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Research Article

EFFECTIVENESS OF MYOFASCIAL RELEASETECHNIQUE WITH THERAPEUTIC ECCENTRICEXERCISES TRAINING ON PAIN AND FUNCTIONINGABILITY IN SUBJECTS WITH CHRONIC LATERALEPICONDILYITIS

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A B S T R A C T

Background: Lateral epicondylitis is the most common lesion which occurs at elbow. Pain in the wrist extensor muscles at or near their lateral epicondyle origin or pain directly over the lateral epicondyle is termed as Lateral Epicondylitis. The purpose the study is to evaluate the effectiveness of myofascial release technique along with eccentric training on pain and functioning in subjects with chronic lateral epicondylitis. **Method:** The experimental study design of 30 lateral epicondylitis subject were selected 15 in myofascial release and Eccentric exercise, 15 in conventional group. Pain performance was measured by Numerical Pain Rating Elbow Evaluation Scale and function was measured by Patient-Rated Tennis Elbow Evaluation in 4 weeks of intervention. **Results:** From analysis it was found that the subjects who received myofascial release technique and eccentric exercises and subjects who received conventional therapy there is a statistically significant change in means of Numerical Pain rating Scale (NPRS) and Patient-Rated Tennis Elbow Evaluation (PRTEE) when means were analyzed from pre intervention to post intervention within the groups with $p<0.000$ with positive percentage of change showing that there is increase in the post means and negative percentage showing there is decrease in post means. **Conclusion:** Myofascial Release, Eccentric Exercises and conventional treatment are effective in chronic lateral epicondylitis than conventional therapy on reducing pain and improving function in subjects with chronic lateral epicondylitis.

INTRODUCTION

Lateral epicondylitis (LE) is the most common lesion which occurs at elbow. Pain in the wrist extensor muscles at or near their lateral epicondyle origin or pain directly over the lateral epicondyle is termed as Lateral Epicondylitis. Lateral epicondylitis or tennis elbow is an overuse injury that is characterized by pain and tenderness over the lateral epicondyle.The term tennis elbow is a misnamed because it also occurs in non-tennis players also. It was first described in 1873, still distinct Patho-etiology and treatment are uncertain.[1] Lateral epicondylitis is a chronic overuse injury causing damage to the extensor muscles tendons of the forearm. The tendon which is most involved is the extensor carpi radialis brevis and occasionally the extensor digitorum, extensor carpi radialis longus and rarely, the extensor carpi ulnaris. The ICD -10 of Lateral Epicondylitis is most commonly an idiopathic or a work-related condition.

The peak prevalence of it is in the fourth decade of life when it is four times more common than any other decade & the peak incidence of this condition occurs between the ages of 30 and 60. It is most prevalent (35-64%) in jobs requiring repetitive manual tasks. It results in restricted function and it is one of the costliest of all work-related illness.[2]

The pathology of lateral epicondylitis involves a tear of the tendon at origin of the extensor muscles from lateral epicondyle. The tear occurs at the junction between muscle and bone and healing is slow because of lack of periosteal tissue overlying this bone area.

The susceptibility of ECRB muscle is due to excessive strain which is probably related to the added tensile load imposed on the tendon by the radial head when the tendon is stretched. In this position the tendon is further stretched over the prominence of the radial head. This is further compounded by the head of the radius which rotates anteriorly against extensor carpi radialis brevis during pronation of the forearm. Many individuals may experience pain at the head of the radius during pronation which is due to irritation of the underlying bursa.

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Lateral epicondylitis is commonly managed with RICE protocol, ultrasound therapy, phonophoresis, stretching and strengthening of wrist extensors, muscle energy technique, deep transverse friction massage, low LASER therapy, shock wave therapy, iontophoresis, manual therapy, tennis brace and taping.Most of the interventional studies and systematic reviews reported inconsistent results and lack of evidence on benefit of treatment modalities in lateral epicondylitis. These could be possibly due to additional unidentified pathological factor such as myofascial trigger point (MTrP).

Previous studies provide initial evidence for the hypothesis that myofascial pain and prevalence of MTrPs may be part of the etiology of LE.[10] Cyriax suggested the use of deep transverse friction massage in combination with mill's manipulation for the treatment of tennis elbow. To label the treatment intervention as Cyriax physiotherapy, both the treatment components mentioned above must be used jointly in the sequence specified.

