COMPARISON OF DRY NEEDLING, INSTRUMMENTAL ASSISTED SOFT TISSUE MANIPULATION (IASTM) AND CUPPING THERAPY IN PATIENTS WITH MECHANICAL NECK PAIN

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By

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CERTIFICATE

This is to certify that the dissertation work entitled **"COMPARISON OF DRY NEEDLING, INSTRUMENTAL ASSISTED SOFT TISSUE MANIPULATION (IASTM) AND CUPPING THERAPY IN PATIENT WITH CHRONIC NECK PAIN."** was carried out by **HARMANPREET KAUR, Registration No. 11617883,** Department of Physiotherapy , Lovely Professional University, towards partial fulfillment of requirements of Master of Physiotherapy (Orthopaedics) degree programme.

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This is to certify that **Harmanpreet kaur, Registration No 11617883** has completed **MPT** dissertation titled **"COMPARISON OF DRY NEEDLING, INSTRUMENTAL ASSISTED SOFT TISSUE MANIPULATION (IASTM) AND CUPPING THERAPY IN PATIENT WITH CHRONIC NECK PAIN."** under my guidance and supervision. To the best of my knowledge, the present work is the result of his original investigation and study. No part of the dissertation has been submitted for any other degree or diploma

This dissertation is fit for the submission and the partial fulfillment of the conditions for the award of MPT (Orthopaedics)

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CONTENT

CHAPTER 1

INTRODUCTION

INTRODUCTION

1.1 INTRODUCTION

Society faces major muscoskeletal problems in today's age and era. Neck pain may not be among the front runners of musculoskeletal problems, it still is concerning. The latest knowledge exhibited that in an exceedingly individuals the 1-year incidence of neck pain was 15% and 17% for people correspondingly.

Neck pain is thought to be a multifactorial sickness, inferring that there are various risk factors adding to its advancement. risk variables can be business related, and in addition non-work-related.[1] constant neck pain is obviously connected with mental, social and word related factor. As a consequence, an outsized quantity of individuals determined as have non-particular neck pain, that is not approved to chronic changes or any injuries.[5]

NP is a typical sickness in developed nations, harrowing around 40% of people in a year. Every year around 10% of individuals experience the ill effects of unending neck pain, upto 11% of grown-ups account with the purpose of exercises be constrained, and around 5% be essentially incapacitated in NP. Hence, neck pain speaks to a critical financial weight to society.5 the predominance is higher in ladies and ascends with age and social variety is recommended by a lower announced pervesiveness in Asian population.[2]

chronic neck-pains are a main medical and social issue making extreme inconvenience and decreased capacity work. Much of the time pain is associated with constrained cervical spine mobility.3 Age-related efficient decrease in the motor and sensory systems may influence balance function. Musculoskeletal conditions and particularly neck pain in this case, may likewise add to balance problem. Cervical afferent input is an imperative supporter of balance and balance deficits influences have been recorded in young and middle aged people with neck pain of both traumatic and incidious onset.7 Consequent changes in balance have been shown following restricted treatment to the cervical spine. In the event that a relationship exists, it is conceivable that particular treatment coordinated to the neck pain may decrease the supporters of balance.[8]

physical therapy is normally the principal administration choice for people with guileful beginning mechanical neck pain. An extensive variety of medications are planned together with medicine, physical prescription strategies, physical medicines, immobilization, traction, epidural injections and patient instruction, yet there is need of accord about ideal management.3 Different therapeutic methodologies, as well as spinal joint manipulation practices and delicate tissue systems are commonly utilized management of mech NP; though, furthermore studies be required, especially of intercessions coordinated by the delicate tissues, used for which here is constrained confirmation.

