International Journal of Educational Research and Studies
www.journalofeducation.net
Online ISSN: 2664-6811, Print ISSN: 2664-6803
Received: 30-06-2021, Accepted: 16-07-2021, Published: 30-07-2021
Volume 3, Issue 3, 2021, Page No. 24-30

Effectiveness of positional release technique vs deep ischaemic compression both combined with stabilizing exercises for nonspecific neck pain in college students on disability, pain and cervical ranges after two weeks: A comparative study

Diksha Ghadse[1*], Siddhima Hardikar[2]
[1] PES Modern College of Physiotherapy, Shivajinagar, Pune, Maharashtra, India
[2] Assistant Professor, Department of Neurosciences**,** PES Modern College of Physiotherapy, Shivajinagar, Pune, Maharashtra, India

Abstract
Nonspecific neck pain is the most common musculoskeletal disorder results from poor posture, arising through sustained, long term, abnormal physiological loads imposed on neck and shoulder in college students, which leads to formation of trigger points, spasm, pain, restriction of motion and functional disability. Very few specific studies were done comparing the effect and combining it with Stabilizing exercises were found in literature. Students with neck pain may become symptomatic adults, highlighting an urgent need for stakeholders to pay more attention to reduce impact in later life. The aim was to compare the effectiveness of Positional release technique (PRT) Vs Deep Ischemic Compression (DIC) both combined with Stabilizing exercises for treating nonspecific neck pain in college students on Disability, Pain and Cervical Ranges after two weeks. A screening was done in college students, and based on inclusion and exclusion criteria, 40 participants were identified and divided in two groups, Group A: PRT+ Stabilising Exercises and Group B: DIC+ Stabilising Exercises. Participants were clinically evaluated. Pre-treatment and post- treatment NDI, VAS and Cervical ranges were taken. Intervention was given for two weeks. It was observed that NDI, VAS, Left Lateral Flexion, Left and Right Cervical Rotation gave extremely significant difference. GROUP B i.e., DIC + stabilising exercises was more effective than GROUP A i.e., PRT + stabilizing exercises in reducing pain, functional disability and improve cervical ranges. Hence, it can be concluded that DIC when combined with Stabilising Exercises is more effective in reducing pain, functional disability and improve cervical ranges than PRT combined with Stabilizing exercises in college students after two weeks.

Keywords: DIC, nonspecific neck pain, PRT, stabilising exercises, trigger points

Introduction

Neck pain is one of the most common musculoskeletal complaints and is attributed as the 2nd largest type of pain after Low Back Pain. The prevalence of persistent neck pain in college students is reported to be 33% in India and constitutes about 85-93% of patient reporting to pain management clinic in whole world [1]. It results from poor posture, arising through sustained, long term, abnormal physiological loads imposed on neck and shoulder. Students often lean their shoulders forward or move neck frequently when sitting in the work environment, such as when driving or working in front of a computer or desk for longer periods of time and use desks and chairs that are not suitable for their body types, as well as inappropriate bedding. These poor lifestyles habits may cause muscle spasticity in the neck and shoulders and induce muscle fatigue that hampers effective biomechanical functions and this may weaken soft tissues. According to International Association Study of Pain, Neck Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage in the neck region, which starts at the superior nuchal line and continues down to the level of the scapular spine in posterior region of cervical spine till T1 and laterally by lateral border of neck [2].

Nonspecific neck pain: is the commonest cause of neck Symptoms and results from mechanical and postural causes, which has no specific underlying disease-causing pain, varies with different physical activities and time or an awkward movement, poor posture or overuse. Typical signs are tenderness of intervertebral joints, localized areas of increase muscle tone that can be palpated as nodules or tender bands. Usually symptoms are self-reported and do not indicate a specific disease process [3].

Trapezius muscle: is highly susceptible for overuse and is most designated postural muscle. Accumulation of high level of metabolic waste forms Trigger points, when surrounding muscles and soft tissues are under stress, it tends to receive less amount of oxygen and glucose which leads to higher rates of musculoskeletal complaints.