In Cyriax physiotherapy person must adhere to this intervention 3 times a week for duration of 4 weeks. However, the number of studies analyzing the effectiveness of this treatment intervention is less, the reason being that most of them do not have proper randomization, blinded outcome measures, and accurate functional outcome questionnaires. For the above-mentioned reasons, further research is warranted to find out the effectiveness of Cyriax physiotherapy intervention on functional outcome measures.
Myofascial trigger point is defined as hypersensitive, localize and hard palpable nodule located within taught band of skeletal muscle which can give rise to characteristic referred pain and motor dysfunction. Prevalence of MTrPs which is found in lateral epicondylitis are 70% in extensor carpi radialis longus, 65% in extensor carpi radialis brevis, 50% in brachioradialis and 25% in extensor digitorum communis. Trigger points, also known as trigger sites or muscle knots, are described as hyperirritable spots in skeletal muscle that are associated with palpable nodules in taut bands of muscle fibers.[7]

Myofascial trigger points are localized segments of muscle that have been subjected to trauma by acute injury or micro trauma from repetitive stress; in some cases, they are the result of a systemic illness.[7] Any skeletal muscle can develop trigger points, which can be identified by careful examination of the affected muscle groups for knots that are 2 mm to 5 mm in diameter and tight bands that are painful when palpated.[8] They produce pain locally and in a referred pattern and often accompany chronic musculoskeletal disorders.

Acute trauma or repetitive micro-trauma may lead to the development of stress on muscle fibers and the formation of trigger points. Patients may have regional, persistent pain resulting in a decreased range of motion in the affected muscles. These include muscles used to maintain body posture, such as those in the bundle or nodule of muscle fiber of harder than normal consistency is the physical finding typically associated with a trigger point. Palpation of the trigger point will elicit pain directly over the affected area and/or cause radiation of pain toward a zone of reference and a local twitch response neck, shoulders, and pelvic girdle.

Trigger points in this muscle refer pain to the back and side of the neck, to the temporal region, behind the ear or back of the head, to the shoulder joint, and in the upper back region. It may come from any of the structures in the neck including: vascular, nerve, airway, digestive, and musculature / skeletal or be referred from other areas of the body.[9]

Previousstudies have found the effectiveness of Myofascial release combined with other treatment method and eccentric exercises combined with other intervention shown effective in subjects with lateral epicondylitis. There is need to find the effect of MFR combined with eccentric exercise for subjects with lateral epicondylitis. Therefore, the present study is undertaken to do find the combined effect of MFR and eccentric exercise in subjects with lateral epicondylitis.

MATERIALS AND METHODS

Study design : An experimental design
Study subjects : Subjects with lateral epicondylitis having pain and limited functional ability
Sample size : 30 subjects
Source of data : Goutham Physiotherapy Clinic, Bangalore
Sampling Method: Purposive random sampling method.
Study Duration: Four weeks study.
Study period : Sixmonths.

Selection Criteria:

Inclusion Criteria:

1. Patients were of age group 30-45 years, both males and females.
2. Symptomatic chronic lateral epicondylitis as established by expert Orthopedician with unilateral involvement and positive ‘Cozen’s test’ or ‘Mill’s test’ reinforced the presence of lateral epicondylitis.
3. Pain intensity level between 3 to 9 on0–10-point numerical pain rating scale and
4. The patients willing to participate in the study.

Exclusion Criteria

1. History of trauma, surgery, acute infections, malignancy, or any systemic disorders.
2. Acute lateral epicondylitis
3. Having any cervical spine radiculopathy
4. Any other upper limb dysfunction
5. Neurological diseases
6. Osteoporosis,

Materials Required

1. Couch
2. Pillows
3. Dumb bell
4. Theraband

Ethical Clearance: As the study includes human subjects, ethical clearance was obtained from the ethical committee of Goutham College of Physiotherapy, Bangalore. (Appendix-1)

Procedure of pre-intervention measurements: Thirty subjects with chronic lateral epicondylitis were participated in this study. All the subjects meet the inclusion criteria and consent form was taken from the patients prior to the commencement of the study. All the subjects who meet the inclusion criteria were randomly assigned in to two groups, Group A (n=15) and Group B (n=15).

