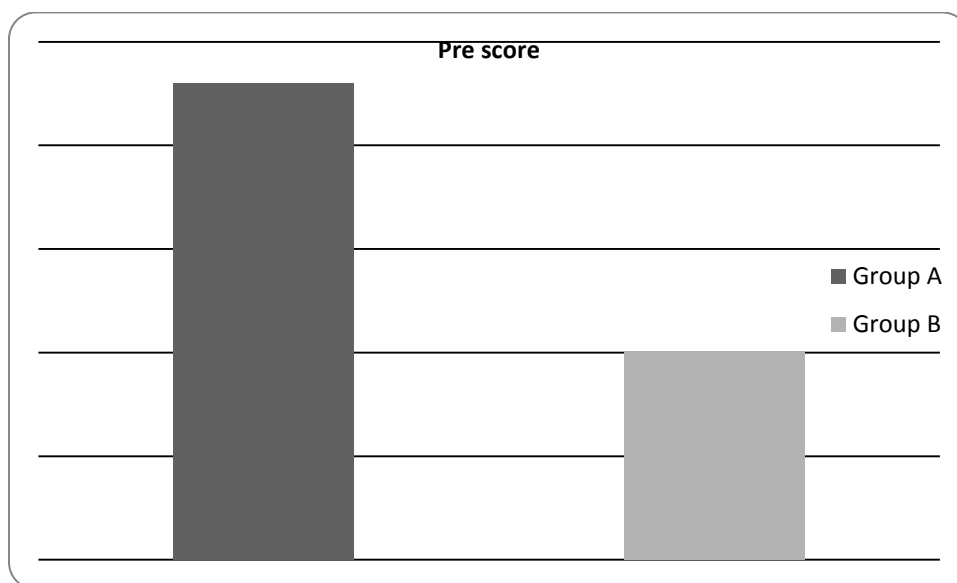


Table no. 6 omparrison between post VAS score of Group A and Group B

	Group A	Group B	P value	Level of significance
Post score	7.26	2.26	<0.0001	Extremely significant

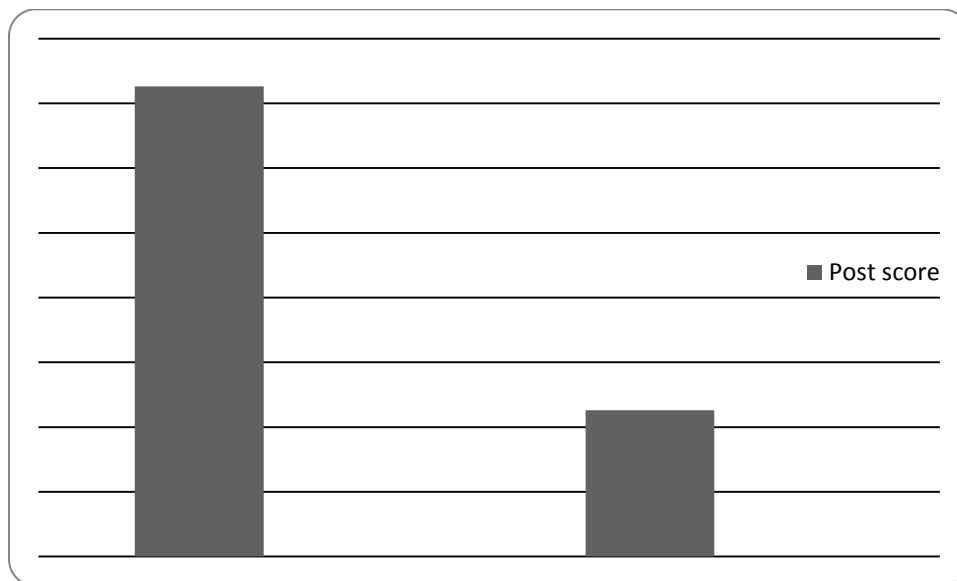


Table no. 7 C omparison between pre range of motion of Group A and Group B

	Group A	Group B	P value	Level of Significance
Pre Score	49.6	48	0.6	Not significant

