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COMPARING THE EFFECTIVENESS OF LOW LEVEL LASER THERAPY VERSUS PHONOPHORESIS ALONG WITH ECCENTRIC EXERCISES OF WRIST IN RADIAL STYLOID TENOSYNOVITIS

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ABSTRACT:

BACKGROUND: Radial styloid tenosynovitis is a repetitive stress condition of the first dorsal compartment of the wrist. It is a common wrist pathology and also a overuse disease. It is more common in women than men.

SPECIFIC OBJECTIVE: The objective of the study was to find the low-Level Laser therapy versus phonophoresis along with eccentric exercises of wrist in the management of Radial styloid tenosynovitis with respective to pain by using visual analogue scale and functional activity by using patient related wrist evaluation questionnaire.

STUDY SETTING: Apollo College Of Physiotherapy, district headquarters, government hospital, chittoor.

PARTICIPANTS AND METHODS: A total of 20 patients. Intervention 10 patients with radial styloid tenosynovitis were treated with laser therapy and eccentric exercises for wrist for 4 sessions a week, 10 patients of radial styloid tenosynovitis were treated with phonophoresis and eccentric exercises for wrist for 4 weeks. Design is comparative study.

OUTCOME MEASURES: Patient Rated Wrist Evaluation & Visual Analogue Scale.

RESULTS: The pre and post test values of the group were analysed using paired t- test (0.00079) & independent t- test, P value is less than (0.0005), both the Phonophoresis and laser are useful in treating the patient with radial styloid tenosynovitis in concern with pain and functional activity of wrist after analysis of data Group A showed significant differences than Group B.

CONCLUSION: The results showed that the uses of Low-Level Laser Therapy with eccentric exercise of wrist are more effective in the management of radial styloid tenosynovitis.

KEYWORDS:

RADIALSTYLOID TENOSYNOVITIS, LOW LEVEL LASER THERAPY, PHONOPHORESIS, PRWE, VAS.

INTRODUCTION

In industrial settings, studies have shown a point prevalence of 8% when wrist pain and a positive Finkelstein's test is present. May be associated with systemic inflammatory diseases . Incidence- There were 11,332 cases of Radial styloid tenosynovitis in the population at risk of 12,117,749 person-years. Women had a significantly higher rate of Radial styloid tenosynovitis at 2.8 cases per 1000 person-years, compared to men at 0.6 per 1000 person-years.

14 The tendon sheaths around the abductor pollicis longus and extensor pollicis brevis pass through the fibro-osseous tunnel located along the radial styloid at the distal wrist. Pain is exaggerated by thumb movement and ulnar, radial deviation of wrist. 15 Therefore, daily activities that are involved at wrist and thumb movements are affected.

Causes of radial styloid tenosynovitis is sporting artistic pursuits and activity of daily living, now a days it is more common, specially the people using mobile phones more than 5 to 6 hours or repetitively use of hand and wrist. Wrist pain is a very common complaint that can have a dramatic changes on the people productivity at work Chronic overuse. Acute trauma to the fi dorsal extensor compartment Anatomic abnormality or variation Increased volume states, such as occurring during pregnancy. Tenderness with palpation over the radial styloid and fi dorsal extensor compartment.

Pain may radiate up to the volar aspect of the wrist or to the thumb. Swelling on the radial styloid. [1]Pathology of dequervain's tenosynovitis is, the tendon sheaths can surround tendons. A tendon sheath is formed by connective tissue that covers the tendons and is filled with synovial fluid.

They help lubricate and protect the movement of the tendons within them. The extensor retinaculum is a fibrous band that wraps across the back of the wrist. The

APL and EPB pass underneath the extensor retinaculum. Repetitive movement of the APL and EPB under the extensor retinaculum result in inflammation and swelling of the tendon sheaths.

The primary complaint is radial sided wrist pain that radiates up the forearm with grasping or extension of the thumb. Ergonomic keyboards, key holders, and modifications to tools allowing for neutral wrist positioning are some examples of adaptive equipment available for patients to incorporate into their daily life activities. Pharmacological treatment of Corticosteroids and 1% with lidocaine hydrochloride. Based on the severity of the condition treatment options include- anti-inflammatory medication, corticosteroid injections, occupational therapy and physiotherapy.