Procedure of intervention for Group A:

Subjects in this group were treated with Myofascial Release Technique and Eccentric exercises training thrice a week for four weeks. All patients were instructed to perform self-isometric exercises twice daily as a home exercise program.

The MFR was performed in supine lying

The treatment program includes

1. Myofascial Release Technique
2. Eccentric exercises training
3. Conventional therapy, includes:
   a. Isometric exercises
   b. Stretching exercises
   c. Strengthening exercises

Technique of MFR: Dosage: 15-30 minutes/session, 3 times a week for 4 weeks.

The subjects were in supine with affected side shoulder rotate internally, elbow flex to around 15° and pronation, palm resting flat on table. Therapist stands at the side of table near shoulder and facing ipsilateral hand.

Procedure 1: Treating from common extensor tendon (CET) to extensor retinaculum (ER) of wrist began on humerus, just proximal to lateral epicondyle. Using fingertips to engage periosteum and carries this contact inferior to common extensor tendon and then down to extensor retinaculum of the wrist (5min, 2 repetitions). Then, the patient slowly flexes and extends the elbow within range of 5° to 10° during this procedure.

Procedure 2: Treating through periosteum of ulna, use knuckles of hand to work over periosteum of ulna (5min, 2 repetitions). Then the subject performs alternating ulnar and radial deviation of wrist.

Procedure 3: Passively bring patient into flexion and extension of the elbow within an easy range of 5° to 10° of range. Spreading radius from ulna, contacts head of ulna with finger pads of one hand and dorsal tubercle of radius with the pads of other. The therapist engaged through to the periosteum and put a line of tension in a lateral and distal direction. It is carried for just a few centimeters with a firm intent to spread the bones (5min, 2 repetitions).

Method of Eccentric Exercises

Eccentric exercises were providing neuromuscular benefits through central adaptation of both agonist and antagonist muscles; therefore, EE were provided both a structural and functional benefits during tendinopathy rehabilitation. Interestingly, some patients with LE exhibit lower pain pressure thresholds (PPT) and larger refer pain patterns that could occur slowly due to the presence of trigger points, suggesting a central nervous system mediation of pain. Many questions remain as to the mechanism of the Effectiveness of EE, as well as the appropriate dosage. In a recent systematic review, Woodley et al noted a lack of high-quality studies comparing the effectiveness of eccentric exercise to standard management of tendinopathies.

Graduating conventional exercise therapy regimen including stretching exercises and strengthening exercises 3 sets of 10 repetitions with one minute rest in between the sets, 3 times in a week for a period of 4 weeks.

Procedure of intervention for Group B

Subjects in Control Group are treated with Conventional Physiotherapy that included Isometric exercises and graduated exercise therapy regimen including stretching exercises and strengthening exercises.

Outcome Measures: The outcome measurements such as elbow pain was measured using Numerical Pain rating Scale (NPRS) and functional ability was measured using Patient-Rated Tennis Elbow Evaluation (PRTEE) and measurement were measured before the intervention and after 2 weeks of intervention in both the groups.

Numerical Pain rating Scale (NPRS):

Numerical rating scales usually consist of a series of numbers ranging from, for example, 0 to 10. The ends of the scale are label to indicate "no pain" and the "worst pain possible." The patient chooses the number that best corresponds to the level of pain he or she is experiencing.

The patient is asked to make three pain ratings corresponding to current, best and worst pain experienced over the past 24 hours.

The average of the three ratings is used to represent the patients' level of pain over the previous 2 hours.

Patient-Rated Tennis Elbow Evaluation (PRTEE)

The questions below were help us understand the amount of difficulty you have had with your arm in the past week. You were describing your average arm symptoms over the past week on a scale 0-10. Please provide an answer for all questions. If you did not perform an activity because of pain or because you were unable, then you should circle a "10". If you are unsure, please estimate to the best of your ability. Only leave items blank if you never perform that activity. Please indicate this by drawing a line completely through the question.

