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EFFECTS OF TRIGGER POINT DRY NEEDLING ON NECK PAIN AND CERVICAL RANGE OF MOTION (ROM) IN PATIENTS WITH CERVICOGENIC HEADACHE: A CASE SERIES

Physiotherapy

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KEYWORDS

INTRODUCTION

- Cervicogenic headache is a clinical syndrome characterized by chronic hemi cranial pain that is referred to the head (1) and oro-fascial region from the cervical spine tissues or bony structures (2)
- The term cervicogenic headache was first used in 1983 by Sjaastad and colleagues (1)
- Cervicogenic headache can be a preplexing pain disorder that is refractory to treatment if it is not recognized (3).
- Musculoskeletal headaches are a common complaint with impaired postures. About 15% to 20% of chronic and recurrent headaches are diagnosed as cervicogenic headaches and are related to musculoskeletal impairments (4). Often associated with tension in posterior cervical muscles and pain at the attachment of the cervical extensors, at the cervico-thoracic junction, and/or radiating across the top, side, or back of the scalp.
- Cervicogenic headache is difficult to define and classify because of its distribution and character of symptoms which are similar to those of other forms of headaches.
- Its incidence is now increasing widely across all sections of the population.
- Treatment of cervicogenic headache by manual and therapeutic methods has received a lot of attention in the literature (5).
- Pharmacological treatment, when used as the only mode treatment of cervicogenic headache, does not generally provide substantial pain relief in most cases.
- Physical therapists can effectively treat cervicogenic headaches if they are caused by trauma or stress or if function triggers the onset and/or pain begins in the neck and becomes a headache.
- Dry needling refers to the insertion of the thin monofilament needles, without the use of injectate into, alongside, or around muscles, nerves, or connective tissues for the management of pain and dysfunction in neuromusculoskeletal conditions.
- Therefore in the present case series, patients suffering from cervicogenic headache were given trigger point dry needling and its effects were evaluated on neck pain and cervical range of motion.

MATERIALS AND METHODS

- A total number of 15 patients ranging in age from 18-35 years and clinically diagnosed as per the international headache society criteria for cervicogenic headache (6), who required, manual and therapeutic methods of treatment secondary to pharmacological treatment and referred from orthopedics department to the physical therapy department were included in this case series.
- Trigger point dry needling comprises of different sizes of needles ranging from gauze 13 to gauze 100 along with the guide tube

PROCEDURE:

- Patients were treated with trigger point dry needling positioned in a relaxed posture suitable to treat the Upper Trapezius muscle which is most commonly affected muscle in patients with neck pain, which may include sitting or prone lying with hands under the forehead(7).
- Current standards of care in the united states recommends preparing the skin with 70% iso propoyl alcohol prior to needling, as well the practitioner utilizing gloves during the intervention.
- The needles with disposable, 0.3× 30 mm stainless steel were inserted through the skin over the trigger points to a depth of 10 to 15 mm into the trigger points (8) using in and out techniques such as pistoning, and left them in situ for between 10-30minute duration after achieving the local twitch response in order to stimulate trigger points, and treat neuromuscular pain and functional deficits.
- It has been suggested that multiple local twitch responses should be elicited during trigger point dry needling for successful treatment (9).
- Neck pain intensity using 11point numeric pain rating scale i.e Visual Analogue Scale (VAS), Cervical ROM using goniometer, data were collected at baseline (PRE) at 10 minutes (POST 1) and at 1 week (POST 2) after the intervention.
- Measurements were made separately for each direction and in a standard sequence: flexion, extension, right rotation and left rotation. Two measurements for each movement were recorded, and the mean was used in the analysis.

SHOWING TRIGGER POINT DRY NEEDLING BEING PERFORMED IN UPPER TRAPEZIUS MUSCLE

- The Northwick Park Neck Pain Questionnaire (NPQ) was used to measure disability /function at baseline (PRE) and the 1week follow up (POST 1).
- The Northwick park neck pain questionnaire was developed to measure neck pain and the consequent Patient Disability and at Northwick Park Hospital in Middlesex England (10).

- **The parameters for questionnaire are described as follows:**
- neck pain intensity
- neck pain and sleeping
- pins and needles or numbness in the arms at night
- duration of symptoms
- carrying
- reading and watching television
- working and/or housework
- social activities

- driving
- comparison of current state with the last time the questionnaire was completed.

