EFFECT OF TRIGGER POINT DRY NEEDLING VERSES MULLIGAN’S MOBILIZATIONS WITH MOVEMENT IN LATERAL EPICONDYLITIS: AN EXPERIMENTAL STUDY.

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ABSTRACT

Background and Purpose: The Lateral epicondylitis better known as injury to the soft tissue features as pain in the lateral compartment of the elbow, changes in the muscle strength, Impairment of functional activities and muscle pain of referred in nature due to myofascial trigger points. Present study focuses; compare the effect of the trigger point dry needling and Mulligan’s mobilization with Movement

Methodology: Sixty patients with Lateral epicondylalgia were included and divided into Group A &B. Group A intervention is Trigger Point Dry Needling and conventional treatment and Group B received Mulligan’s Mobilization with Movement and conventional treatment of two sessions per week for four weeks.

Results: The Statistical analysis of follow up values of Pain was shown significant difference between the Group A and Group B.

Conclusion: Based on the current evidence Trigger Point Dry Needling and Mulligan Mobilization with movement both are effective in treating the Lateral epicondylalgia in both groups, but with small size group available for the study future randomised control studies with large population need to be conducted.

KEY WORDS: Lateral epicondylitis, dry needling, Mulligan mobilization with movement, Myofascial trigger point.
INTRODUCTION

The Lateral epicondylalgia is the major cause of pain in the lateral elbow in adults (1). In the year of 1880”s the term “tennis elbow” was introduced also known as lateral epicondylitis (2). Lateral epicondylalgia is commonly seen in the sports like tennis, golf, cricket, badminton, and table tennis, squash, etc sports players. The Tennis elbow is a common condition that primarily occurs in the recreational tennis players (3). The 1 to 2% of the general adult population is suffering with lateral elbow pain. The Tennis elbow involves seven times more frequently than the medial epicondylitis (4). Lateral epicondylalgia is a degenerative changes takes place at the common extensor tendon and more precisely at the origin of extensor carpi radialis brevis tendon (5).

There is no particular definative protocol is present for lateral epicondylalgia, nonetheless most authors believe that approach should be started with conservative treatment then need to follow the surgical procedures (6). The pain in the lateral epicondylitis will be triggered with the formation of trigger points in the origin of forearm extensor muscles (6).

The pain may be constant over the elbow lateral aspect and might be aggravated by repeated gripping and lifting movements(7). The pain radiates down to wrist from the elbow joint(6). In severe cases pain occurs at rest and is associated with decreased movement at the extremes of flexion and extension (4). Myofascial trigger points usually produce pain over the lateral epicondyle and may refer down to the wrist and hand. Jannet G. Travell states that the "Tennis Elbow” or “lateral Epicondylalgia” is a myofascial origin, because of presence of trigger points in the extensor compartment of forearm muscles. Present experiment is aimed to compare the effect of dry needling of muscle trigger points, Mulligan’s MWM technique in the reduction of pain in lateral epicondylitis among sports persons.

**Methodology:**

Experimental study with repeated measure was designed with the total of 60 participants included with the convenient sampling and divided into 2 groups group A&B with 30 participants each.

Both males and females age between 20 to 50 years, Positive findings of at least one of the following tests, - Cozen test, Millis test, atleast one Myofascial trigger point active in the nature in the Brachioradialis muscle, ECRL,
ECRB (extensor carpi radialis longus and extensors carpi radialis brevis) or EDC (extensor digitorum communis muscle) and the supinator muscles were included in the study.

Patient who had any following conditions like systemic or local infection, Bleeding disorders like haemophilia, Recent orthopaedic surgeries, Degenerative arthritis of the elbow joint, Needle phobia, Diabetic neuropathies, Pregnancy were excluded from the study.