RESULTS

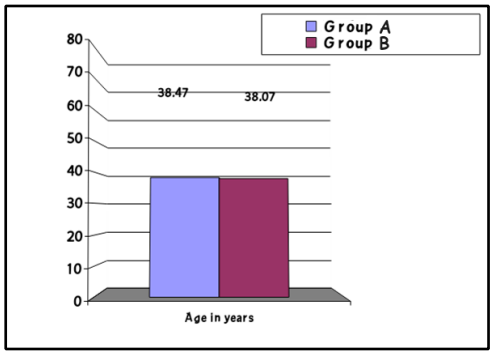
Statistical Methods: Descriptive statistical analysis has been carried out in the present study. The outcome measurements such as elbow pain was measured using Numerical Pain rating Scale (NPRS) and functional ability was measured using Patient-Rated Tennis Elbow Evaluation (PRTEE) and measurement were measured before the intervention and after 2 weeks of intervention in both the groups. The analysis is presented as mean ±SD. Significance is assessed at 5 % level of significance with p value 0.05 less than this is considered as statistically significant difference.

Statistical tests

- **Pearson Chi-Square test** and has been used to analyze the significant of basic characteristic of gender, age and side distribution of the subjects studied.
- **Wilcoxon signed rank test** as a non-parametric test have been used to analysis the variables pre h to post-test with calculation of percentage of change.
- **Mann Whitney U test** as a non-parametric test have been used to compare the means of variables between groups with calculation of percentage of difference between the means.

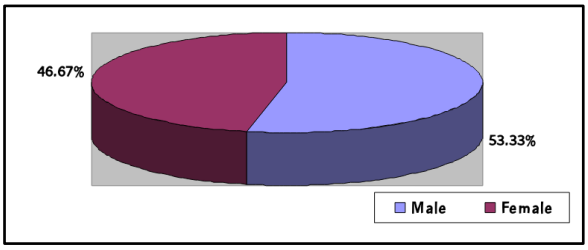
Statistical software: The Statistical software used is SPSS 16.0 and Microsoft word and Excel have been used to generate graphs, tables etc.

The above table shows that in Group A there were 15 subjects with mean age 38.47 years and there were 08 males and 07 females were included in the study. In Group B there were 15 subjects with mean age 38.07 years and there were 08 males and 07 females were included in the study. There is no significant difference in mean ages between the groups



Graph 1 Age Distribution of the subjects studied

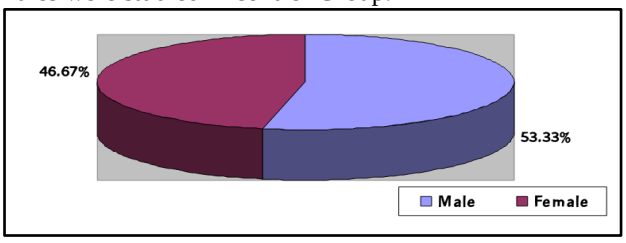
The above graph shows that in group A there were 15 subjects with mean age 38.47 years and in group B, there were 15 subjects with mean age 38.07 years.



Graph 2 Gender distribution of the subjects in Group A

The above graph shows that 53.33% of Males and 46.67% of females were studied in Group A.

The above graph shows that 53.33% of Males and 46.67% of females were studied in control Group.



Graph 3 Gender distribution of the subjects in Group B

The above table shows that in group A and in groupB there is a statistically significant change in means of Numerical Pain rating Scale (NPRS) and Patient-Rated Tennis Elbow Evaluation (PRTEE) when means were analyzed from pre intervention to post intervention within the groups with $p<0.000$ with positive percentage of change showing that there

Table 1 Basic Characteristics of the subjects studied

Basic Characteristics of the subjects studied		Group A		Group B		Between the groups Significance
Number of subjects studied (n)		15		15		--
Age in years (Mean± SD)		38.47± 5.23 (30-45)		38.07± 4.66 (30-45)		p= 0.950 (NS)
Duration of symptoms		5.60±1.88 (2-8)		5.13± 2.50 (1-9)		p= 0.548 (NS)
Gender	Female	07	46.67%	07	46.67%	--
	Male	08	53.33%	08	53.33%	
Side	Right	8	53.33%	8	53.33%	
	left	7	46.67%	7	46.67%	

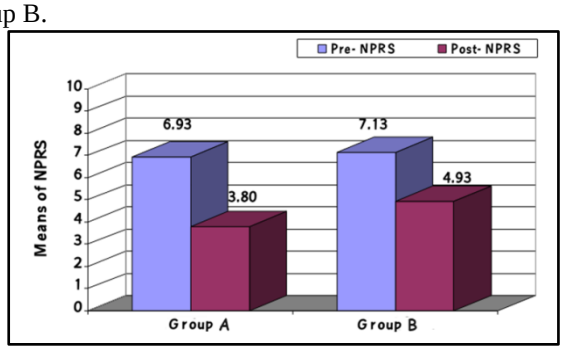
Table 2 Analysis of Numerical Pain rating Scale (NPRS) and Patient-Rated Tennis Elbow Evaluation (PRTEE) within Groups (Pre to post test analysis)