ADVERSE EFFECTS:

Patients were asked to report any adverse event that they experienced after the needling intervention and during the one week follow up. In this case series, an adverse event was defined as sequelae of medium term duration of any symptom perceived as distressing and unacceptable to the patient and requiring further treatment. Adverse events were self reported by the patient and information was collected by a clinician not involved in the case series. Because Trigger point dry needling sometimes induces post treatment soreness (11), hemorrhages at the needling site(11), syncopal response(12), and acute cervical epidural hematoma(13).Patients were advised to report any increase in their symptoms after the intervention.

RESULTS

- After 1 session of trigger point dry needling the mean VAS and the mean cervical ROM goniometer readings are depicted in Table 1 and figures 1-3

- **Table 1:**

	PRE	POST 1	POST 2
VAS	8.26±0.88	4.20±0.67	5.20±0.67
Flexion	59.26±6.50	63.93±6.72	61.20±6.84
Extension	49.13±6.01	55.53±6.01	53.06±6.19
Right rotation	46.86±5.61	56.40±5.55	53.06±5.53
Left rotation	47.26±5.96	58.80±6.01	55.26±5.88

- The mean NPQ scores at PRE and POST 1 after single session of trigger point dry needling in patients with cervicogenic headache are 55.00±18.77 and 41.48±18.07 respectively.

Figure 1

- Mean VAS scores

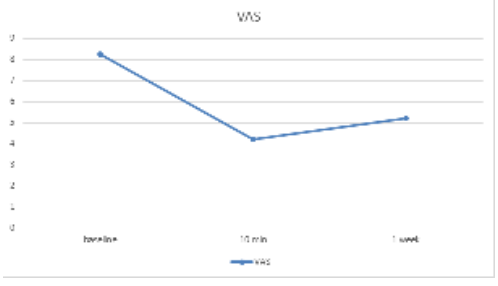


FIGURE 2

- Mean NPQ scores

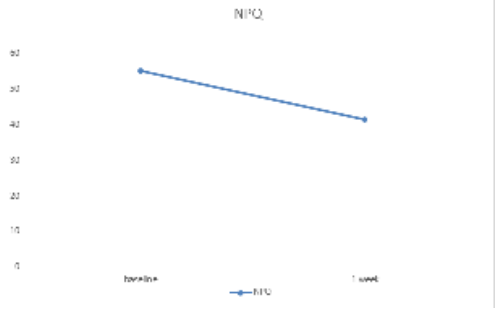
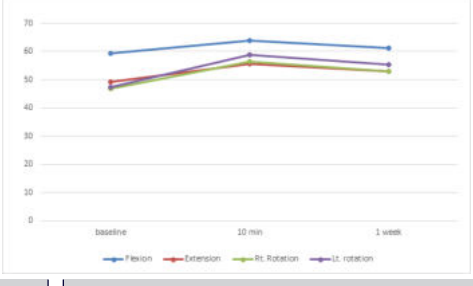


Figure 3

- Mean cervical ROM goniometer readings



DISCUSSION

- The results of this case series suggests that a single session of dry needling decreased neck pain intensity and disability/function in patients with cervicogenic headache.
- In addition, trigger point dry needling also increased cervical range of motion in every direction including flexion, extension, right and left rotation.
- The patient treated with a single session of trigger point dry needling experienced significant improvement in neck pain, as measured by the numeric pain rating scale, at 10 minutes and 1 week after the intervention.
- There was significant percentage increase in cervical flexion (8 %), extension (13%), right rotation (20%) and left rotation (25%).
- We also observed that trigger point dry needling reduces neck pain intensity in patients with cervicogenic headache as reflected by the graph.
- Our results are in agreement with the conclusion of a recent meta-analysis (14) and findings of randomized clinical trials (15) that demonstrates that trigger point dry needling reduces intensity of chronic neck pain.
- Our results suggests that trigger point dry needling may provide a similar benefit, at least in the short term, in patients with cervicogenic headache having neck pain, potentially resulting in a faster recovery.
- However further studies with longer follow-up and more sessions are required for more conclusive results.

CONCLUSION

- Trigger point dry needling improves neck pain, cervical spine range of motion and disability score in patients with cervicogenic headache.
- Additional large scale clinical trials with a longer term follow-up and more sessions of trigger point dry needling are needed.

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