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Comparison Of Transcutaneous Electrical Nerve Stimulation And Shockwave Therapy In The Treatment Of Upper Trapezitis

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ABSTRACT

Background: *Trapezitis is a chronic inflammatory illness that affects the trapezius muscles and results in neck discomfort and spasms. It is becoming more prevalent among people who sit at desks and use computers, as well as those who do manual labour or often flex their neck and back muscles. The research is being conducted to determine the most effective method of treating trapezitis.*

Materials &Methods: *According to the Inclusion and Exclusion Criteria, thirty samples with upper trapezitis will be chosen using a suitable sampling approach (when patients arrive, the odd number will be assigned to Group-A and the even number will be assigned to Group B by the study supervisor). Participants will be randomly assigned to one of two groups of fifteen. Consent is gained from the subject for participation in the research. Both groups had pre-data obtained using the VAS for pain and the Resisted Isometric Movement Test. Group A treated with TENS by following these parameters. Group B treated with shockwave therapy*

Results: *By the data of the study, we found that there is a significant effect of Transcutaneous Electrical nerve stimulation and Shockwave therapy in trapezitis. As the VAS SCORE Result shows that Group A PRE (8.12±0.16) and it was decreased to (3.12±.01) in the Post scores. For Group B PRE (9.34±0.87) and it was decreased to (2.72±0.01). For the Resisted Isometric Movement Testing there was higher effects can be seen in the Group B as compare with the Group A but there was a significant effect in both the Groups.*

Conclusion: *According to the results of the study, both types of treatment have an impact on the trapezitis condition, and we can deduce that shockwave therapy has a superior effect when compared to Transcutaneous Electrical nerve stimulation for the trapezitis condition.*

Keyword: *ESWT, TENS, Trapezitis, Resisted isometric testing.*

INTRODUCTION

Trapezitis is an inflammatory condition affecting the trapezius muscles that causes neck pain and spasms. It is becoming more common among individuals who sit at desks and use computers, as well as those who do manual labour or often flex their neck and back muscles. To properly manage trapezitis, it is critical to understand the condition's causes, symptoms, and treatment suggestions. The trapezius is a large muscle in the back that starts at the nape of the neck. The muscle is involved in a range of vital physical functions, the most notable of which is elevating the head forward and shrugging off the shoulder. Apart from this, the majority of muscles in the back support, rotate, and stabilise the shoulder blades. The wide, flat muscle that covers the bulk of the upper back and also the posterior of the neck is critical for the comfort of the back. However, since the trapezius is a large muscle, inflammation or trapezitis in it may cause significant pain and hinder related actions. Trapezitis is a condition that causes pain for a limited period of time, often three to five days. Several of the most common causes of pain include muscle strain and exhaustion. Not only that, but bad posture is also considered as a major source of pain. Trapezitis is more frequent in those who are required to keep a level head for a prolonged period of time. As a consequence, persons who spend significant time on computers or who drive long distances often get trapezitis. Trapezius was formerly referred to be a large neck and upper back muscle. The muscle was named because its trapezoid shape. The trapezius muscle is made up of muscular

bands. The superior muscle fiber band, the middle muscle fiber band, and the inferior muscle fiber band are the three bands. Trapezitis occurs when one of these three bands gets inflamed.

By stimulating sensory nerves and activating the pain gate mechanism and/or opioid system, TENS is utilised to alleviate symptomatic pain.TENS may be used in a variety of ways to target various parts of the body. There are several variables that affect the efficiency of TENS, but research indicates that when it is administered appropriately, it provides significantly more pain relief than a placebo.. In both clinical and laboratory settings, TENS has a rich research background, and while this review does not cover all relevant studies, it does reference the most notable ones. Note that the term "TENS" may refer to ANY kind of electrical stimulation delivered through skin surface electrodes with the goal of activating neurons.. Electrical stimulation with the specific objective of reducing symptomatic pain in a therapeutic situation is often understood to be the subject matter of this term. You'll very probably find a plethora of "alternative" forms of stimulation that are technically classified as TENS if you do a literature search on the topic..