	Pre (Mean±SD) min-max	Post (Mean±SD) min-max	Percentage change	Z value[a] (Non parametric significance)	Parametric Significance (2-tailed) P value	Effect Size (r)
Group A						
NPRS	6.93± 1.28 (5- 9)	3.80±0.86 (2-5)	-45.16%	-3.502	p<0.000**	+0.82 (Large)
PRTEE	68.67±13.45 (45- 95)	33.93 ±7.53 (20-50)	-50.58%	-3.425	p<0.000**	+0.847 (Large)
Group B						
NPRS	7.13± 1.30 (5- 9)	4.93 ±1.28 (3 - 7)	-30.85%	-3.623	p <0.000**	+0.64 (Large)
PRTEE	70.00±11.94 (45-95)	52.00 ± 10.31 (30-70)	-25.71%	-3.440	p <0.000**	+0.62 (Large)

*Statistically Significant difference $p<0.05$; NS- Not significant; a. Wilcoxon Signed RanksTest

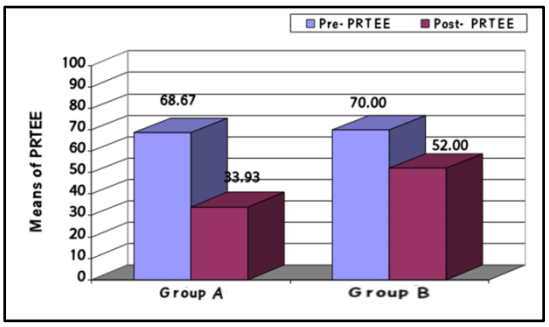
is increase in the post means and negative percentage showing there is decrease in post means.

The greater percentage of improvement in Numerical Pain rating Scale (NPRS) and Patient-Rated Tennis Elbow Evaluation (PRTEE) is found in Group A compared with Group B.



Graph 4 Analysis of Numerical Pain rating Scale (NPRS) within Groups (Pre to post-test analysis)

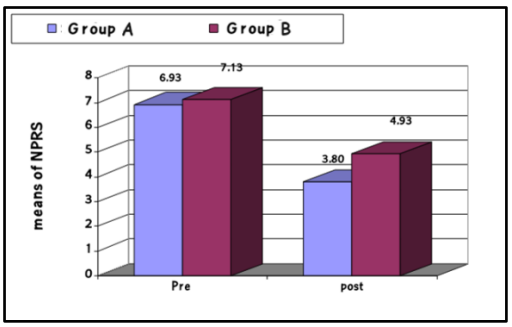
The above graph shows that in group A and in group B there is a statistically significant change in means of Numerical Pain rating Scale (NPRS) a when means were analyzed from pre intervention to post intervention within the groups with p<0.000.



Graph 5 Analysis of Patient-Rated Tennis Elbow Evaluation (PRTEE) within Groups (Pre to post-test analysis)

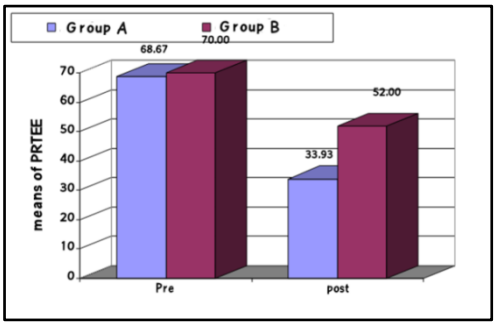
The above graph shows that in Group A and in group B there is a statistically significant change in means of Patient-Rated Tennis Elbow Evaluation (PRTEE) when means were analyzed from pre intervention to post intervention within the groups with p<0.000.

The above table shows that when pre intervention means was compared between group A and group B there is no statistically significant difference in means of Numerical Pain rating Scale (NPRS) and Patient-Rated Tennis Elbow Evaluation (PRTEE) between the groups. When post intervention means were compared between Groups there is a statistically significant difference in means of Numerical Pain rating Scale (NPRS) and Patient-Rated Tennis Elbow Evaluation (PRTEE).