Myofascial trigger points (MTrPs): are defined as hyperirritable spots within taut bands of skeletal muscle fibers. The syndrome is associated with tenderness in the muscle, characterized by referred pain, spasm and restriction of motion. Two types

1. Active (spontaneous pain at rest, movement and direct compression)
2. Latent (pain and discomfort only during compression)

Both active and latent TrPs can cause muscle imbalances, weakness and impaired motor recruitment, disrupting muscle function, and exposing joint to suboptimal loading [4].

Inflammation caused by the initiating injury releases pro inflammatory and vasoconstrictive chemical mediators such as histamine and prostaglandins. Acute or repetitive trauma may result in the rupturing of the sarcoplasmic reticulum. The ensuing flood of calcium ions into interstitial compartment leads to uncontrolled actin and myosin interaction and the development of the palpable taut bands of muscle associated with myofascial involvement. The result of these traumatic events is hypertonicity, inflammation, ischemia and increased concentration of metabolically active chemical mediators. This vicious cycle of repetitive trauma, is responsible for the maintenance of these hyperirritable, constricted focal areas of inflammation (TPs) within the tissues.

Sensitization of nociceptive and mechanoreceptive organs within the affected tissues appears to have a role in mediating the formation trigger points. Group III and IV nerve fibres are sensitive to chemically active compounds such as prostaglandins, kinins, histamine, and potassium. Microscopic examination of muscular trigger points reveals the presence of mast cells (source of histamine) and platelets (source of serotonin). These proinflammatory substances may contribute to the local hypersensitivity that activates the trigger points when mechanical deformation or direct pressure occurs.

The golgi tendon organs: located near the musculotendinous junction and respond to excessive tension and load on the muscle. Impulses from the Ruffini receptors exert an inhibitory effect at the spinal level to protect the tissues from overstretch and muscle spindles located in all striated muscles responds to rapid change is length or velocity of change in muscle that plays a predominant role in the development of somatic dysfunction [5].

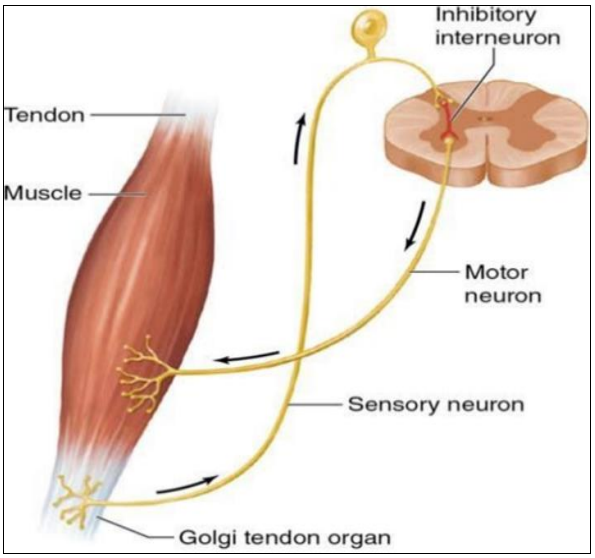

Fig 1: Myostatic reflex

Techniques

- **Positional release technique (PRT):** It involves passive body positioning of dysfunctional tissues in such a way that it allows spontaneous response that releases or reduces excessive tension or spasm which causes tenderness at Trigger Points [5].

- **Deep ischaemic compression (DIC)** Ischemic compression is a mechanical treatment of MTrPs that consists of application of sustained pressure for long enough time to inactivate trigger points by relieving transient blood flow occlusion [6].

- **Stabilizing exercises** to increase strength and endurance of the deep muscles that can improve ability to maintain standing posture and the proper neutral position of the neck [7].

Need of Study

As Upper Trapezius is highly susceptible to overuse and holds a strong association between perceived neck pain intensity and Upper Trapezius trigger point in college students. Various treatment protocols are available for treating trigger points. PRT and DIC are useful in treating trigger points.

