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Effects of trigger point release of Quadratus Lumborum muscle for chronic low back pain

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Abstract

Chronic low back pain (CLBP) is one of the most prevalent musculoskeletal disorders, often associated with dysfunction of the Quadratus Lumborum (QL) muscle. Myofascial trigger points within the QL can contribute to persistent pain and functional limitations. Trigger point release techniques have been proposed as an effective physiotherapy intervention to alleviate symptoms.

Keywords: Chronic low back pain, Quadratus Lumborum, Myofascial trigger points, Trigger point release, visual analogue scale

Introduction

Low back pain (LBP) is one of the most common musculoskeletal disorders, affecting nearly 80% of adults during their lifetime and ranking as a leading cause of disability. Chronic LBP (pain lasting more than 12 weeks) is often linked to dysfunction of the Quadratus Lumborum (QL) muscle, which stabilizes the lumbar spine and diaphragm. Myofascial trigger points within the QL can cause referred pain to the hip, buttock, thigh, and pelvis, leading to restricted mobility and impaired daily activities.

This study evaluated the effectiveness of QL trigger point release in reducing pain and improving function in chronic LBP patients. An experimental pre-test and post-test design was conducted on 10 subjects aged 30-40 years, using the Visual Analogue Scale (VAS) and Functional Activity Scale (FAS) as outcome measures. Results showed a significant reduction in pain and improvement in function following the intervention.

Trigger point release of the Quadratus Lumborum is an effective, safe physiotherapy approach for managing chronic low back pain.

2.1 Materials Required

- Pillow
- Couch
- Consent form
- Assessment chart
- Ice cubes
- Towel

2.2 Study Setting

Sri Ramakrishna Multispeciality Hospital, Department of Physiotherapy, Under staff incharge

2.3 Study Design

Experimental study

2.4 Sample Size

Based on selection criteria 10 objects were selected

2.5 Sampling Method

Convenient sampling

2.6 Study Duration

Study duration 6 months

2.7 Treatment Duration

The intervention was carried out for a duration of once a day for 2 weeks on alternative days. 10-15 mins for each session

2.8 Selection Criteria

Inclusion criteria

- Long sitting IT employees.
- Age group of subject is between 30 and 40 years.
- Both Male and Female patients considered for the study.
- Clinically diagnosed chronic low back pain.
- Visual analogue score 7 and above.
- Patient should understand instructions and follow commands.

Exclusion criteria

- Chronic low back pain patient with acute disc prolapsed.
- Chronic low back pain patient with trigger points in other lower back or hip muscles.
- Pregnancy women LSCS
- Systemic or local infection
- Fracture of spine
- Serious neurological conditions
- Blood clotting disorder
- Acute trauma or recent injuries
- Severe osteoporosis

2.9 Outcome Measures

Independent Variable

- Myofascial trigger points
- Cryotherapy

Dependent Variable

- Reduce pain
- Adl Activities

2.10 Measurement Tool

- Visual Analogue Scale
- Functional activity scale

2.11 Procedure

Pain Assessment (VAS Procedure)

Patients were provided with a 10 cm horizontal line with 0 (no pain) at one end and 10 (worst pain) at the other. They were asked to mark the point that best represented their pain intensity before and after each therapy session. The distance from 0 to the patient's mark was measured in centimeters to obtain the score. This process was repeated across all sessions to monitor changes in pain levels.

2.12 Treatment Techniques

Intervention Protocol

Patients were positioned in prone or side-lying as required for treatment. Trigger points of the Quadratus Lumborum (QL) were identified in upper (near the 12th rib), lower (near the iliac crest), and middle (L3-L4 region) areas. Referred pain typically extended to the lower abdomen, sacroiliac joint, buttock, hip, and thigh. Trigger point release was performed by applying sustained manual pressure with oscillations for 3-5 minutes, or until release was achieved.

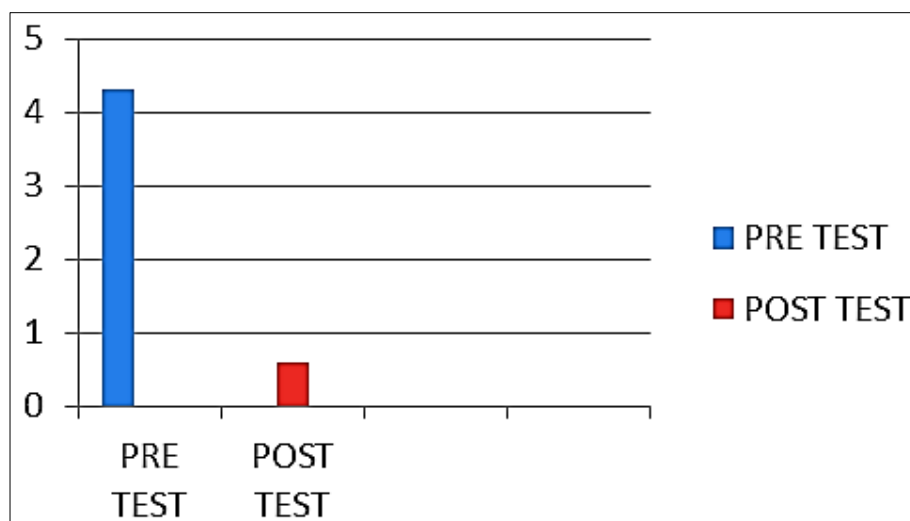
In addition, QL stretching was prescribed:

- **Stability ball stretch:** patient kneeling with trunk supported on ball, extending arm overhead to achieve lateral trunk stretch (20-30 sec, 3 reps).
- **Standing stretch:** patient standing near a door frame, sliding arms down while laterally flexing to stretch the QL.
- **Sitting stretch:** patient bending trunk laterally with one hand on the ground and the other overhead.

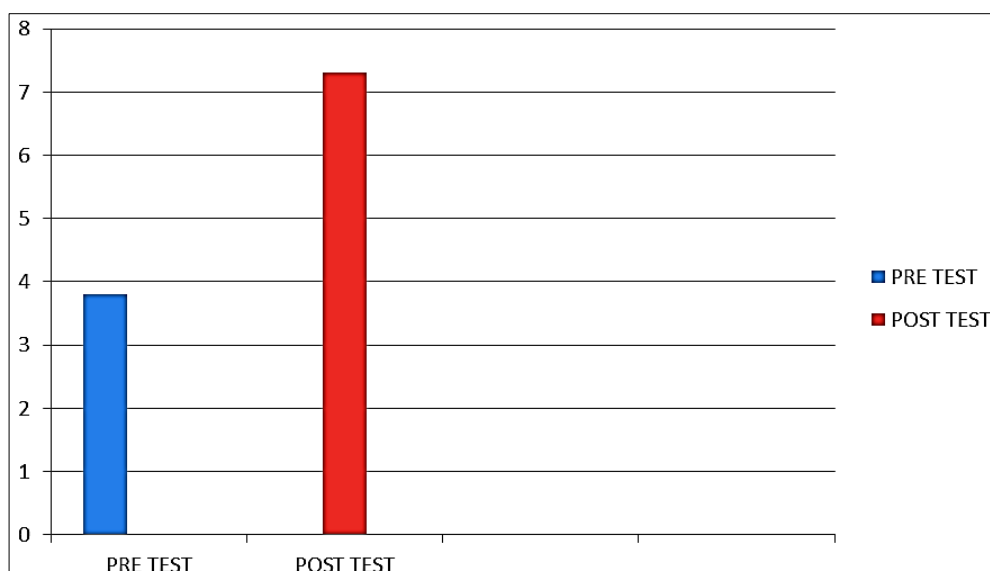
Cryotherapy was also applied as adjunct therapy using ice packs, ice massage, or cold compresses for 6-8 minutes in prone lying. Soft tissue mobilization glides were incorporated to reduce pain and improve mobility.

3. Result

This study demonstrated that myofascial trigger point manipulation of the Quadratus Lumborum muscle produced a statistically significant reduction in pain intensity among patients with chronic low back pain, as measured by the Visual Analogue Scale. The findings support the alternate hypothesis, indicating that trigger point release is effective in reducing pain and enhancing functional outcomes in this population.



Graph for (VAS)



GRAPH FOR (FAS)

4. Discussion

All patients treated with myofascial trigger point manipulation demonstrated marked improvement in pain intensity, as assessed by the Visual Analogue Scale, with benefits maintained at two-week follow-up. This indicates that trigger point release not only alleviates pain but also enhances overall functional capacity in individuals with chronic low back pain. Such improvements may help patients return to work earlier, providing both psychological and financial advantages. Statistical analysis further supports these findings, as the calculated t value (37.00) exceeded the table value (4.032) at the 0.05 level of significance. Hence, the null hypothesis was rejected, and the alternate hypothesis accepted, confirming a significant difference between pre- and post-test pain scores following intervention.

5. Conclusion

- The Purpose of this study was to determine the effects of myofascial trigger point manipulation on Visual Analogue Scale in chronic low back pain patients aged between 30-40 years. The study design was an experimental pretest post test design conducted on 5 chronic low back pain patients. The main outcome measure used for this study was the Visual Analogue Scale.
- The data collected from the subjects were analyzed with statistical techniques.
- To find out the significant difference among the pre-test and post-test scores the Dependent 't' test was performed.

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