

Comparison of Mulligan Technique and Conventional Technique in Patients with Low Back Pain

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ABSTRACT

Background: Spinal mobilization is described in terms of improving mobility in areas of the spine that are restricted [5]. Such restriction may be found in joints, connective tissues or muscles. These restrictions can occur due to muscle spasm, reduced joint mobility reduced muscle flexibility etc. By removing the restriction by mobilization the source of pain is reduced and the patient experiences symptomatic relief. Hence Mulligan technique plays vital role to reduce pain and increase range of motion in patients with low back pain which will improve patient's functional capability.

Materials and Methods: A total number of 60 patients with low back pain were selected. Depend on selection criteria. These patients were randomly divided into two groups. Each group having 30 patients. One group was treated with Mulligan technique and IFT for 3 days a week for 2 weeks & other group is treated with conventional physiotherapy abdominal strengthening exercise and IFT for 3 days in a week for 2 weeks. The objectives were tested by using Modified Oswestry Disability Index. The values are collected before and after the treatment. **Results:** The Post test mean value of Modified Oswestry Low Back Pain Disability Index (MODI) in group A is 12.21 and in group B is 22.07. This shows that Modified Oswestry Low Back Pain Disability Index (MODI) in Group B disability value were comparatively more than Group A disability value, $P < 0.0001$. Statistical Analysis of post test, Modified Oswestry Low Back Pain Disability Index (MODI) revealed that there is high statically significant difference seen between group A and group B. **Conclusion:** This study shows better improvement in reducing low back pain in Mulligan technique than traditional abdominal strengthening exercise. Both the techniques can be used in clinical practice

Key Words: Low Back Pain, SNAGS

Introduction

Low back pain is a very common health problem worldwide and a major cause of disability affecting performance at work and general well-being. Back pain is not a disease but a constellation of symptoms. In most cases, the origins remain unknown. The lifetime prevalence of non-specific low back pain is estimated

at 60% to 70% in industrialized countries (one-year prevalence 15% to 45%, adult incidence 5% per year). The prevalence rate for children and adolescents is lower than that seen in adults but is rising. Prevalence increases and peaks between the ages of 35 and 55. It is found that in southern India 28.4% and 52.9% respectively were having low back pain ^[4]. Low back pain is the leading cause of activity limitation and work absence throughout much of the world, imposing a high economic burden on individuals, families, communities, industry, and governments. It has been shown that low back pain can cause muscle atrophy and inhibit muscle firing which leads to altered spinal mechanics which may exacerbate the pain-spasm-pain cycle leading to increased dysfunction (Krabak & Kennedy, 2008, McGill 1998). Patients feel difficulty in bending, lifting weights and standing for a long time.

Joint mobilization is a treatment technique which can be used to manage musculoskeletal dysfunction ^[3], by restoring the motion in the respective joint ^[4]. The techniques are performed by physiotherapists, and fall under the category of manual therapy. Spinal mobilization is described in terms of improving mobility in areas of the spine that are restricted ^[5]. Such restriction may be found in joints, connective tissues or muscles. By removing the restriction by mobilization the source of pain is reduced and the patient experiences symptomatic relief. This results in gentle mobilizations being used for pain relief while more forceful, deeper mobilizations are effective for decreasing joint stiffness. ^[6] Brian R. Mulligan proposed that injuries or sprains might result in a minor "positional fault" to a joint causing restriction in physiological movement. The techniques have been developed to overcome joint 'tracking' problems or 'positional faults', i.e. joints with subtle biomechanical changes. ^[1] "SNAGS" is an acronym for "Sustained Natural Apophyseal Glides". They are mobilisations which are combined with active or passive movements and at the end of an active range over pressure are applied. Normal joints have been designed in such a way that the shape of the articular surfaces, the thickness of the cartilage, the orientation of the fibers of ligaments and capsule, the direction of pull of muscles and tendons, facilitate free but controlled movement while simultaneously minimizing the compressive forces generated by that movement ^[4] Normal proprioceptive feedback maintains this balance. Alteration in any or all of the above factors would alter the joint position or tracking during movement and would provoke symptoms of pain, stiffness or weakness in the patient. The traditional physiotherapy modalities used for the management of low back pain includes IFT, TENS, short wave diathermy, ultrasound and the exercise program (TEP) selected for the rectus abdominus and oblique abdominal muscles. Interferential therapy is electro therapeutic modality used to treat pain. Interferential Therapy decreases musculoskeletal pain by increasing the circulation, promoting an efflux of pain inducing chemical from the site and by gate control therapy. Fairbank conducted a study on low back pain to test the validity of Modified Oswestry Low Back Pain Disability Questionnaire and proved it to be valid to measure the level of disability. Modified Oswestry Low Back Pain Disability Questionnaire is used to measure the level of disability in this study.

MATERIALS AND METHODS

Comparative study was performed in Physiotherapy outpatient department, Saveetha College of Physiotherapy, Saveetha University in which 60 subjects were randomly selected and were assigned into two groups-group A and group B according to selection criteria. Each group having 30 patients. Both genders were included between the age of 30 - 60 years and patients with Modified Oswestry Disability Index score 20-30% disability were included in the study. . Subjects were excluded if they having Musculoskeletal deformity (Spondylolysis, spondylolithesis), Patients with Ankylosing spondylosis, Vertebral myeloma, Pregnancy, Vertebral fracture. Group A was treated With Mulligan “SNAGS” technique and IFT for 3 days a week for 2 week & Group B was treated with conventional physiotherapy Abdominal strengthening exercise and IFT for 3 days in a week for 2 week. The objectives were tested by using Modified Oswestry Disability Index. The values are collected before and after the treatment.

