EFFECT OF INTEGRATED NEUROMUSCULAR INHIBITORY TECHNIQUE IN ACUTE TRAPEZITIS - A CASE REPORT.

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ABSTRACT

Background: Trapezitis is inflammation of trapezius muscle is the most common condition leading to pain and spasm in the cervical region. Prevalence of neck pain is 40-50% in total world population. A single case study was used to investigate the effectiveness of integrated neuromuscular inhibitory techniques (INIT) in acute trapezitis. The INIT Technique involved Ischemic compression, Muscle energy technique which was applied over trapezitis trigger point. Outcome measure used in this study was Pressure algometry, Neck disability index, Manual muscle testing.

Aim: Aim of the study is to evaluate the effectiveness of INIT in patient with trapezitis.

Result: Result of this study showed improvement in pre & post readings in following parameters. (pressure algometry for pain and MMT for shoulder elevation, depression and retraction of scapula).

Conclusion: The current study concluded that there was decrease in pain, disability and improved muscle strength in patient with trapezitis.

Keywords: Trapezitis, Integrated neuromuscular inhibitory technique, Pressure algometry, Manual muscle testing, Neck disability index scale, Neck exercises.

I. INTRODUCTION

Neck pain as a clinical syndrome is common and can be seen in both the presence and absence of history of trauma & or positive radiographic findings. People have a 70% like hood of developing neck pain during their lives, thus neck pain is a mechanical dysfunction. The cervical spine is the most small region of the spine & so are the muscles of the region. Mechanical neck pain has a lifetime incidence of 30-50% in general world population.

Trapezitis is defined as inflammation of upper, middle & lower fibres of trapezius muscle. Upper trapezius muscle is designated as postural muscle & it is highly susceptible to overuse. A trigger point is a hyper irritable spot in a skeletal muscle that is associated with a hypersensitive palpable nodule in a taut band. The trapezius is the most frequently involved muscle. It has been estimated that 85% of people who come to pain clinics have trigger points in the neck, and they occur more often in women than in men. The spot is painful and can give rise to characteristic referred pain, referred tenderness, motor dysfunction & autonomic phenomena. METs have been recommended as a means of managing Trapezitis.

Chaitow feels that the combination of Muscle energy technique, Ischemic compression & Strain counter strain produces the most effective targeted approach to Trigger point release. This method is termed as the Integrated Neuromuscular inhibition technique (INIT). He has suggested that the benefit of the techniques lies in its multifaceted approach. The INIT approach allows for delivery of the techniques in a single coordinated manner. The purpose of this study was to see the effect of INIT in deactivating upper trapezius. Trapezitis measured by improving in pain, MMT, disability.

Outcome measures for this study were pressure algometry for pain, MMT for muscle strength & Neck disability index for neck disability.
II. PRESENTATION OF CASE

Patient is 22 years old female. She is a student by occupation and has to sit for nearly 7 hours/day working on desk. Any activity that required prolonged sitting like studying had become difficult for the patient. Patient’s primary complaint was pain in right cervical region since 15 days. Pain of the patient was intermittent, aggravated on prolonged working or studying and it was relieved on rest and by using moist pack.

2.1 Clinical Findings

On objective examination pain of the patient was 2.6kg/cm² on pressure algometry. Muscle spasm was assessed using the method of palpation with the inference that it was present in upper trapezius muscles. Tenderness was also present with grade 3. Resisted isometrics were strong and painful for major muscles of cervical region. According to MMT grading scale cervical and shoulder muscle strength was grade 3.

III. DIAGNOSTIC ASSESSMENT

There was no radiological diagnostic testing. As the patient had no radiological findings, she didn’t face any diagnostic challenges.

3.1 Diagnosis

Diagnosis was done on the basis of subjective and objective examination for trapezitis.

3.2 Prognosis

The physiotherapy treatment was more of biomedical correction and patient’s prognosis was considered to be good.

IV. THERAPEUTIC INTERVENTION

Patient with trapezitis received 8 days of treatment in total, comprising of alternate sessions of INIT with shoulder retraction, elevation, neck exercises.

INIT was given for 3 repetitions in 1 set total 3 sets for 4 days.

It includes 2 techniques i.e. ischemic compression, Muscle energy technique.

4.1 Procedure

ISCHEMIC COMPRESSION-The participant was positioned in the high sitting position with the affected side exposed appropriately. The therapist stood behind the participant. By palpation once trigger point was identified on the upper fibres of the trapezius, the therapist used placing the thumb over the active trapezius. Slow & increasing levels of pressure were applied until the tissue resistance barrier was identified. Pressure was maintained until a release of tissue barrier was felt (90 sec hold). Identified Trapezitis were treated.

