



TO STUDY THE EFFECTIVENESS OF MYOFASCIAL RELEASE TECHNIQUE WITH GLUTEUS MEDIUS MUSCLE STRENGTHENING IN POSTURAL LOW BACK PAIN DURING PREGNANCY

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Abstract

Background: Low Back Pain (LBP) is a common musculoskeletal problem during pregnancy. About one third of the population suffering from LBP report severe pain which is often associated with limitations on a women's ability to work effectively, leading to poor quality of life. Hence, the individual productivity in their routine activities is reduced. This study aimed to find out the effectiveness of Myofascial release technique (MFR) with Gluteus Medius Muscle Strengthening in Postural Low Back Pain (PLBP) during pregnancy. A total of 30 subjects were randomly selected using random sampling technique. Whole procedure was explained to the subjects and the informed consent were taken prior to testing. All the subjects who fulfill the inclusion and exclusion criteria were undergo basic assessment and assigned randomly into two groups named as group A and group B, the baseline measurement was evaluated. This study was done to examine effect of MFR technique with gluteus medius muscle strengthening in postural low back pain during pregnancy. Result shows that there was statistically significance improvement in between the groups A and B. Exercise protocol of group A showed more significant reduction in VAS scale as compared to group B. Exercise protocol of group A showed more significant increase strength in Gluteus Medius muscle as compare to group B. This study shows that MFR with Gluteus Medius Muscle Strengthening was more effective in treatment of postural low back pain during pregnancy compare to normal antenatal exercise protocol by group B within 2 weeks. This study shows that MFR with Gluteus Medius Muscle Strengthening was more effective in treatment of postural low back pain during pregnancy compare to normal antenatal exercise protocol by group B within 2 weeks.

Keywords: Myofascial Release Technique, Gluteus medius muscle strengthening, Postural low back pain, Pregnancy.

INTRODUCTION

Low Back Pain (LBP) is a common musculoskeletal problem during Pregnancy with an estimated prevalence ranging from 30% to 78% in the United States of America, Europe and some part of Africa [1]. About one third of the population suffering from LBP report severe pain which is often associated with limitations on a women's ability to work effectively, leading to poor quality of life during or post pregnancy. Hence, the individual productivity in their routine activities is reduced. There is currently no consensus regarding the risk factors for LBP in pregnancy [2]. However pelvic trauma, young age, chronic LBP and history of LBP in the previous pregnancy have been indicated as the most common risk factors for LBP in pregnancy [3]. It also increases the risk of postpartum anxiety and depression. Studies have reported that women who suffer from severe LBP during pregnancy are at an extremely high risk of developing further severe low back pain during subsequent pregnancy and later in life. Therefore, the problem of low back pain during pregnancy cannot be ignored and timely intervention is needed to improve quality of life [4]. Currently Physiotherapy is used mainly for the treatment of low back pain during pregnancy due to the inexperience of clinicians regarding treatment options and concern that other treatments may have harmful effects on fetal development [5]. Myofascial release technique (MFR) is a manual fascial therapy which helps to reduce fascial restriction and to restore tissue flexibility. MFR technique is always applied according to the core of myofascial technique, which was provided by "MICHAEL STANBOROUGH", it was a concise description of application:

- a) Apply slight tension on it
- b) Drag the fascia over skin while keep in contact with the underlying layers [6].

Gluteus medius strain can present as low back pain either due to facet joint irritation relating to trendelenburg gait or can be referred pain from the gluteus medius itself [7]. If a true neurologic weakness were present, one would expect to find both Tensor Fascia Latae (TFL) and posterior gluteus medius (PGM) weakness as they are commonly innervated. Pregnant women with weakness of the gluteus medius are therefore vulnerable for tissue injury because of the increased magnitude of stress applied (weight gain) and decrease in stress tolerated before injury or strain [8].

II. MATERIAL AND METHODS

2.1 Design of the study and population

This study was Experimental study designed approved by the institutional Review Board of Gurugram University. A total of 30 subjects were randomly selected using random sampling technique. Whole procedure was explained to the subjects and the informed consent was taking prior to testing. The study was conducted from 1st September, 2022 to 15th October, 2022. Following parameters are recorded and checked by therapist by procedures described as follows: BMI INDEX, VAS for pain measurement pre and post treatment, MMT (Manual muscle testing) for examine the muscle strength, SLR test for find out the low back pain during pregnancy. All the subjects who fulfill the inclusion and exclusion criteria was undergo basic assessment and assigned randomly into two groups named as group A and group B the baseline measurement was evaluated. Each group consist of 15 subjects. In experimental group A conventional with MFR of para spinal muscles was applied for 5-7 minutes in oblique direction using knuckle. Then gluteus medius muscle strengthening exercises was performed. Strengthening exercises includes Glute bridge, side lying clamshell, side lying leg raises and squats. There were 3 session per week for 2 weeks. In experimental group B which was a conventional method group who were performing a normal routine antenatal exercise in same time periods as in group A.