RESULTS

From statistical analysis made with the quantitative data revealed statistically significant difference between the Group A and Group B, and also within the group.

The Posttest mean value of Modified Oswestry Low Back Pain Disability Index (MODI) in group A is 12.21 and in group B is 22.07. This shows that Modified Oswestry Low Back Pain Disability Index (MODI) in Group B disability value were comparatively more than Group A disability value, $P < 0.0001$. Statistical Analysis of post test, Modified Oswestry Low Back Pain Disability Index (MODI) revealed that there is high statistically significant difference seen between group A and group B.

Table-1 Pre test –Post test values of group A-Experimental group

Group A		Mean in%	Standard deviation in%	t value	p value
Modified Oswestry Low Back Pain Disability Index(MODI) in %	Pre test	26.20	2.99	24.55	<0.0001
	Post test	12.21	3.56		

Graph-1 Pre test–Post test values of group A-Experimental group

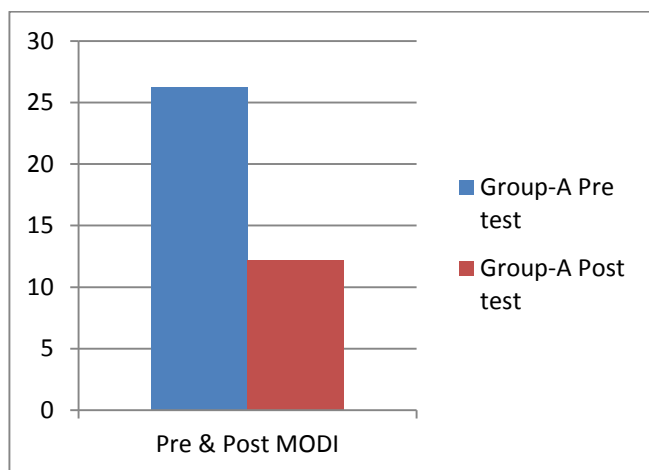


Table-2 Pre test –Post test values of group B- Control group

Group B		Mean in%	Standard deviation in%	t value	p value
Modified Oswestry Low Back Pain Disability Index(MODI) in %	Pre test	25.40	3.24	8.34	<0.0001
	Post test	22.07	3.04		

Graph-2 Pre test –Post test values of group B- Control group

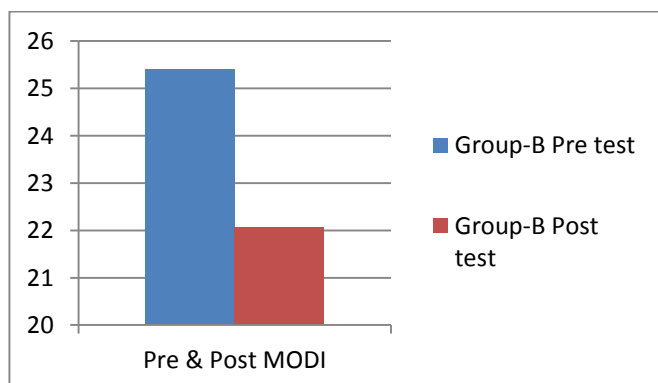


Table-3 Comparison between group A-Experimental group & group B- Control group

Parameter	Post Test Values				't' test	Significance
	Group A		Group B			
Modified Oswestry Low Back Pain Disability Index(MODI) in %	Mean	Standard deviation	Mean	Standard deviation		
	12.21	3.56	22.07	3.04	11.69	<0.0001

Graph-3 Post test values of group A-Experimental group & group B- Control group

DISCUSSION

The present study was conducted to study the effectiveness of Mulligan technique combined with Interferential Therapy in the treatment of low back pain by comparing with Traditional abdominal strengthening exercise and Interferential therapy. Both the treatment was done for 3days per week for two week. Modified oswestry low back pain disability index was used to measure outcome. The current study rigorously tested Mulligan technique to determine whether this technique is effective in low back pain. The study results showed statistically and clinically significantly reducing low back pain. Mulligan BR: *Manual Therapy (2004) "Nags", "Snags" "Mwms"*. 4th edition. New Zealand: Wellington; he stated that after applying " Snags" technique in lumbar spine immediate reduction or cessation of pain and an increase in range of motion . Mulligan, BR (1999) proposed that "SNAGS" is an acronym for "Sustained Natural Apophyseal Glides". They are mobilisations which are combined with active or passive movements and at the end of an active range over pressure are applied. This technique helps to reduce stiffness in the joint which will improve functional ability of the patient by reducing low back pain. The traditional physiotherapy modalities used for the management of low back pain includes IFT and the traditional exercise program selected for the rectus abdominus and oblique abdominal muscles. Jorge P. Fuentes, Susan Armijo et al conducted a Systematic Review and Meta analysis. They concluded that Interferential Current Therapy is having beneficial effect in the management of Musculoskeletal pain. Steven Z George1 et al (2011) have done a study, they concluded

that traditional exercise for low back pain is more effective than lumbar stabilization exercise. This study shows that traditional exercise is effective to reduce low back pain. Modified Oswestry Disability Index was used to measure functional independence of all the subjects, who participated in the study. The most important limitation of our study was small sample size. Further investigations in this area may include analysis on posture and to consider the individual risk factor. Long term follow up is needed. This study showed that Mulligan technique has additional treatment effect compared with control group

CONCLUSION

This study shows better improvement in reducing low back pain in Mulligan technique than traditional abdominal strengthening exercise. Both the techniques can be used in clinical practice.

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