The TENS device works by stimulating the sensory nerves, which in turn triggers the body's own pain-relieving mechanisms. In order to alleviate pain, the Pain Gate Mechanism and the Endogenous Opioid System are two of the most crucial mechanisms. In order to activate these two systems, we'll go through the necessary stimulation settings. So that unpleasant feelings from 'c' fibres can't go up to higher brain centres, sensory fibres called A beta (A) are activated (stimulated). The responsiveness of the A fibres seems to be greatly increased when they are stimulated at a rather high frequency HF (in the order of 90 - 130 Hz or pps). All patients cannot have a single ideal frequency, but this range seems to encompass most of them. Because the frequency of treatment varies so considerably across individuals, it is vital to allow patients to decide for themselves. The most effective way to treat a patient's illness may give some pain alleviation, although this is doubtful.

To stimulate the A delta (A) fibres, an alternative way is to activate the opioid processes and relieve pain by prompting the spinal cord to create endogenous opiate (encephalin) (between 2 and 5 Hz). According to pain gate physiology, there isn't a single frequency in this range that works best for everyone; instead, patients should experiment with a wide range of frequencies. Burst mode stimulation may concurrently activate both neuron types. Stimulation output (usually 100Hz) is interrupted at a rate of two to three bursts per second (or bursting). The machine's 100Hz pulse generator activates the A fibres and the pain gate mechanism, causing the opioid processes to be initiated with each burst of energy. The heightened feeling of 'grabbing, clawing, and muscle twitching' makes this approach less pleasant for most patients than other TENS modes. However, some patients benefit greatly from this technique. There are less adverse effects with TENS than there are from pharmacological treatments since it is noninvasive. The most common symptom (approximately 3% of patients) is an allergic response to the electrode material, the conductive gel, or the tape used to secure the electrodes in place. There are several benefits to using these self-adhesive, pre-gelled electrodes over traditional ones. These include reduced cross-infection risks, simplicity in administration, a decrease in allergic reactions, as well as an overall reduction in cost. New features (such as automatic frequency sweeps and more complicated stimulation patterns) are being developed for TENS devices equipped with digital technology, however there is yet no clinical data to support this. Pre-programmed or automatic therapy modes are available on several devices.

To treat urological conditions, extracorporeal shockwave therapy (ESWT), more often known as shockwave therapy, was first used in clinical practise in 1982. The technique's effectiveness in treating urinary stones instantly raised it to a first-line, minimally invasive, and successful treatment alternative. In orthopaedics, ESWT was tested for its capacity to remove cement during revision total hip arthroplasty and found to be effective. Studies on animals done in the 1980s showed that ESWT might improve fracture healing by strengthening the bone-cement contact and stimulating the osteogenic response.. Many orthopaedic studies have focused on soft tissue problems in the upper and lower limbs, however shockwave therapy for fractures has been found to be effective. Sound waves with nonlinear properties, such as shockwaves, have a rapid rising time and a brief duration, with a high peak pressure followed by a minor tension amplitude (10 ms). There is just one pulse with a broad range of frequencies (0-20 MHz) and a massive pressure magnitude (0-120 MPa) A shockwave has both a positive and negative phase as a result of these features.. The negative phase, in contrast to the positive phase, induces cavitation and the collapse of gas bubbles at high speeds, resulting in a second

wave of shockwaves. Shockwaves are 1000 times more powerful than ultrasonic waves, with a 1000-times higher peak pressure..

METHODOLOGY

Type of study: : A Comparative Study
Sampling: Simple Random Sampling
Area of Project: OPD of Physiotherapy, Galgotias University, Greater Noida, Uttar pardesh
No of Sample:30
Groups: Two groups (15 subjects in each group)

Randomization :upper trapezitis samples chosen using a simple random sampling approach (when the patient arrives, the odd number will be allocated to Group-A and the even number will be awarded to Group-B by the study supervisor). A total of 30 numbers will be drawn at random from the pool of participants, and they will be divided into two groups.

