RESEARCH ARTICLE

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Effect of Tens Vs Surge Faradic Current with Corrective Exercises on Functional Outcome in Subjects with Trapezitis

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Abstract

Materials and Methodology: The study was conducted on subjects with trapezitis with the age group 20 -40 years and who were clinically diagnosed. A total of 30 subjects were selected according to inclusion criteria. They were selected according to a convenient random sampling method. They were divided into two groups each containing 15 subjects. Group A was given TENS with corrective exercises and group B was given surge faradic current with corrective exercises. The pre-treatment assessment was taken including visual analogue scale for pain score, ranges measurement by goniometer, and neck disability index scoring. Protocol was given for two weeks. At the end of the two-week protocol, the post-treatment assessment was taken again. Paired T-test was used to analyse the group statistical analysis and unpaired t-test for between the group statistical analysis and the result was concluded. **Result:** Paired t-test was used to analyse the comparison between surge faradic and transcutaneous electrical nerve stimulation on subjects with trapezitis. There was significant result seen in group A. There was a significant difference in outcome variables in VAS, ROM, and NDI. **Conclusion:** Study concluded that subjects who were treated with TENS and corrective exercises had significant improvement clinically and statistically and improvement in the visual analogue scale, range of motion, and neck disability index.

Keywords: Corrective Exercises, Myofascial Trigger Points, Surge Faradic Current, Transcutaneous Electrical Nerve Stimulation

1. Introduction

Aim: To compare the effect of TENS vs surge faradic current with corrective exercises on functional outcomes in subjects with trapezitis.

Trapezitis is a condition caused due to inflammation of the trapezius and consists of myofascial trigger points. In many musculoskeletal conditions, trigger points are present. Trigger points are mostly seen in the upper trapezius due to prolonged activity in an incorrect posture. Myofascial pain syndrome consists of myofascial trigger points which are sensitive spots found in a taut band of muscle. It causes pain or radiating pain on compressing it. Trapezitis can be caused due to many causes like fatigue, stress, tension, strenuous repetitive activities, forward head posture, and carrying heavy bags. Pain is produced mostly by neck extension[1]. Trapezius is a muscle that originates from occipital protuberance and inserts on the clavicle and acromion process[2]. Trigger points are very common, but they are ignored and kept untreated by patients[3]. Trigger points are palpated by compressing and rolling of muscle with hand where a therapist will feel taut band of muscle or restrictions on rolling[4]. They are sensitive foci containing nerve ending that is why they are painful[5]. There are two types of trigger points – active trigger points

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and latent trigger points. Active trigger points are those which cause pain at rest or on activity of muscle containing trigger points. Latent trigger points are those which are asymptomatic on rest[6]. There are various criteria for diagnosing trapezitis like there is pain in neck and shoulder after working for hours but the reduction of pain is seen after rest also there is difficulty in head and shoulder movements[7]. Physiotherapy treatment for trapezitis includes stretching, positional release technique, myofascial release technique, strengthening exercises etc[8]. There is a mechanism by which TENS produces neuromodulation[9]. TENS is given for 15-20 minutes with frequency 40-150 Hz[10]. Surge faradic current is a form of electrical stimulation of short duration and direct interrupted current with a frequency 30- 100 Hz and pulse duration 0.1–1ms. Surge faradic current helps in the removal of waste metabolites[11]. 90 contractions are given per session in order to avoid muscle fatigue. Corrective exercises are exercises which helps in maintaining and correcting incorrect posture[12]. Correct posture involves straight spine along with normal curves[13]. Incorrect posture causes pain and discomfort in the body[14]. Corrective exercises are very beneficial for pain relieving and also helps in strengthening of muscles, increases range of motion etc. Corrective exercises involve chin tucks, shoulder rolls, retraction and protraction of the scapula in this study[15]. Chin tucks are very commonly used form of corrective exercise[16]. Some beneficial effects of chin tucks are they help in relieving neck related problems, help in improving posture and also helps in relaxing the muscle. Chin tucks are performed by asking patient to sit in a comfortable position, vision must be straight and then ask patient to glide chin front and back[17]. Shoulder shrugs are also very effective in correcting posture and relieving pain in patients with trapezitis this exercise mainly targets the trapezius muscle. In this study patient will be selected and assessed by taking pain scores cervical ranges and neck disability index scores and they will be divided in two group one group will be treated by TENS and other by surge faradic current a corrective exercise will be given for both the groups. Patient will be asked to be in relaxed position and electrodes will be placed, one will be on trapezius trigger point and other on radiating pain and ask him to relax. In this way the treatment protocol will be followed by therapist for 2 weeks. Thus, accordingly study was carried out.

2. Materials and Methodology

The study conducted at krishna college of physiotherapy. 30 patients, with both unilateral and bilateral trapezitis with the age group 20-40 years with permission of institutional ethical committee also informed consent is obtained for conductance of this study. 30 subjects were selected according to convenient random sampling method and were randomly grouped into two groups.

Group A was treated by TENS with corrective exercises and group B with surge faradic current with corrective exercises. The total protocol period was two weeks.

2.1 Materials Used

VAS, Neck Disability Index, goniometer.

3. Result

3.1 Outcome Measures

VAS, NDI, Range of Motion.

3.2 Between Groups

Table 1. Mean of post VAS at rest and on activity of both the groups

Parameters	VAS at Rest	VAS on Activity	P value	T value
Group A	2.15	4.13	<0.0001(extremely significant)	9.91
Group B	3.41	6.03	<0.0001(extremely significant)	6.34

VAS post values of both the groups.
Interpretation: Table 1 shows the post values of VAS for a patient with trapezitis. For group A and group B both are extremely significant.

Table 2. Mean values of both pre and post cervical flexion of both the group ROM

Parameters	Cervical Flexion		P value	T value
Group A	31.14	36.47	0.0014	3.544
Group B	34.27	36.04	0.0134	2.640

Interpretation: Table 2 shows the mean values of pre and post cervical flexion for Group A (p=0.0014) & (T=3.544) and for group B (p=0.134) and (T=2.640).

Table 3. Mean values of both pre and post cervical extension of both the groups.

Parameters	Cervical Extension		P value	T value
Group A	54	58.47	<0.0001(extremely. .significant)	11.871
Group B	54.33	56.6	0.047	2.074

Interpretation: Table 3 shows the mean values of both pre and post cervical extension for group A (p= <0.0001) and (T=11.871) and for group B (p=0.047) and (T= 2.074).

Table 4. Mean values of both pre and post cervical lateral flexion right of both the groups.

Parameter	Cervical Lateral Flexion Right		P Value	T value
Group A	28.07	32.54	<0.0001(extremely significant)	9.788
Group B	31.6	33.47	<0.0001(extremely significant)	9.727

Interpretation: Table 4 shows that mean values of both pre and post cervical lateral flexion right of group A (p= <0.0001) and (T= 9.788) and for group B (p= < 0.0001) and (T= 9.727).

Table 5. Mean values of both pre and post cervical lateral flexion left of both the groups

Parameter	Cervical Lateral Flexion Left		P value	T value
Group A	28.266	33	<0.0001(extremely significant)	8.512
Group B	31.93	33.73	<0.0001(extremely significant)	6.081

Interpretation: Table 5 shows that mean values of both pre and post cervical lateral flexion left for group A (p= <0.0001) and (T= 8.512) and for group B (p= <0.0001) and (T= 6.081).

Table 6. Mean values of both pre and post cervical rotation right of both the groups

Parameter	Cervical Rotation Right		P value	T value
Group A	42.6	46.93	0.0018	3.454
Group B	44.33	46.47	<0.0001(extremely significant)	11.18

Interpretation: Table 6 shows that mean values of both pre and post cervical rotation right for group A (p= 0.0018) and (T=3.454) and for group B (p= <0.0001) and (T= 11.18).

Table 7. Mean values of both pre and post cervical rotation left of both the groups.

Parameter	Cervical Rotation Left		P value	T value
Group A	43.14	47.33	0.0012	3.365
Group B	44.8	46.4	0.029	2.296

Interpretation: Table 7 shows that mean values of both pre and post cervical rotation left for group A (p= 0.0012) and (T = 3.365) and (P=0.029) and (T= 2.296).

Table 8. Mean values of post NDI scores of both the groups.

Parameter	NDI	P value <0.0001(extremely significant)	T value 5.285
Group A	9.4		
Group B	16.13		

Interpretation: Table 8 shows that mean values of post NDI scores for both the groups (p= <0.0001) and (T=5.285)

4. Discussion

This study was conducted to find out the effect of TENS vs surge faradic current with corrective exercises on functional outcomes in subjects with trapezitis. Study was done to find better treatment for trapezitis among TENS and surge faradic where corrective exercises were common in both. Previous studies were done on effect of

various manual therapies in trapezitis patients. Study was conducted among subjects with trapezitis with age group 20-40 years in Karad. After ethical clearance certificate was obtained by krishna institute of medical sciences study was conducted at krishna college of physiotherapy. Subjects were participated willingly and who were diagnosed by physiotherapists or orthopaedical. They were selected according to inclusion and exclusion criteria and were grouped by convenient random sampling method. Demographic information was taken which consist of their name, age, etc. For participation in this study subjects must be of 20-to-40-year age, and they must be selected according to inclusion criteria. Patients were excluded if having any trauma at cervical or shoulder region, open wounds, any sensory or psychological issues. Proper detailed assessment was taken which included VAS for pain severity, measurement of ranges by goniometer and NDI scores were also noted. All outcome measure were selected according to their reliability[18-21]. 30 subjects were selected and were grouped in two groups each containing 15 subjects. Treatment protocol was given for two weeks for both groups. Subjects treated with TENS were highly benefitted there was major difference seen in VAS scores in those subjects. Subjects with surge faradic were also found to be benefitted. Ranges difference was not much while comparing pre and post measures. Major difference was also seen in the scoring of NDI; there was increase in functional outcome of subjects in their daily activities. Overall performance was improved. Corrective exercises along with proper ergonomics were very beneficial in improving posture of subjects. Improper or bad posture was very common in most of the subjects. Trapezitis results in improper posture like forward head or protracted shoulders. TENS is useful in treating pain in comparison with surge faradic current; surge faradic current helps in relaxation of muscles which helps in increase in range of motion, TENS helps in pain inhibition which in return helps in increasing ranges and functional mobility.

5. Conclusion

An overall better functional mobility outcome was found in trapezitis subjects of both the groups i.e. between TENS with corrective exercises and surge faradic current with corrective exercises. Both the groups were significant, but quality of life was found to be better in the subjects treated with TENS when compared with the subjects treated with surge faradic current. Thus, better treatment protocol for trapezitis patients was found. TENS given along with corrective exercise in trapezitis patient is concluded beneficial given within 2 weeks. There was reduction in pain and increase in ranges of cervical region

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