1. Studies on specifically PRT and DIC are done but their comparative studies are very few.
2. Study have been conducted to observe effect of PRT and DIC for computer users.
3. Very few specific studies were done comparing the effect and combining it with Stabilizing exercises were found in literature.
4. The students with neck pain may become symptomatic adults, highlighting an urgent need for stakeholders to pay more attention to reduce impact in later life [1].

AIM

To compare the effectiveness of PRT Vs DIC both combined with Stabilizing exercises for treating nonspecific neck pain in College students on Disability, Pain and Cervical Ranges.

Objectives

1. To study the effectiveness of PRT with Stabilizing exercises for nonspecific neck pain in College students on Disability, Pain and Cervical Ranges.
2. To study the effectiveness of DIC with Stabilizing exercises for nonspecific neck pain in College students on Disability, Pain and Cervical Ranges.
3. To compare the effectiveness of PRT Vs DIC both combined with Stabilizing exercises for nonspecific neck pain in College students on Disability, Pain and Cervical Ranges.

Review of Literature

1. Sirluck Kanchanomai, *et al*. Conducted a study on Risk Factors for onset and persistent neck pain in UG students which show prevalence of 33% on 1 year follow up and on baseline it was 46%. BMC Public Health 2011, Published online 2011 July.
2. Carlos Alberto, Victor Alexander, Cesar *et al*. (2012),"Trapezius upper portion trigger points treatment purpose in PRT with electromyographic analysis stated that " the analysis of data collected and the electromyography data showed that the positional release therapy (PRT) for the treatment of patients with cervicobrachialgia has proved

effective because it reduced the muscle tension in the upper trapezius and decreased the musculoskeletal pain, with consequent improvement of posture and daily life activities.

3. Kerry Ambrogio *et al* wrote a book on Positional Release Therapy, Assessment and Treatment of Musculoskeletal Dysfunction.
4. Ujawal L Yeole, Neha P Diwakar and Pournima P Pawar (2013)In their article on effects of MET and PRT on neck pain in computer users a randomized control stated that positional release therapy was statistically more effective in pain relief, improvement of function and cervical ROM than muscle energy technique among computer users with neck pain.
5. Cagnie B, *et al*. J Manipulative Physical Therapy (2013) in his article on "Effect of ischemic compression on trigger points in the neck and shoulder muscles in officer workers: cohort study" stated that ischemic compression resulted in a significant improvement in general neck and shoulder complaints.
6. Kamali F, (2018) In his article, he states that application of dry needling for active Trigger Points in the Infraspinatus can be as effective as direct Dry Needling of active MTrPs in the Upper Trapezius in improving pain and disability in athletes with shoulder pain, and may be preferred due to greater patient comfort in comparison with direct Upper Trapezius needling.

Hypothesis

1. **Null Hypothesis (h0):** There will be no significant difference on Disability, Pain and Cervical Ranges for nonspecific neck when treated with Positional Release Technique vs Deep Ischemic Compression both combined with Stabilizing Exercises after 2week.
2. **Alternative hypothesis (h1):** There will be significant difference on Disability, Pain and Cervical Ranges for nonspecific neck pain when treated with Positional Release Technique vs Deep Ischemic Compression both combined with Stabilizing Exercises after 2week.

Methodology

Study Design: Comparative study
Study settings: Colleges in and around city.
Target population: College students
Sample size: 40 (both male and female)
Sampling method: Convenient sampling.
Study duration: 6 months
Protocol duration: 2 weeks
Treatment duration: 10 minutes

Material

Pen
Plinth
Chair
Consent form
Evaluation form
NDI Questionnaire
Goniometer

Criteria

Inclusion Criteria

- Participants between age group of 18-24.
- Both males and females are included.
- Daily sitting hours for 5hours and more.
- Presence of TrPs.
- NDI score more than 10
- VAS score 30-74mm
- Persistent neck pain more than two times in a month from last 3 consecutive months.
- Exclusion Criteria
- MSK/Neurological deficits.
- Recent injuries, fractures.
- Wounds.
- Malignancy.
- Athletes/ Under Specific training.
- Patients with bilateral neck pain.
- Congenital deformities.
- Radiculopathies, Hematoma,
- Skin infections or sensitivity.