Inclusion Criteria:
1.Patient having spasm on trapezius.
2.Laptop and computer user
3.Those who wear helmets during riding
4.Age group between 18 to 40 years both genders.
5.Shopkeepers who sit prolonged on chair.

Exclusion Criteria:
1. Fracture around cervical
2. Kyphosis, scoliosis and lordosis
3. Congenital deformity, disc prolapsed
4. Age group between 18 to 40 years both genders
5. Spina Bifida.

Instrumentation:
- VAS
- Resisted Isometric Movement Testing

PROCEDURE

According to the Inclusion and Exclusion Criteria, thirty samples with upper trapezitis will be chosen using a suitable sampling approach (when patients arrive, the odd number will be assigned to Group-A and the even number will be assigned to Group-B by the study supervisor). Participants will be randomly assigned to one of two groups of fifteen. Consent is gained from the subject for participation in the research. Both groups had pre-data obtained using the VAS for pain and the Resisted Isometric Movement Test. All participants signed a consent form indicating their willingness to engage in the study, and then supplied demographic information such as their name, age, height, weight, gender, and occupation. Following that, the following procedures were carried out:

Group A treated with TENS with following these parameters. (BTL 4825 SMART)
- Frequency: 100 - 150hz
- Duration: for 10 min
- Duration of treatment: 5 days in a week for 3 week, total 15 sessions
- Tool used: treatment chair, ultrasonic gel

Group B treated with shockwave therapy (BTL 6000 SWT)
- Impulses: 1000 impulses
- Frequency: 10Hz

- Pressure bar : 2.5
- Duration: 1 season per week for 3 week, total 3 treatment
- Tool used: treatment chair, ultrasonic gel

RESULTS

By the data of the study, we found that there is a significant effect of Transcutaneous Electrical nerve stimulation and Shockwave therapy in trapezitis. As the VAS SCORE Result shows that Group A PRE (8.12±0.16) and it was decreased to (3.12±.01) in the Post scores. For Group B PRE (9.34±0.87) and it was decreased to (2.72±0.01). For the Resisted Isometric Movement Testing there was higher effects can be seen in the Group B as compare with the Group A but there was a significant effect in both the Groups.

TABLE NO 1: DEMOGRAPHIC DESCRIPTIVE STATISTICS.

VARIABLES	n	MEAN±SD
AGE	30	31.47±2.417
WEIGHT (kg)	30	65.10±8.592
HEIGHT (cm)	30	171.53±9.369

TABLE NO 2: GENDER RATIO

GENDER					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	15	50.0	50.0	50.0
	Male	15	50.0	50.0	100.0
	Total	50	100.0	100.0	

TABLE 3: VAS(PRE-POST).

	GROUP 1		GROUP 2	
	PRE	POST	PRE	POST
MEAN±SD	8.12±0.16	3.12±.01	9.34±0.87	2.72±0.01
T-TEST	2.678		2.321	
P VALUE	P <0.05		P <0.05	

TABLE NO 4. RESISTED ISOMETRIC MOVEMENT TESTING (PRE-POST)

SHOULDER MOVEMENTS	GROUP 1		GROUP 2	
	PRE	POST	PRE	POST
Strong and Painless	0	3	0	15
Strong and Painful	0	12	0	0
Weak and Painless	0	0	0	0
Weak and Painful	7	0	10	0
Painful on Repetition	8	0	5	0
All Resisted Movements Painful	0	0	0	0