Procedure: The group A has been treated with Muscle trigger point Dry needling then immediately followed by conventional treatment, and group B has been treated with Mulligan’s mobilization with movement (MWM) technique (8) then immediately followed by conventional treatment. The conventional treatment includes application of ice pack for 8 minutes, followed by a frequency of 3MHz pulsed ultrasound with a 1:4 ratio and intensity 0.5Wts/cm² for 5 minutes The patients received eight sessions of approximately 30 minutes of trigger point dry needling (TrP-DN) Mulligan’s mobilization with movement(MWM) technique and conventional treatment for each group. Post treatment readings were again assessed at four weeks after the last session, and after 2 weeks follow up. Then pre and post-test readings had been compared with statistical tool.

Results:
Statistical analysis performed by using of SPSS 18 software. The UN paired T test used to analyse the reduction of pain in Group A&B. Intra group analysis is done by one way ANOVA for both the groups. A significance level is fixed at p<0.05.

Table 1: Mean and S.D of Group A pre post and follow up values of Pain (on NPRS).
<table>
<thead>
<tr>
<th></th>
<th>1.353</th>
<th>0.629</th>
<th>0.535</th>
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<tbody>
<tr>
<td>F Test</td>
<td>386.90</td>
<td></td>
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<tr>
<td>P value</td>
<td>0.000</td>
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<tr>
<td>Table Value</td>
<td>3.168</td>
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<tr>
<td>Result</td>
<td>Significant</td>
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</tbody>
</table>

Table 2: Mean and S.D of Group B pre post and follow up values of Pain on NPRS.

<table>
<thead>
<tr>
<th>Group B</th>
<th>PAIN ON NPRS</th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Follow Up</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.56</td>
<td>1.37</td>
<td>1.00</td>
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</tr>
<tr>
<td>S.D.</td>
<td>1.188</td>
<td>0.884</td>
<td>0.734</td>
<td></td>
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<tr>
<td>F Test</td>
<td>272.59</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>P value</td>
<td>0.000</td>
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<tr>
<td>Table Value</td>
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<td></td>
<td></td>
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<tr>
<td>Result</td>
<td>Significant</td>
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</table>
Table 3: Mean and S.D of the Group A and Group B between the pre post and follow up values of the Pain on NPRS.

<table>
<thead>
<tr>
<th></th>
<th>Group A Pre</th>
<th>Group A Post</th>
<th>Group A Follow Up</th>
<th>Group B Pre</th>
<th>Group B Post</th>
<th>Group B Follow Up</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>5.14</td>
<td>0.61</td>
<td>0.29</td>
<td>4.56</td>
<td>1.37</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>S.D.</strong></td>
<td>1.353</td>
<td>6.29</td>
<td>0.535</td>
<td>1.188</td>
<td>0.884</td>
<td>0.734</td>
</tr>
<tr>
<td><strong>Unpaired T Test</strong></td>
<td>1.708</td>
<td>3.697</td>
<td>4.131</td>
<td></td>
<td></td>
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<tr>
<td><strong>P value</strong></td>
<td>0.0934</td>
<td>0.0005</td>
<td>0.0001</td>
<td></td>
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</tr>
<tr>
<td><strong>Table Value at 0.05</strong></td>
<td>2.01</td>
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<td>2.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Result</strong></td>
<td>Not-Significant</td>
<td>Significant</td>
<td>Significant</td>
<td></td>
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</tr>
</tbody>
</table>

The analysis of pre values between Group A and Group B were not showing significant difference but post and follow up values were showing significant difference in between them in Group A Group B of Pain on NPRS.
Discussion: The results of the mean and standard deviation of the Group A pre, post and follow up values of Pain on NPRS. For the pre values of mean and S.D is 5.14±1.353 post values of mean and S.D are 0.61±0.629, and follow up values of mean and S.D is 0.29±0.535. The one way ANOVA was done within the Group A for Pain. The f-value for Pain was 386.90. The results of the pre post and follow up values were significant which showed that there was significant difference between pre post and follow up values of Pain in Group A.