Surgery treatment is indicated in Radial styloid tenosynovitis only after failure of medical treatment, often due to individual anatomical variants. Le Viet's to avoid tendon instability. Phonophoresis is a physical therapy technique that combines ultrasound and topical medications. They will apply ultrasound gel to the area where the topical treatment has been applied.

This gel helps the ultrasound wave's travel through the skin. Finally, they will use an ultrasound head tool on the area where the topical treatment and gel have been applied. Ultrasound wave frequencies deliver the medication through the skin into the tissue beneath. state that splinting is effective with a corticosteroid injection in immobilizing and resting the APL and EPB tendons in a position to decrease the friction in the joint that can lead to increased pain and inflammation.

Adaptive equipment or modified techniques for activity performance is encouraged to allow for neutral wrist positioning during activities, such as repetitive typing and lifting, which place the wrist in ulnar deviation with the thumb MP joint in flexion . The best way to reduce pain and treat tendon injuries is to perform dry needling in conjunction with physical therapy. That way, the treatment will yield a maximum increase in strength and the joint's range of motion.

Kinesiology taping is a cheap, effective, and easy to implement treatment method with no complications, and thus a good alternative in the conservative treatment of Radial styloid tenosynovitis. 21Therapeutic Ultrasound is a modality used for many musculoskeletal injuries to improve tissue extensibility, to reduce pain, to promote healing of wounds, tendons and bones through use of high frequency sound waves. Usually 3MHZ is used for Radial styloid tenosynovitis. Two classifications of therapeutic ultrasound include thermal or non-thermal, also referred to as duty cycle, where non-thermal effects have also been shown to occur with continuous ultrasound.

Typically, for Radial styloid tenosynovitis, non-thermal therapeutic ultrasound is used for its healing effects of tendon injuries and tissue regeneration. Following therapeutic ultrasound, soft tissue massage is performed along the if dorsal compartment tendons to relax tight musculature that can increase pain, as well as to enhance fluid drainage from muscle tissue. Radial styloid tenosynovitis is a common disorder afflicting 10 to 30 % adults over age of 45. Radial styloid tenosynovitis disease is associated with significant economic burden.

NEED OF THE STUDY

Radial styloid tenosynovitis is a common disorder afflicting 10 to 30 % adults over age of 45. Radial styloid tenosynovitis disease is associated with significant economic burden.

AIM OF THE STUDY

The aim of the study is to find out the effectiveness of LOW LEVEL LASER THERAPY versus PHONOPHORESIS along with eccentric exercises in patients with Radial styloid tenosynovitis.

OBJECTIVES OF THE STUDY

To determine the effectiveness of low level laser therapy along with eccentric exercises of wrist in Radial styloid tenosynovitis for pain by using VAS and function activity using PREW, determine the effect of phonophoresis with eccentric exercises of wrist in reducing pain and improving in subjects with Radial styloid tenosynovitis for pain and function.

STUDY SETUP: The study was performed in the department of physiotherapy in GH & also in Apollo College of physiotherapy, Chittoor, AP

STUDY DESIGN: Experimental design

SAMPLING METHOD: Purposive sampling

STUDY DURATION: 4 weeks

SAMPLE SIZE: 20 subjects

MATERIALS USED:

1. Paper
2. Pen
3. Couch
4. Pillow
5. Googles
6. Laser
7. Phonophoresis (ketoprofen gel)

INCLUSION CRITERIA-

- Age limit with 40 to 50 years.
- Both genders are included.
- Subjects willing to participate voluntarily.
- According to signs and symptoms in patients with dequervain's tenosynovitis

EXCLUSION CRITERIA-

- Previous surgeries
- Malignancy
- Significant trauma (fracture, dislocation)
- Systemic inflammatory conditions(rheumatoid arthritis)

OUTCOME MEASURES-

- Patient rated wrist evaluation (PRWE)
- Visual analogue scale (VAS)

INTERVENTION

Total 10 subjects with Radial styloid tenosynovitis disease, who fulfilled the inclusion criteria were taken by simple random sampling technique. They all are treated with Low level laser therapy. All the subjects were scheduled to attend the treatment session for 4 days per week with duration of 10minutes for 4weeks.

LOW LEVEL LASER THERAPY

The low level laser along with exercise is used to decrease pain and stiffness in patients with de Quervain tenosynovitis The low level laser therapy is effective treatment for the inflammation and pain . Parameters of laser used here are different based on severity of de Quervain Tenosynovitis. At the end of the laser post test values are noted. Low level laser 0.

PHONOPHORESIS

The treatment duration is based upon on severity of de Quervain tenosynovitis.

ECCENTRIC EXERCISE

You'll feel a stretch at the base of your thumb, Hold this position for 6 seconds, Release and repeat 10 times. You can rest it on a table for support, Use your other hand to bend your thumb down at the base of the thumb where it connects to the palm, You'll feel a stretch at the base of your thumb and the inside of your wrist, Hold for at least 15 to 30 seconds. The therapist grasps the afflicted hand of the patient and rotates it in ulnar deviation.

RESULTS

The results of this study were analysed which was based on pain and range of motion measured by PRWE scale

Effectiveness is evaluated within the group of all the subjects, which are under considerations in the present study. During the training period pre-test measurements were taken and the post test measurements were taken after 4weeks of intervention with PRWE scale

STATISTICAL ANALYSIS:

Statistical analysis was performed using MS Excel 2007 and GRAPHPAD software version 20.0. Descriptive statistical data has presented in the form of mean standard deviation and mean difference percentage were calculated and presented.

Between the groups: Independent Groups 't' test was performed to assess the statistical significant difference in mean values between the groups for low level laser therapy along with eccentric exercises and Phonophoresis along with eccentric exercises using Patient rated wrist evaluation questionnaire

Within the groups: Paired groups 't' test was performed to assess the statistical difference within the groups for Patient rated wrist evaluation questionnaire from pre and post test values.

DISCUSSION:

PRE AND POST INTERVENTION MEAN VALUES OF VAS, PRWE QUESTIONNAIRE OF GROUP B

In the present study it has been reported that radial styloid tenosynovitis subjects in group B with Phonophoresis along with eccentric exercises, showed mean value of VAS from 6.9 2.82 to 5.4 2.118 mean value of PRWE from 6214.94 to 4513.95. This study was conducted to determine the effectiveness of low level laser therapy v/s Phonophoresis along with eccentric exercises of wrist in subjects with radial styloid tenosynovitis. This study demonstrates that the study group A which includes 10 members which received low level laser therapy with eccentric exercises and Phonophoresis along with eccentric exercises in Group B with included 10 members has improvement in pain and functional activity both male and female has been included. The specific physiological effects of laser light and Phonophoresis at a subcellular level are speculative.

Generally, the higher the water content of the tissue, the greater is the absorption of the laser beam and Phonophoresis. The anteroposterior and medio-lateral diameters of the tendon sheath were measured ultrasonographically and the decrease in thickness could have been due to a reduction of tissue oedema, possibly secondary to the effect of laser beams and Phonophoresis on membrane potentials and active transport across cell walls. Through its positive effects on local immune mechanisms, LLLT has a powerful anti-inflammatory effect. This results in immune-mediated healing effects on the injured soft tissues and also of involved nerves, skin etc. LLLT stimulates blood flow and lymphatic drainage, improved delivery of O2 and nutrition to the area, oxygen utilisation, removal of oxygen-free radicals and other waste products, and tissue healing.

Low Level Laser Therapy is an effective, painless, non-invasive treatment option for Radial styloid tenosynovitis. LLLT removes the obstacles to healing, being inflammation, and stimulates the body's own healing processes thereby promoting tissue healing. AL, Conducted a study on Outcome of low level lasers versus ultrasonic therapy in dequervain's tenosynovitis. Showed that LLLT was effective in reducing the tendon sheath diameters.

CONCLUSION

In conclusion, in patients with Radial styloid tenosynovitis 4 weeks of Low level laser therapy along with eccentric exercises and Phonophoresis along with eccentric exercises resulted in significant improvements in exercise performance. The results had shown that Low level laser therapy along with eccentric group has improved significantly than Phonophoresis along with eccentric exercises group. When post test values are compared between the low level laser therapy along with eccentric exercises showed statistically significant improvement than Phonophoresis along with eccentric exercises group in improving pain and function.

REFERENCES

No reference, since the present article is an outcome of Creative Nonfiction Writing.