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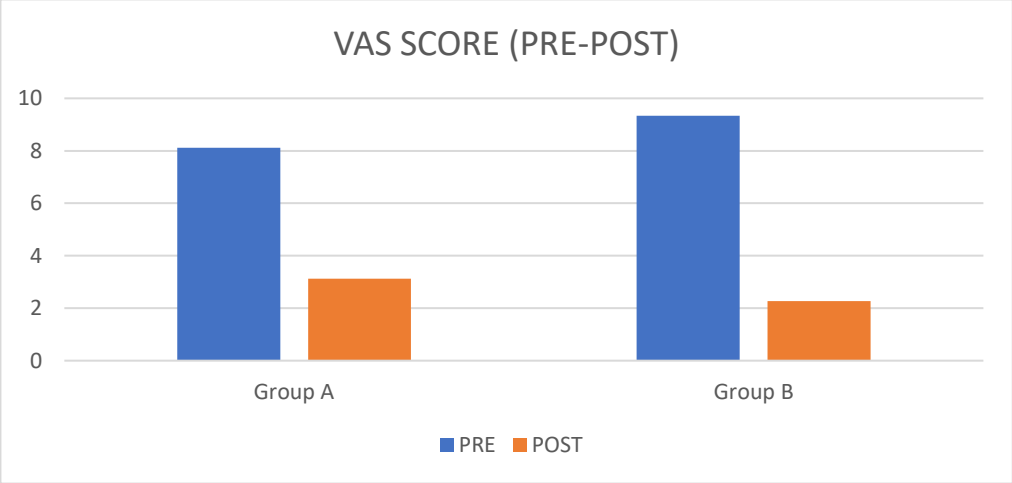

GRAPH NO 1-VAS SCORE (PRE-POST)

DISCUSSION

The purpose of this study was to investigate and compare the efficacy of TENS and shockwave treatment in trapezitis. According to the study's findings, transcutaneous electrical nerve stimulation and shockwave treatment have a substantial impact on trapezitis. As shown by the VAS SCORE RESULTS, Group A had a PRE score of (8.120.16) and a post score of (3.12.01). PRE (9.340.87) was reduced to (2.720.01) for Group B. For the Resisted Isometric Movement Testing, there were more effects in Group B than in Group A, although both groups showed a substantial impact, which was also seen in Rajalakshmi. In 2013, A et al. Myofascial trigger point release, TENS, and stretching are all effective treatments for trapezitis. To locate the muscle's weakest spot, the trigger point must be gently pushed down. My study aims to determine the optimal TENS settings for treating acute trapezitis via the reduction of trigger points and pain relief. Patients with trapezitis were randomly assigned to one of two groups and given a seven- to fifteen-day rehabilitation programme that comprised passive stretching twice daily. Progress is quantified using the VAS SCALE. TENS therapy, particularly at the trigger point, significantly decreased pain and increased mobility in patients with moderate to severe acute pain. Young-Shin Cho et al. (2012) As part of a broader study, we examined how ESWT and stability exercises, as well as a combination of the two, may benefit patients with myofascial pain syndrome. Participants underwent a randomised mix of stabilising exercises, ESWT, and ESWT, with this group doing the shoulder-strengthening activities. Upper trapezius ESWT was used in the ESWT group. The combined treatment group got ESWT in addition to shoulder strengthening exercises. Pain and function were assessed in this study using a number of approaches, including the pressure pain threshold, the neck disability index, and the Constant Murley Scale. The VAS scores of all groups improved statistically. Only the stabilisation exercise group improved in strength, although ESWT and combination treatment improved in all areas of CMS. After four weeks of stabilisation exercises and ESWT, both the CMS assessment items and the NDI test demonstrated statistically significant improvements. Physical therapists treating myofascial pain syndrome in a clinical setting discovered that combining ESWT with stabilization exercises was more beneficial than ESWT alone.

LIMITATIONS OF THE STUDY:

1}HIGER SAMPLE SIZE
2}MORE CONDITIONS CAN BE INCLUDED

FUTURE RESEARCH:

1}ON FROZEN SHOULDER CONDITION

CONFLICT OF INTEREST- NON

CONCLUSION

According to the results of the study, both types of treatment have an impact on the trapezitis condition, and we can deduce that shockwave therapy has a superior effect when compared to Transcutaneous Electrical nerve stimulation for the trapezitis condition.

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