For Group B pre, post and follow up values of the Pain on NPRS. For the pre values of mean and S.D are 4.56±1.188 post values of mean and S.D are 1.37±0.884 and follow up values of mean and S.D are 1.00±0.734. The one way ANOVA was done within the Group B for Pain. The f-value for Pain was 272.59. The results of pre, post and follow up values were significant between the pre post and follow up values of the group B Pain on NPRS.

The un paired t-test was done to check the relation of Group A & B values of pre, post and follow up. For the pre values of mean and S.D are 5.14±1.353 (Group A) 4.56±1.188 (Group B) and the t-value 0.0934 (p> value 0.05).Post values of the mean and S.D are 0.61±0.629 (Group A) 1.37±0.884 (Group B) and the p-value 0.0005, and follow up values of mean and S.D are 0.29±0.535 (Group A) 1.00±0.734 (Group B) and the t-value 0.0001 (p> value 0.05).The results of pre values between Group A and Group B were not showing significant difference but post and follow up values were showing significant difference in between them in Group A Group B of Pain on NPRS.

The physiological mechanisms associated with the benefits of the Trigger Point Dry needling depends upon the movement of the needle, elicitation of local twitch response” (LTR), one of more needles applied, and the depth of needle penetration. (9) The physiological mechanisms and associated established benefits of the Mulligan Mobilization With Movement in the lateral epicondylitis have been shown to decreasing in pain by inducing hypoalgesic effects and also increase in sympathoexcitatory effect (10). B.Vicenzino, A.Paungmali et al founded that improved pressure- pain threshold and pain free grip strength immediately after followed by the MWM as compared with controlled intervention. And also in our study it has shown that there is significant difference of pain between the Group A and Group B (11).

The production of hypoalgesic response associated with an excitement of the motor system looks like the pattern generated by the lateral periaqueductal grey matter of midbrain (12, 13). The Movement with mobilization
technique have been shown to activate inhibitory descending systems (13), which are the results of the present study. The Souvlis et al. 2005 stated that manipulative therapy may provide enough sensory input to activate the endogenous pain inhibitory systems (14). The authors like Wright, 1995; Vicenzino et al, 1998; and Sterling et al., 2001, stated that the combination of sympathoexcitation, non-opioid hypoalgesia and improvements in motor functions are indirect signs in the treatment of manual therapy for possible involvement of endogenous pain inhibitory system.(15) The Neuro-physiological mechanisms of manipulative therapy-induced pain effect is likely intricate. The studies on manipulative therapy previously have been shown that the adequate non-noxious sensory input is enough to activate the descending pain inhibitory system (DPIS) is a great component of its pain relieving effects (16).

The physiological mechanisms associated with the benefits of the conventional treatment includes the Cryotherapy has been applied in our study to reduce pain as after application of cold to the painful area may cause vasoconstriction of cutaneous arterioles are immediately leads to significant decrease in local blood flow (17), which in turn causes decreased metabolism and reduction in fewer inflammatory mediators leads to reducing in inflammation. The pain reduction mechanism of cold by decreasing the velocity of nerve conduction and it bombards central pain receptor areas with so many cold impulses which in turn causes pain modulation through gate control theory, and cold supresses the excitability of the nerve endings leads to elevation in the pain threshold, hyper stimulation of the A β nerve receptors by cooling reduces pain by counter irritation theory. (18)

**Limitation of the study:**

Sample size was small and follow up was taken only single time at the sixth week.

**Conclusion and Future scope:**

The present study among the sports persons with acute and sub-acute lateral epicondylitis showed an improvement in both the Group A (Trigger point Dry needling) and Group B (Mulligan’s Mobilization With Movement). But there is no significant difference between the Group A (Trigger Point Dry Needling) and Group B (Mulligan’s Mobilization with Movement).

Large population and long term follow ups could be done for the better study. And future research could be done with randomised double blinded control studies.
References:


