Research Paper

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Strain-Counterstrain Technique for Immediate Relief of Trapezitis in Sitting Job Professionals

Medical Science

KEYWORDS : Sitting job professionals, strain-counterstrain, trapezitis

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ABSTRACT

The aim of this study was to study the effect of strain-counterstrain technique in the immediate relief of trapezitis in sitting job professionals. A total of 20 subjects with tender points and trigger points (TrPs) were identified, when there was a hyper-sensible tender spot in a palpable taut band, local twitch response elicited by the snapping palpation of the taut band, and reproduction of the referred pain typical of each TrP. The outcome measure were the visual analogue scale assessing local pain, forward reach, and range of motion for lateral flexion of cervical region. It was assessed pre-treatment and 2 min post-treatment to the treatment allocation of the subject. Our results suggest that strain/counterstrain was effective in reducing tenderness of tender points and trigger points in the upper trapezius muscle and improving the ranges.

INTRODUCTION

Work related neck pain are common problems in office workers, especially among those who are intensive computer users with long duration sitting job. Prolonged computer use is a potential risk of stress and strain on the musculoskeletal structures of the neck and upper extremity (1), due to repetitive work and non-neutral work postures (2,3). The association of sitting posture and neck pain was confirmed by Cagnie and her colleagues (4) in 2007.

Simons et. al define a trigger point (TrP) as a hyperirritable spot associated with a taut band of a skeletal muscle that is painful on compression, palpation, and/or stretch, and that usually gives rise to a typical referred pain pattern (5). Active TrPs are cause of clinical symptoms and their evoked referred pain is responsible for the patients' pain. Latent TrPs may not be an immediate source of pain, but might produce other muscle dysfunctions, i.e, fatigue, restricted range of motion, and referred pain with muscle contraction or compression (5). This clinical distinction has been strongly substantiated by histochemical findings at the TrP, since higher levels of concentration of protons, bradykinin, calcitonin gene-related peptide, substance P, tumor necrosis factor-α, interleukin-1β,serotonin, and norepinephrine have been recently found in active TrPs (6).

The active TrPs in the upper trapezius are more common in Episodic tension-type headache subjects than in healthy controls (ETTH), although TrP activity was not related to any clinical variable concerning the intensity and the temporal profile of headache. ETTH patients showed greater forward head posture and lesser neck mobility than healthy controls. ETTH subjects with active TrPs tend to have a greater FHP than those patients with latent TrPs (7). Since TrPs might contribute to the origin and/or maintenance of headache due to referred pain, restricting the mobility and leading to forward head postures due to muscle weakness, this study intends to examine the efficacy of Strain-Counter strain (SCS) technique in combating these effects of tender/trigger points and to develop a measure to prevent the progression of symptoms in long term.

METHOD

A total of twenty subjects with non-specific neck pain having one or more tender points and trigger points in Trapezius muscle was selected between the age of 20-30 years. The job profile included the sitting work in the preferred posture for more than 6 hours of duration. The subjects with any other degenerative, malignancy, underwent injection therapy or dry needling or taking NSAIDS were excluded. The tender points and trigger points (TrPs) were identified, when there was a hypersensible tender spot in a palpable taut band and the reproduction of the referred pain typical of TrP in the sites shown in Figure 1. The outcome measure were the visual analogue scale (VAS) assessing local pain, forward reach and cervical lateral flexion which was assessed pre-treatment and 2 min post-treatment to the treatment allocation of the subjects.