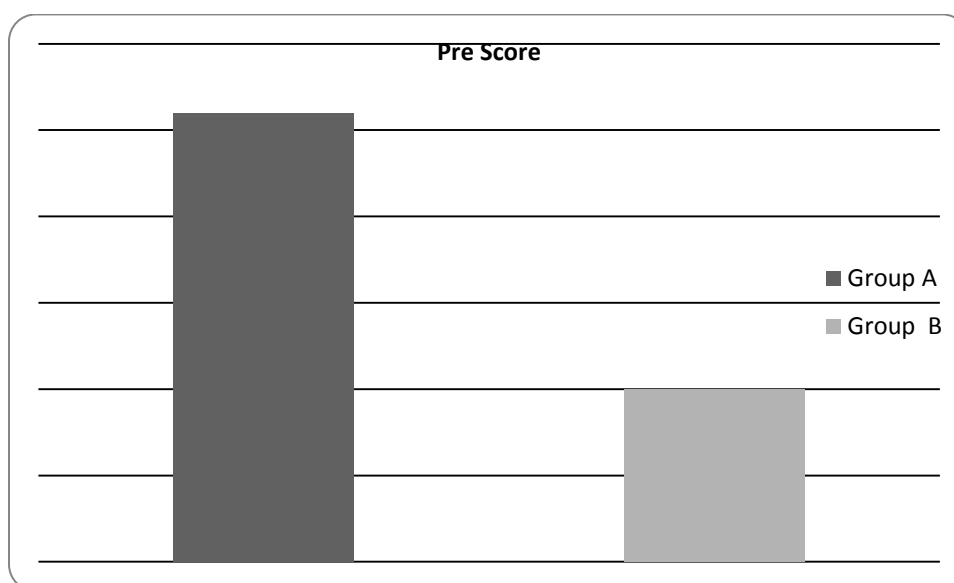


Table no. 8 Comparison between post range of motion of Group A and Group B

	Group A	Group B	P value	Level of significance
Post Score	50.8	61	0.01	significant



DISCUSSION

The result of this study shows that nerve flossing is effective in increasing range of motion at hip and decreasing pain thus reducing the symptoms of sciatica. The mean value of ROM of group B where nerve flossing was given shows more significant increase as compared to group A.

The mean value of VAS and ROM at hip joint of group B was extremely significant as compared to group A. Group B includes nerve flossing, TENS, traction should better result as compared to

group A that includes traction and TENS. TENS was used to relieve pain. In the gait control theory stimulation of mechanoreceptors within the joint capsule and surrounding tissues causes an inhibition of pain at a spinal cord. It could also be directly associated with the immobilization reduction in the neurogenic inflammation. TENS produce analgesic effect by activation of cutaneous afferent fibers at the site of application.

Traction is used as spinal decompression therapy. During spinal decompression therapy a

negative pressure is created in the disc because of this disc material that has been protruded or herniated can be assisted back within the normal confines of the disc and permit healing to occur. Pressure is released of inflamed nerve root allowing the inflammation to subside.

When the sciatic nerve becomes trapped, it grates along the muscles and bones causing scar tissue to build up along the nerve fibers. This creates lot of discomfort when you move, as the scarred nerve doesn't glide smoothly, and flossing is required to break down the scar tissue to improve mobility.

Decrease in pain and increase in ROM at hip joint was due to neural, flossing effect, because it restores normal mobility and length relationships, blood flow and axonal transport dynamics in compromised neural tissue. Neural mobilization is very effective in breaking up the adhesions and breaking out mobility. The nerve slides through the tissues connecting the two end points breaking up adhesions and reducing mechanical compression. The conventional treatment effectively reduce pain and increase ROM at the joint but is unable to eliminate the root cause of the problem. Nerve

flossing also causes proximal sliding of lumbar nerve roots with neck and knee flexion and causes distal sliding of the lumbar nerve roots with neck and knee extension and also improve the actual excursion of the sciatic nerve, it also reduces edema also decreases adhesions and reducing symptoms.

CONCLUSIONS

Nerve flossing technique can be utilized with other modalities in the treatment of subacute sciatic patients due to low backs ahe for the relief of pain and sensory symptoms like tingling and numbness, restoration of spinal mobility and to minimize functional disability.

Limitation

- Lesser number of subjects.
- No group had similar patients with same degree of involvement.
- Age variation from 35-50 years.
- Patients built was variable.
- Proper strengthening program was not followed after nerve flossing sessions due to lack of time.

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