Graph 6 Comparison of means of Numerical Pain rating Scale (NPRS) a between Groups (PRE AND POST TEST COMPARISION)

The above graphshows that when pre intervention means was compared between group A and group B there is no statistically significant difference in means of Numerical Pain rating Scale (NPRS) between the groups. When post intervention means were compared between Groups there is a statistically significant difference in means of Numerical Pain rating Scale (NPRS).



Graph 7 Comparison of means of Patient-Rated Tennis Elbow Evaluation (PRTEE) between Groups (PRE AND POST TEST COMPARISON)

Table 3 Comparison of means of Numerical Pain rating Scale (NPRS) and Patient Rated Tennis Elbow Evaluation (PRTEE) between Groups (PRE AND POST TEST COMPARISION)

	Study Group (Mean±SD) min-max	Control Group (Mean±SD) min-max	Percentage of difference	Z value[a] (Non parametric)	Significance (2-tailed) P value	Effect Size r
PRE						
NPRS	6.93± 1.28 (5-9)	7.13± 1.30 (5- 9)	2.844%	-0.383	p =0.701 (NS)	+0.078 (Small)
PRTEE	68.67±13.45 (45- 95)	70.00±11.94 (45-95)	1.91%	-0.417	p =0.677 (NS)	+0.052 (Small)
POST						
NPRS	3.80±0.86 (2-5)	4.93 ±1.28 (3 - 7)	25.91%	-2.431	p =0.015 **	+0.46 (Medium)
PRTEE	33.93 ±7.53 (20-50)	52.00 ± 10.31 (30-70)	42.06%	-3.931	p <0.000 **	+0.707 (Large)

** Statistically Significant difference p<0.05; NS- Not significant a. Mann-Whitney Test

The above graphshows that when pre intervention means was compared between group A and group B there is no statistically significant difference in means of Patient-Rated Tennis Elbow Evaluation (PRTEE) between the groups. When post intervention means were compared between Groups there is a statistically significant difference in means of Patient-Rated Tennis Elbow Evaluation (PRTEE).

DISCUSSION

The results of this study showed a significant improvement in both groups in all measuring variables (NPRS for pain and PRTEE for functional Disability) after 4 weeks of treatment. However, high improvement was achieved in Group A in all measuring parameters. The result of this study indicates that MFR and Eccentric exercise Training along with conventional therapy is an applicable method for reducing pain and improving Functional ability and is more effective when compared with conventional physiotherapy alone.

In Myofascial and Eccentric exercise group the analysis of pain and functional ability of elbow within the group shows that there is statistically significant change in mean of NPRS & PRTEE when analysed from pre intervention to post intervention. Pain may be reduced because MFR has both neurophysiological and mechanical effects, application of a low load, long duration stretch to myofascial complex, intended to restore optimal length, decrease pain and improve function for 4 weeks which was a modified intervention studied and suggested by (Harneet, K.Khatri SM et al.,2012). The MFR technique is very different to that of massaging muscles, tendons and the ligaments of the body. A time component also exists, coupled with the fluidity of the therapist's hands in applying pressure and moving though each and every fascial restriction. The time element is a vital factor, the fascia cannot be forced as it will naturally meet that force in return. (Vert Mooney et all,) The role of active release manual therapy for upper extremity overuse syndromes -A preliminary report. American physical therapy association; 1997.Similarly (Ajimsha M, Chithra S, et al., 2012), conducted a study on Effectiveness of myofascial release in the management of lateral epicondylitis in computer professional and concluded that MFR and eccentric training is effective in improving pain and functional ability of lateral epicondylitis.

The present study had demonstrated that both, Eccentric exercise training and MFR are effective in relieving pain and improving Grip Strength and Functional performance but MFR was found to be more effective in patients with Chronic Lateral Epicondylitis, this effect is similar to previous research report. [12, 14, 23, 26, 27.]

Hillel M. Finestone, MD CM 2008) Practical eccentric and concentric exercises to heal the pain in tennis elbow. The muscle-strengthening program was initially proposed by Dr Ernest W. Johnson (oral communication, October2003), an American physiatrist from Ohio State University in Columbus. The program, described in encompasses a 10-repetition maximum of eccentric and concentric movements of the wrist extensor muscles in 2 different positions: first with the elbow flexed to 90°, then with the elbow extended to 180°. The rationale for the protocol of this regimen is that stressing the attachment of the ECRB through progressive eccentric and concentric resistance exercises results in the production of a dense collagenous scar in the area of attachment; thus, pain is eliminated. Dosage: 15-30 minutes/session, 3 times a week for 2 weeks.

The subjects will be in supine with affected side shoulder rotate internally, elbow flex to around 15° and pronation, palm resting flat on table. Therapist stands at the side of table near shoulder and facing ipsilateral hand.

Treating from common extensor tendon (CET) to extensor retinaculum (ER) of wrist began on humerus, just proximal to lateral epicondyle. Using fingertips to engage periosteum and carries this contact inferior to common extensor tendon and then down to extensor retinaculum of the wrist (5min, 2 repetitions). Then, the patient slowly flexes and extends the elbow within range of 5° to 10° during this procedure.

Treating through periosteum of ulna, use knuckles of hand to work over periosteum of ulna (5min, 2 repetitions). Then the subject performs alternating ulnar and radial deviation of wrist.

Passively bring patient into flexion and extension of the elbow within an easy range of 5° to 10° of range. Spreading radius from ulna, contacts head of ulna with finger pads of one hand and dorsal tubercle of radius with the pads of other. The therapist engaged through to the periosteum and put a line of tension in a lateral and distal direction. It is carried for just a few centimeters with a firm intent to spread the bones (5min, 2 repetitions).

Eccentric exercises were neuromuscular benefits through central adaptation of both agonist and antagonist muscles; therefore, EE will provide both a structural and functional benefits during tendinopathy rehabilitation. Interestingly, some patients with LE exhibit lower pain pressure thresholds (PPT) and larger refer pain patterns that could occur slowly due to the presence of trigger points, suggesting a central nervous system mediation of pain. Many questions remain as to the mechanism of the effectiveness of EE, as well as the appropriate dosage. In a recent systematic review, Woodley et al noted a lack of high-quality studies comparing the effectiveness of eccentric exercise to standard management of tendinopathies.

Subjects in Control Group will be treated with Conventional Physiotherapy that included Isometric exercises and graduated exercise therapy regimen including stretching exercises and strengthening exercises.

The post-test treatment results of Numerical pain rating scale and PRTEE revealed a significant difference between the group in favor of Group A ($p<0.001$) this difference may be attributed to the effectiveness of MFR and eccentric exercise training along with conventional physiotherapy treatment by significant improvement in NPRS score and PRTEE score after 12 sessions of intervention. There is significant difference in intensity of pain as per NPRS and functional performance as per PRTEE.

The MFR and eccentric group and control evaluation of group A clearly illustrated mean differences in NPRS pre(6.93), PRTEE pre(68.6), and post treatment NPRS (3.8), PRTEE (33.93). there were differences in pain andfuntional ability scores between patients in group B. NPRS pre(7.13) and PRTEE pre(70) and post treatment NPRS (4.93), PRTEE (56).

These results showed that they might have improvement in pain and functional ability in group A than in group B.

Limitations of this study

1. Subjects with 30-45 years of age were considered for the study thus results cannot be generalized to all age group.
2. Only short-term effect was studied long term effects were not studied that would have helped to find the maintenance of improved outcome measures.
3. Lateral epicondylitis chronicity, duration of symptoms was not considered for the study, thus the results cannot be generalized.
4. Follow up was not done, so long term results are not known.
5. Only pain and function were measured, improvement in range of motion, muscle strength was not measured

Recommendation of Future Studies

1. Present study is lacking with control group who not received any treatment only, further study with control group is suggested.
2. Study on long term effects of myofascial release technique and eccentric exercises techniques are needed.
3. Study including subjects in different duration of lateral epicondylitis need to be studied.
4. Further study should also be done to compare the effect with other techniques of mobilization and pain-relieving methods.

CONCLUSION

The present study concludes that after 12 sessions (4 weeks) of treatment both myofascial release technique and Eccentric exercise training and conventional physiotherapy treatment were effective in the treatment of chronic lateral epicondylitis. In Myofascial release technique and Eccentric exercise Training was found superior than conventional physiotherapy alone on reducing pain and improving function in subjects with chronic lateral epicondylitis.

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