Outcome Measure

A. Visual Analogue Scale (VAS) (r=0.94)

Sensitivity -95% specificity - 88%
Pre and Post Treatment VAS score was taken on VAS Scale.
Subjects is asked to express pain level by marking a slider on a scale. The VAS is a subjective measurement, which quantifies pain intensity felt by the individuals. This scale is used to gauge pain, from no pain (0) to maximum pain (10). The subject's task is to move slider over a 0 to10cm ruler [9].

B. Neck Disability Index (NDI) (r=0.89)

Sensitivity -52% specificity - 59%

- This questionnaire is used for functional disability and was taken Pre and Post Treatment.
- Total score 0-50, higher score corresponds to greater level of disability.
- 5-14-mild
- 15-24-moderate
- 25-38-severe

This Questionnaire gives us information regarding how neck pains affects ability to manage activities in everyday life. Subject has to answer every section and mark in each section only one box that applies to him. Scoring is done that shows the level of affection of pain to greater level of disability [10].

C. Cervical Ranges

Table 1: Cervical range of motion

Motion	Testing Position	Stabilisation	Fulcrum	Proximal ARM	Distal ARM
Flexion	Sitting with lumbar spine supported by chair	Shoulder and chest to prevent forward flexion of thoracic spine	External auditory meatus	Either perpendicullar or parallel to ground	Align with base of Nasal nares

Extension	Sitting with lumbar spine supported by chair	Shoulder girdle and chest to prevent extension of the thoracic spine	Same as flexion	Same as flexion	Same as flexion
Lateral flexion	Sitting with lumbar spine supported by chair	Shoulder girdle and chest to prevent lateral flexion of thoracic and lumbar Spine	Spinous process of C7 vertebra	Perpendicular to floor over Spinous processes of thoracic vertebrae	Align with dorsal midline of head using the occipital protuberance
Rotation	Sitting with lumbar spine supported by chair	Shoulder girdle and chest to prevent thoracic and lumbar spine rotation	Centre of cranial aspect of the head	Parallel to imaginary line between right and left acromial processes	Align arm with tip of the nose

Normal Range of Motion
Flexion: 0-60
Extension: 0-75
Lateral Flexion: 0-45
Rotation: 0-80 [11]

Procedure

The study was done with presentation of synopsis to ethical committee and clearance was obtained from P.E.S Modern College of Physiotherapy, Pune.
Study was conducted in colleges in and around city.
The patients were selected as per Inclusion and Exclusion criteria, Informed consents of the patient selected for the study was taken. Subjects were explained about the study and the treatment that is given.
Patient were diagnosed on the basis of Palpation and the level of disability due to neck pain is find out using Neck Disability Index Score.
Pre-treatment Cervical ranges were taken by the Therapist and Visual Analog Scale was drawn from every patient.
Group A was given Positional Release Technique and Cervical Stabilizing Exercises.
Group B was given Deep Ischemic Compression and Cervical Stabilizing Exercises.
Each group having 20 subjects.
Treatment is given for alternate days and every day exercises were given for two weeks.
Post Treatment VAS, NDI and Cervical Ranges were taken.

Positional Release Technique

Standardized treatment procedure for PRT was followed in Group A.

Treatment position: Patients were asked to be in supine position with therapist standing at the head end of the table to the patients affected side, Trigger points are located in the upper trapezius muscle by palpatory method.
After identification of trigger point, patient were asked to relax and pressure was applied over the muscle by pinching it between the thumb and fingers and applying pressure by thumb over the trigger points. Patient head is laterally rotated to affected side, therapist grasps patient's forearm and externally rotates which is done to fine tune. The position of comfort is attained while moving forearm to internal rotation, adding flexion and extension will fine tuning such that it approximate hypertonic muscle and maintained for about 90 seconds. After this patient's hand and neck will be passively taken to neutral position [5]. Patient is allowed to rest for 2-3 minutes and then Neck Stabilizing Exercises are performed.

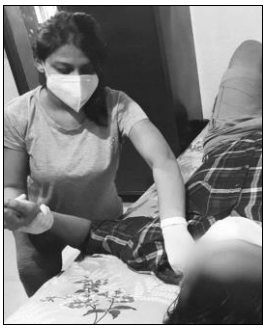

Fig 2: Treatment position of PRT for right upper trapezius

Treatment was given for 6 alternate days in two weeks and after that post treatment VAS, NDI SCORE and CERVICAL RANGES were taken for each patient.

Deep Ischemic Compression

Standardized treatment procedure for DIC was followed in Group B.

Treatment position: Patients were asked to be in sitting position with Therapist standing by the side of the patient on affected side.
The position of the patient ensures muscle fiber relaxation, facilitating myofascial trigger points localization and evaluation. The points are manually identified, as suggested by the literature through a manual pressure of approximately 2 to 4 kg/cm^2 and a velocity pressure of 1kg/cm²/s. The amount of pressure and velocity that is to be applied is according to the evaluator's clinical experience.
Trigger point is palpated on the affected side and is pressed by the thumb till blanching of the nail is seen and pressure applied is sub threshold of patient's pain, pressure is maintained for 30-60 seconds and gradually increased later while leaning some weight on it. The hand position is such that it consists of sustained deep pressure with the thumb to the upper trapezius trigger point.Pressure was released when there will be decreased tension in the trigger point has elapsed. Subjects will be instructed to inform of the pain felt on the compression site, if reduced by 50% at the beginning of procedure and then the compression pressure when gradually increase, over a period of 90 seconds [6].

Patient is allowed to rest for 2-3 minutes and then Neck Stabilizing Exercises are performed.
Treatment was given for 6 alternate days in two weeks and after that post treatment VAS, NDI score and Cervical ranges were taken for each patient.

Fig 3: Treatment position of dic for upper trapezius

Stabilizing Exercises
Stretching of neck muscles for 10seconds hold bilaterally done for 3-4 mins before starting exercises.

- Chin tucks
- Shoulder shrugs
- Scapular retractions
- Isometric cervical flexion, extension and side flexion.

Each for 10 seconds hold thrice daily.
These exercises are done for 45seconds each followed by few seconds rest which takes upto 1 minute for each exercises and whole exercise regimen is performed in 10 minutes [7].

Neck Stretches

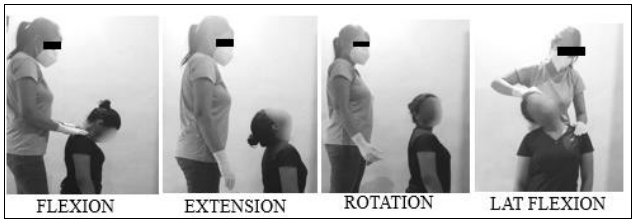

Fig 4: Cervical flexion, extension, rotation and lateral flexion

Fig 5: Shoulder Retractions

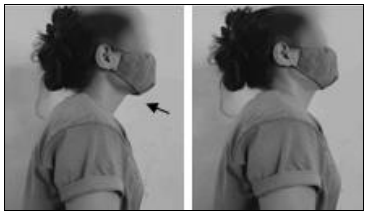

Fig 6: Chin tucks

Fig 7: Shoulder retractions

Fig 8: Cervical isometrics

Data Analysis
This study was done in two groups, GROUP A: PRT+ Stabilization Exercises and
GROUP B: DIC+ Stabilization Exercises
INSTAT Software was used to test significance of the variables.
Paired t test was done in Intragroup to calculate Pre-treatment and Post-treatment mean values in GROUP A and GROUP B.
Unpaired t test was done to compare the mean values of both the groups post treatment.

Neck Disability Index (NDI)
Pre-treatment and post-treatment NDI was taken in both the groups and inter group comparison was done later.
For pre and post values of same group paired t test was done, whereas for inter group comparison unpaired t test was done.
T values and p values are calculated along with mean values which showed significant change in values.
There is marked decrease in NDI scores when both groups were compared and results showed that Group B i.e, DIC+ Stabilising Exercises has better effect on reducing functional disability.

Table 2: NDI

	PRE	Post	P value	Remarks
Group a mean	17.667±6.768	8.067±3.535	<0.0001	Extremely significant
Group b mean	18.067±5.077	3.533±1.060	<0.0001	Extremely significant
Intergroup mean	8.067±3.535	3.533±1.060	<0.0001	Extremely significant

Visual Analog Scale (VAS)
Pre-treatment and post-treatment VAS was taken in both the groups and inter group comparison was done later.
There is marked decrease in VAS scores when both groups were compared and results showed that Group B i.e, DIC+ Stabilising Exercises has better effect on reducing pain.

Table 3: VAS

	PRE	Post	P value	Remarks
Group a mean	56.200±6.097	29.400±4.050	<0.0001	Extremely significant
Group b mean	54.533±14.88	21.333±3.619	<0.0001	Extremely significant
Intergroup mean	29.400±4.050	21.333±3.619	<0.0001	Extremely significant

Cervical Ranges

Pre-treatment and post-treatment Cervical ranges were taken in both the groups and inter group comparison was done later.

There is marked increase in cervical flexion and extension in both groups but there was not much significant difference when compared with each other.

There is marked increase in Left Lateral Flexion ranges when both groups were compared and results showed that Group B i.e, DIC+ Stabilising Exercises has better results.

There is marked increase in Right Lateral Flexion in both groups but there was not much significant difference when compared with each other.

There is marked increase in Left and Right Cervical Rotation ranges when both groups were compared and results showed that Group B i.e, DIC+ Stabilising Exercises has better results.

Table 4: Cervical flexion and extension

	PRE	Post	P value	Remarks
Group a mean	39.333±10.83	52.000±4.140	<0.0017	Very significant
Group b mean	38.000±6.761	50.000±3.780	<0.0001	Extremely significant
Intergroup mean	52.000±4.140	50.000±3.780	<0.178	Not significant
Cervical Extension				
Group a mean	44.333±13.610	69.667±8.550	<0.0001	Extremely significant
Group b mean	37.333±7.037	72.000±6.761	<0.0001	Extremely significant
Intergroup mean	69.667±8.550	72.000±6.761	<0.414	Not significant

Table 5: Left and right lateral flexion

	PRE	Post	P value	Remarks
Group a mean	32.000±5.278	40.000±3.684	<0.0001	Extremely significant
Group b mean	36.000±5.071	44.333±1.759	<0.0001	Extremely significant
Intergroup mean	40.000±3.684	44.333±1.759	<0.0021	Very significant
Right lateral flexion				
Group a mean	40.000±5.976	44.333±4.577	<0.0025	Very significant
Group b mean	42.333±4.952	47.000±3.684	<0.0001	Extremely significant
Intergroup mean	44.333±4.577	47.000±3.684	<0.0021	Not significant

Table 6: Left and right cervical rotation

	PRE	post	P value	Remarks
Group a mean	59.667±11.412	68.000±9.964	<0.0001	Extremely significant
Group b mean	61.667±10.118	75.000±6.268	<0.0001	Extremely significant
Intergroup mean	68.000±9.964	75.000±6.268	<0.0028	Very significant
RIGHT Cervical Rotation				
Group a mean	58.333±12.051	71.333±8.121	<0.0001	Extremely significant
Group b mean	63.333±12.199	79.333±5.627	<0.0001	Extremely significant
Intergroup mean	71.333±8.121	79.333±5.627	<0.0040	Very significant

Results

- This study was done on 40 subjects out of which 27(67.5%) were female and 13(32.5%) male.
- Neck Disability Index (NDI), Visual Analog Scale (VAS), Left Lateral Flexion, Left and Right Cervical Rotation gave extremely significant difference.
- Cervical Flexion, Extension and Right Lateral Flexion didn't show much significant difference in Intergroup analysis, even if in both group, ranges have improved in post evaluation.
- GROUP B i.e, Deep Ischemic Compression combined with Stabilising exercises is more effective than GROUP A i.e, Positional Release Technique+ Stabilizing Exercises in reducing pain, functional disability and improve cervical ranges.

Discussion

Upper trapezius is the most common postural muscle that tend to get shorten leading to restricted neck mobility as they are most frequently used to maintain posture. Neck pain a common problem in our society affecting individual's physical and social functioning and interfering with sufferer's daily activities, due to which most of the patient suffers from pain, discomfort and decreased neck activity is due to upper trapezius trigger points.

In this study, comparison is done on the Effectiveness of Positional Release Technique vs Deep Ischemic Compression both combined with Stabilizing exercises for treating nonspecific neck pain in College students. So the subjects were divided in two groups, Group A and Group B. Group A participants were given Positional Release Technique and Stabilization exercises whereas Group B was given Deep Ischemic Compression along with Stabilization Exercises. Pre and post treatment NDI, VAS and Cervical Ranges were taken, and statistical analysis was done which showed significant changes and improvement was more seen in Group B i.e, Deep Ischemic Compression group.

Sahem *et al*, conducted a study on PRT vs Manual Pressure Release on Upper Trapezius Myofascial Pain Dysfunction, which showed, Manual Pressure Release is more effective than the PRT reducing pain, functional disability and improving the cervical ROM in patients with myofascial pain dysfunction syndrome for the short term effect [13]

As the mechanism permits, the ischemic compression reduces pain, increases blood flow, allows drainage of cellular metabolic sub products associated with the pain production, restores normal metabolic functioning of the affected tissues. Since the nociceptive inputs are sub threshold, no action potential is produced in the CNS and, consequently, the subject does not perceive pain. There are two aspects that may explain the mechanism: 1) sub threshold nociceptive signals sent to CNS without producing pain perception, 2) inefficient synapses in the dorsal horn of the spinal cord. Finally, it was proposed that myofascial trigger points compression alters the activity of the autonomic nervous system via the prefrontal cortex to reduce subjective pain [6].

Wytrazeck *et al* demonstrated that the presence of TPs was accompanied by decreased muscle strength [14]. Nagrale *et al* used a combined treatment approach, including IC, demonstrated a significantly greater improvement in lateral cervical flexion ROM after treatment. A possible explanation for the increased ROM after IC is that downward manual pressure on the contraction knot of the trigger points dilates the sarcomeres, decrease of abnormal tension of the taut band and general pain reduction may also contribute to an increased ROM [15, 16, 17].

PRT places the antagonistic muscles or opposing fascial structures under increased stretch, which in turn causes a proprioceptive/neural spill over, resulting in reactivation of the

facilitated segment, due to which it reduces irritability of tender point and dysfunction, as the reflex mechanism that controls spasm to promote normalising muscle tone reduces tension in muscle, pain, hyperactivity of Myostatic reflex arc, overflow of neurotransmitters effective in increasing range of motion and reducing muscle tension [17].

Song *et al* determined that, both cervical stabilization exercises and shoulder stabilization exercises, improved the strength and endurance of the longus capitis and longus colli, deep cervical muscles, which used only shoulder stabilization exercises. This corrects alignment of the shoulder girdle, resulting in the improved activity of the muscles, increase range, circulation, improves lymphatic drainage and potential for normal biomechanics, ability to maintain the standing position and proper neutral position of the neck [5].Thus again after 90 seconds, the muscle will come under stress and after few hours of sitting muscle will again go in shortening as a postural reflex.