MUSCLE ENERGY TECHNIQUE-Then the participant received MET directed towards the involved upper trapezius. The participant was placed in supine lying position. The therapist stabilized the shoulder on the affected side with one hand, while the ear/ mastoid area of the affected side was held by the opposite hand. The head and neck was then bent towards the contralateral side was flexed and rotated to ipsilaterally placing the participant just short of their upper trapezius restriction barrier. Then the participant was asked to shrug the stabilized shoulder towards the ear at a sub maximal pain free effort (20% of their available strength). The isometric effort was held for 7-10 sec. then it was followed by further contralateral side bending flexion & ipsilateral rotation to maintain the soft tissue stretch. Each stretch was held for 30 sec repeated 3-5 times per sets of treatment.9

SHOULDER AND NECK EXERCISES- Shoulder girdle exercises including scapular retraction, elevation and neck exercise. All exercises were given for 10 repetitions and 5 sec hold.

4.2 Follow ups and outcome

Outcome measures used were pressure algometry for pain, MMT for muscle strength & Neck disability index for neck disability. After 1st session of the treatment, immediate effect on pain was 3.9kg/cm² on pressure algometry with tenderness grade 4 (TABLE 1). After 2nd session with the gap of one day pain was 4.9kg/cm² and tenderness was present with grade 3. After 3rd session pain was 5.6kg/cm² and tenderness was present with grade 2. With slight
increase in muscle strength. After 4\textsuperscript{th} session pain was \(6.9\text{kg/cm}^2\) on pressure algometry and tenderness with grade 2 with decrease the score of NDI for disability and increase in strength of muscle.

### TABLE 1

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Pressure algometry</th>
<th>Tenderness</th>
<th>MMT</th>
<th>NDI score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>(3.9\text{kg/cm}^2)</td>
<td>Grade 4</td>
<td>Grade 3</td>
<td>45</td>
</tr>
<tr>
<td>Day 2</td>
<td>(4.9\text{kg/cm}^2)</td>
<td>Grade 3</td>
<td>Grade 3</td>
<td>40</td>
</tr>
<tr>
<td>Day 3</td>
<td>(5.6\text{kg/cm}^2)</td>
<td>Grade 2</td>
<td>Grade 4</td>
<td>35</td>
</tr>
<tr>
<td>Day 4</td>
<td>(6.9\text{kg/cm}^2)</td>
<td>Grade 2</td>
<td>Grade 4</td>
<td>20</td>
</tr>
</tbody>
</table>

#### V. DISCUSSION

The trigger point may develop from repetitive microtrauma to muscle fibres. This causes the muscle to be under continuous stress. When repetitive microtrauma is combined with predisposing factors such as bad posture, the trigger points are activated.

The result of the current study has demonstrated the beneficial effect of pressure algometer after applying INIT with neck exercises. The pain reduction may be due to the stimulation of mechanoreceptor which has influence on pain gate during the application of trigger point pressure release & increased circulation after releasing the pressure which ultimately resulted in pain reduction.\(^1,8\)

Massage provides a sensory stimulus over these tender spots, which provides an analgesics effect by activating non-nociceptive fibres and alleviating the pain sensation, according to gate control theory.\(^3\)

This study shows the improvement which mainly works on decreasing the spasm or tightness of muscle by first resetting the muscle spindle & inhibiting the muscles by activating the golgi tendon organ. This phenomenon is called post isometric relaxation in which there is period of a relative hypotonicity during which a stretch of the involved muscle is more easily achieved than before contraction.\(^1,8\)

The current study demonstrated that the improvement is seen in neck disability after applying INIT. The neck disability score decreased significantly in the patient that received INIT.

#### VI. CONCLUSION

The current study concluded that there was decrease in pain & disability, improving muscle strength in participant with trapezitis.

#### VII. PATIENT PERSPECTIVE

The patient shared her perspective that compared to the day one, she found her pain relieved to \(3.9\text{kg/cm}^2\) on pressure algometry from \(2.6\text{kg/cm}^2\) i.e. 45\% of reduce in pain. After 8 days of treatment her pain got reduced to \(6.9\text{kg/cm}^2\) on pressure algometry i.e. around 80\% of reduce in pain.

#### VIII. CONSENT

As per international standard or university standard, patient’s written and informed consent has been collected and preserved by the author(s).

#### IX. ETHICAL APPROVAL

As per international standard and university standard written ethical approval has been collected and preserved by the author(s).

#### X. COMPETING INTERESTS

Authors have declared that no competing interests exist.
REFERENCE