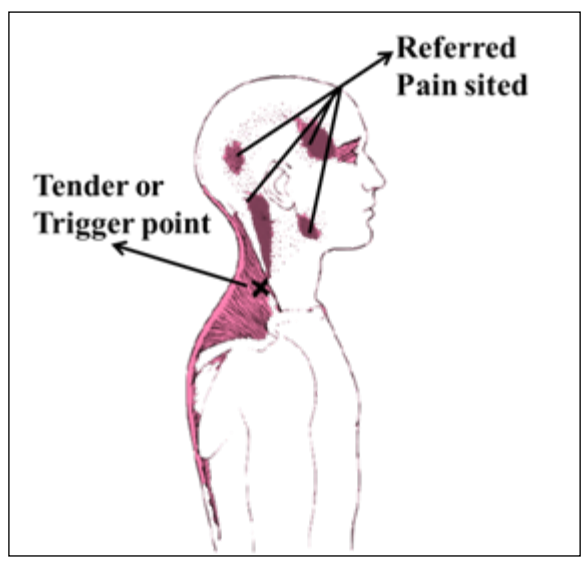


Figure 1: TrP in trapezius and Referred Pain sites

Visual analogue scale (VAS): Subjects are instructed to indicate the intensity of the pain by marking a 100-mm line anchored with terms describing the extremes of pain intensity.

Forward Reach: Functional reach is the difference in inches between a person's arm length and maximal forward reach with the shoulder flexed to 90° while maintaining a fixed base of support in standing.

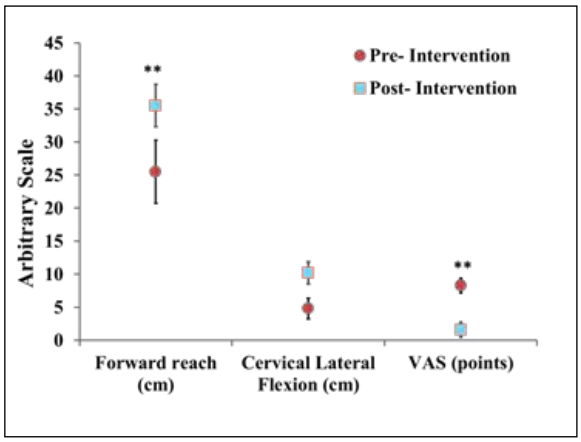
Cervical Lateral Flexion: Difference of distance between plumbline and glabella in neutral position and in cervical lateral flexion.

Statistical Analysis

The statistical analyses were accomplished by software package, SPSS 16.0. For statistical analysis, standard descriptive statistics and repeated-measures ANOVA were used for the outcome measures pre and post intervention. The significance level was set at $P< 0.05$.

Result

The mean age of the subjects was 24.52 + 4.40 years, BMI 15.76 + 2.55 kg/m2. The mean and SD for FR, CLF and VAS found to be 25.5 +4.8 cm, 4.8+1.6 cm and 8.3+1.1 pre- intervention and 35.5+3.2 cm, 10.2+3.5 cm and 1.6+1.1 post-intervention respectively as depicted in Figure 2. A one-way analysis of variance (ANOVA) yielded significant ($P<0.05$) results for VAS (pain reduction), and FR.



Discussion

The study was primarily aimed to evaluate the efficacy of SCS in management of tender points in trapezius muscle. The technique showed effective resolution of tender points and trigger points with reduction in pain and increase of FR and neck mobility (cervical lateral excursion). Lewis and Flynn (2001) reported an overall reduction in pain and disability as measured with the MPQ and the Oswestry Low Back Pain Disability Questionnaire (8). Wong and Schauer-Alvarez (2004) examined and compared the effects of SCS and SCS plus exercise on pain and the strength of the hip musculature and concluded that SCS was effective in reducing tender point pain and increasing strength (9).

The reduction of pain and increase of forward reach showed significant difference pre and post intervention measurement. SCS offers additional treatment possibilities for physical therapists working with individuals with somatic dysfunction. Further research in the basic and clinical sciences as it applies to SCS is imperative in the development of evidence-based information for its clinical rationale and application.

Conclusion

From the study conducted it is concluded that patient with tender points and trigger points in trapezius muscle can be effectively treated using SCS Technique. The treatment efficacy need to be therapeutically extended to determines efficacy in improving cervical range of movements.

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