2.2 Data collection

Data for this study was collected through self-administrated questionnaire. Eligible women were invited to participate in the study during their prenatal consultations. Low back disorders are defined as pain beside the lumbo-sacral spine, located at the iliac crest level or lower, central or lateral. First step of data collection was a consent form filled by participants and in second step;

questionnaire was devoted to pregnant women's socio - demographic and medical information and to the localization of low back pain disorders.

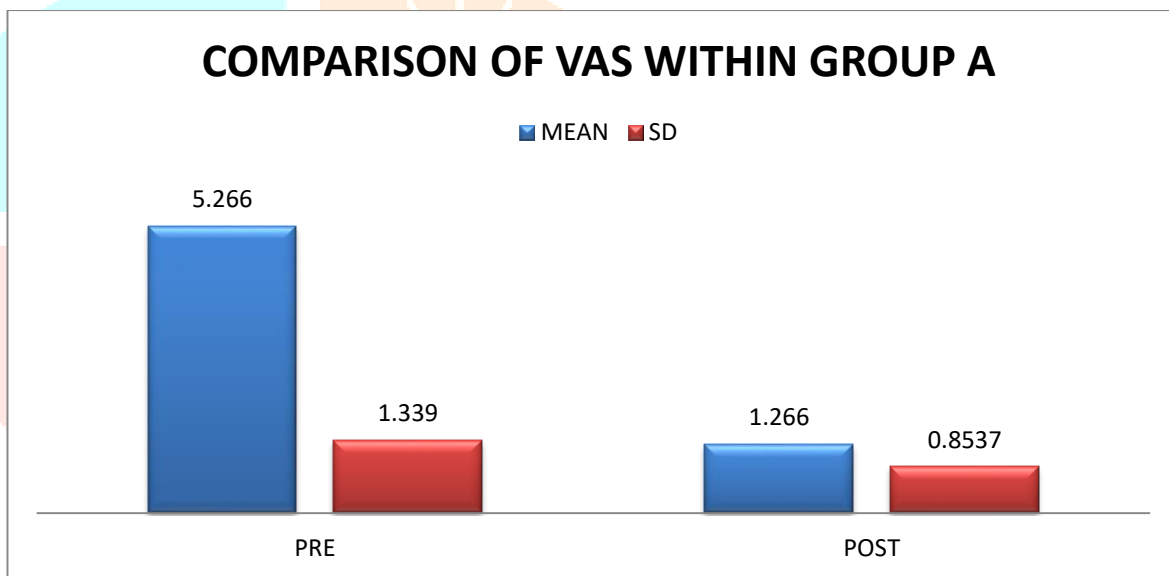
2.3 Statistical analysis

Statistical package for social science (SPSS) version 28 was used for the statistical analysis. Independent t- test Was used to determine significant difference between the groups. Level of significance selected for the study was $p < 0.05$ subtracting pretreatment scores from the post treatment scores.

III. RESULTS

3.1 Table no.1. Comparison of VAS according to pre and post interventions of group A

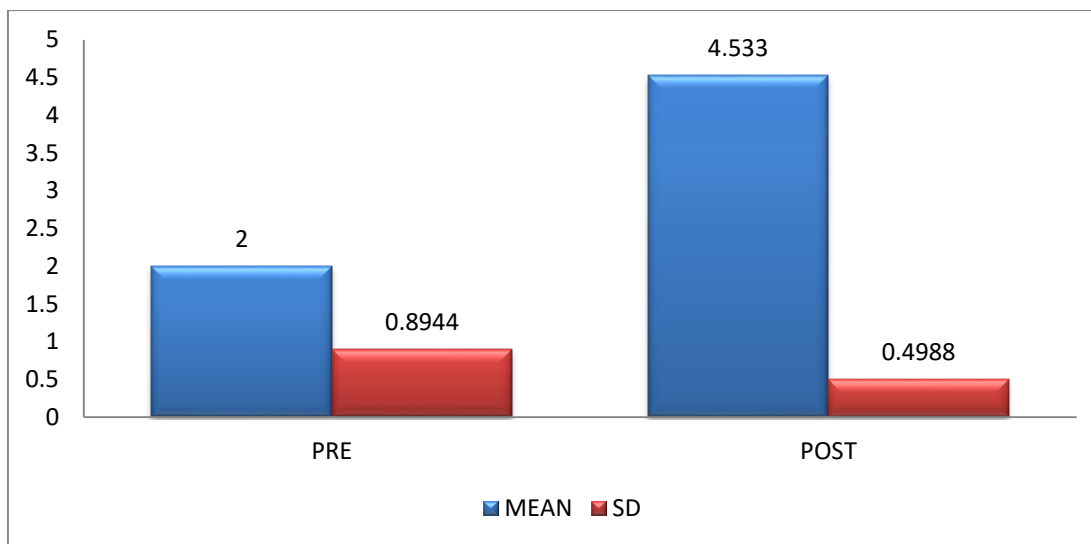
VAS	Mean	Std. Deviation	t-value	p-value
Pre	5.2666	1.339	23.664	*0.001
Post	1.2666	0.8537		