The statistical analysis in this study showed that there is a significant change in p values of NDI, VAS and Cervical Changes and results showed that GROUP B i.e,Deep Ischemic Compression combined with Stabilization Exercises was more effective than GROUP A i.e, Positional Release Technique combined with Stabilization Exercises.

Conclusion

Deep Ischemic Compression when combined with Stabilising Exercises is more effective in reducing pain, functional disability and improve cervical ranges in College students after two weeks.

References

1. Fejer R, Kyuik KO, *et al*. conducted a study on ‘‘Prevalence of neck pain in the World Population’’, European Spine Journal, 2006.
2. International Association for the Study of Pain (IASP), 2017 website https://www.iasp-pain.org/Taxonomy. Accessed November 29,
3. Parthsarathy S, Sundar S, *et al*. ‘‘Assessment of predisposing factors in Myofascial Pain Syndrome and the analgesic effect of Trigger point injections’’. Indian J Anesthesia 2019, cited in Jan 2020.
4. Sirluck Kanchanomai, *et al* Conducted a study on ‘‘Risk Factors for onset and persistent neck pain in UG students’’ which show prevalence of 33% on 1 year follow up and on baseline it was 46%. BMC Public Health 2011, Published online July 15, 2011.
5. Kerry Ambrogio *et al* book on ‘‘Positional Release Therapy, Assessment and Treatment of Musculoskeletal Dysfunction’’.
6. Barbara Cagnie, *et al*. conducted a study on ‘‘Effect of Ischemic Compression on Trigger Points in the Neck and Shoulder muscles in office workers.’’
7. Songyong Lee, *et al*. conducted a study on ‘‘Effects of Cervical Stabilization Exercises on EMG of Shoulder Stabilizers’’ which concluded statistically significant differences in Upper Trapezius, Lower Trapezius and Serratus Anterior. Journal of Physical Therapy of Science, 2013.
8. Hugh Gemmell, *et al*. Immediate effects of DIC and trigger point pressure release on neck pain and Upper Trapezius trigger point. Clinical Chiropractic’s on International Journal, March, 2008, 2.
9. Ngoc B, *et al*. Prospective study on validity and reliability of VAS, NPRS and Verbal Rating Scale.
10. Vernon H, *et al*. conducted a study on Scales for neck pain and disability and concluded that NDI has a better reliability and validity. J Manipulative Physical Therapy 1991, Sept.
11. Measurement of Cervical Range of Motions from Cynthia Norkin’s Measurement of Range of Motion- A Guide to Goniometry.
12. Cheun Ru Hou. conducted a study on ‘‘Immediate effects of various Physiotherapeutic modalities on Cervical Myofascial Pain and Trigger Point sensitivity suggested that various therapeutic combination are effective and concluded that myofascial release therapy provides as an alternative treatment using high pressure and short duration(30s) for immediate pain relief and trigger point sensitivity’’, 2002.
13. Sahem AM, AL-Shawabka, *et al*. conducted a study on PRT vs Manual Pressure Release on Upper Trapezius Myofascial Pain Dysfunction.
14. Wytrazeck, *et al*. demonstrated that the presence of TPs was accompanied by decreased muscle strength.
15. Nagrale AV, Glynn P, Joshi A, Ramteke G. The efficacy of an integrated neuromuscular inhibition technique on upper trapezius trigger points in subjects with non-specific neck pain: a randomized controlled trial.
16. Sarrafzadeh, *et al*. investigated the effect of pressure release on upper trapezius on active cervical lateral flexion and found an increase in motion after 6 sessions of treatment compared with a control group.
17. Travell, Simons’ myofascial pain and dysfunction: The trigger point manual, upper half of body, 2nd ed. Philadelphia: Lippincott Williams & Wilkins.