According to table 1 and figure 1.1, it revealed that comparison of VAS within group A according to pre and post treatment analysis. The average value of VAS between pre and post treatment showing mean difference was 4. Independent t-test was applied and the results after 2 weeks were significant at 0.05 level of significance. The pre-treatment mean value was 5.266 ± 1.339 SD and the post treatment mean value was 1.266 ± 0.8537 SD.

3.2 Table no.2. Comparison of MMT according to pre and post interventions of group A

MMT	Mean	Std. Deviation	t-value	p-value
Pre	2	0.8944	12.853	*0.001
Post	4.5333	0.4988		



According to table no.2 and figure 2.1, it revealed that the MMT of group A according to pre and post treatment analysis. At starting point, the average value of MMT showing the mean value was 2 ± 0.894 SD and after 2 weeks the mean value was 4.53 ± 0.498 SD. The result was significant at 0.05 level of significance.

3.3 Table no.3 Comparison of VAS within group B (CONVENTIONAL METHOD)

VAS	Mean	Std. Deviation	t-value	p-value
Pre	5.2	2.6	12.1603	*0.001
Post	1.2754	0.8793		

According to table no.3, it revealed that the VAS of group B according to pre and post treatment analysis. At starting point, the average value of VAS scale between pre and post treatment showing mean difference was 2.6. Independent t-test was applied and the results after 2 weeks were significant at 0.05 level of significance. The pre-treatment mean value was 5.2 ± 1.275 SD and the post treatment mean value was 2.6 ± 0.879 SD.

3.4 Table no.4. Comparison of MMT within group B (CONVENTIONAL METHOD)

MMT	Mean	Std. Deviation	t-value	p-value
Pre	1.7333	0.77172	7.905	*0.001
Post	3.4	0.61101		

According to table no.4, it revealed that the MMT of group B according to pre and post treatment analysis. At starting point, the average value of MMT showing the mean value was 1.733 ± 3.4 SD and after 2 weeks the mean value was 3.4 ± 0.611 SD. The result was significant at 0.05 level of significance.

IV. DISCUSSION

A pregnant woman undergoes many anatomical and physiological changes throughout the gestation period. These changes affect the musculoskeletal system causing pain and discomfort in the lower back. LBP is an effect of alternation in the musculoskeletal

system including postural changes, increasing load on the spine due to the growing fetus and the exaggerated lordosis that exert physical force over the spinal joints which results into dysfunction. The functional limitations are also associated with reduced quality of life and reduced productivity among pregnant women.

This study was done to examine effect of MFR technique with gluteus medius muscle strengthening in postural low back pain during pregnancy. Result shows that there was statistically significance improvement in between the groups A and B. This study shows that MFR with Gluteus Medius Muscle Strengthening was more effective in treatment of postural low back pain during pregnancy compare to normal antenatal exercise protocol by group B within 2 weeks. Steven D. Manyozo, Tarimo Nesto et al. (2019) [1]; supported that study LBP was highly prevalent among pregnant women. Many pregnant women suffer considerable pain and discomfort during pregnancy. Result shows that there statistically significance improvement in between the groups A and B. This study shows that MFR with Gluteus Medius Muscle Strengthening was more effective in treatment of postural low back pain during pregnancy compare to normal antenatal exercise protocol by group B. Kathryn J. Bewyer et al. (2009) [4], supported the finding of pregnant women with Gluteus Medius muscle weakness were roughly 6 to 8 more likely to have low back pain than those without weakness. Sushmita Govind et al. (2019) [3], supported the study i.e., MFR was effective in relieving pregnancy-induced pelvic girdle pain.

V. CONCLUSION

- 1) Exercise protocol of group A showed more significant reduction in VAS scale as compare to group B.
- 2) Exercise protocol of group A showed more significant increase strength in Gluteus Medius muscle as compare to group B.

VI. REFERENCES

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