The importance of delicate tissue treatment is identified with the theory that trigger points of the muscles might exist concerned with pain forms with mech NP patient's. Trigger points are characterize as easily affected areas in taut bands of a skeletal muscle which are painful on incentive and inspire referred pain. Trigger points are of two types active and latent. Active Trigger points together suddenly and while palpated, evoke referred pain, recreating the patient's side effects. Inactive trigger points, when palpated, inspire an referred pain that does not recreate the patient's symptoms. TrP dry needling (TrPDN) is one proposed treatment strategy that has been appeared to diminish TrP-related torment. some of studies have shown that reffered pain evoked by active TrPs in the upper trapezius, levator scapulae, and sternocleidomastoid muscles may add to indications in people with mechanical neck pain, with the upper trapezius being the most regularly included msl.[4]

One integral strategy accustomed to treat musculoskeletal conditions is cupping. A strategy for customary solution broadly utilized as a part of Asian, Center Eastern, and European nations, cupping uses a glass or bamboo container or a mech gadget to make suction on the skin and fundamental tissue. With dry measuring the containers are connected to the intact skin, while with wet cupping the skin is incised before the glasses are connected Wet cupping gives off an impression of being powerful in treating low back pain, brachialgia paresthetica nocturnal, and carpal tunnel syndrome, while a current pilot study has demonstrated that dry cupping may help ease perpetual NP.[5]

With dry cupping the glasses are connected to the undamaged skin, where with wet cupping the skin is cut before the containers are affliated. Moist measuring gives off an

impression of being successful in treating low back pain, brachialgia paresthetica nocturna, and carpal tunnel syndrome, while a current pilot study about has demonstrated that dry measuring may help ease chronic neck pain. Cupping is useful treatment to increase the lymph and blood circulation and lymph and to ease unbearable muscle tension. In clinical practice on cupping is frequently seen to realize help with discomfort and to build a patient's general sentiment wellbeing.[6] this may regulate the obsessive low blood stream in musculoskeletal scatters, for example, neck pain. still, no logical writing on pneumatic pulsation treatment is accessible.[5]

Instrument assisted soft tissue manipulation (IASTM) is a remedial system that depends on the delicate tissue preparation method of reasoning presented by James Cyriax IASTM varies from conventional cross-contact or transverse grinding knead. Uniquely outlined instruments are utilized to apply longitudinal weight along the course of muscle fibers.[7] instrumental assisted soft tissue manipulation (IASTM) utilizes extraordinary instruments with inclined edges to help the clinician in the assessment and activation of delicate tissue.

Instruments are utilized as a part of a multidirectional stroking design connected to the skin at 30° to 60° points to recognize delicate tissue abnormalities by means of the undulation of the devices. Consequently IASTM has been proposed as mediation for pathology, for example, chronic fibrosis, lateral epicondylitis, carpal tunnel syndrome, trigger thumb, and plantar fascitis. In any case, the impacts of IASTM on motor points are inadequate.[9]

1.2 NEED OF THE STUDY

There are many studies suggesting that dry needling, IASTM and cupping therapy are found to be effective in reduction neck pain and increasing all cervical ROM for mechanical NP.

As mechanical NP is associated with pain and restricted cervical ROM due to trigger points or soft tissue involvement, it is indicated for the application of cervical dry needling, IAST and cupping therapy.

But, there is lack of studies which have been done to prove that dry needling, IASTM and cupping therapy which is more productive in the intervention of mech NP.

By the time it is popular but we are confused that how to use it in case of mechanical neck pain.

1.3 SIGNIFICANCE OF THE STUDY

As lots of studies were done on the treatment of neck pain by dry needling, IASTM and cupping therapy separately but effects of these treatment protocols has not been done up till now, so this study's results provide us a new insight for the better treatment of Mechanical neck pain in reducing pain, improving ROM and improving balance.

1.4 AIMS AND OBJECTIVE OF THE STUDY

Aims and objectives of this study:

- To evaluate the effectiveness of dry needling for the individuals with mech NP in reducing pain, improving ROM and improving balance.
- To evaluate the effectiveness of IASTM for the individuals with mech NP in reducing pain, improving ROM and balance
- To evaluate the effectiveness of cupping therapy for the individuals with mech NP in reducing pain, improving ROM and improving balance.
- To compare the effectiveness of dry needling, IASTM and cupping therapy for the individuals with mech NP in reducing pain, improving ROM and balance.

1.5 HYPOTHESIS

- Alternative hypothesis: There is statistical significant difference in the effects of dry needling, IASTM and cupping therapy for the individuals with mech NP in reducing pain, improving ROM and improving balance.
- Null hypothesis: There is statistically no significant difference in the effects of dry needling, IASTM and cupping therapy for the individuals with mech NP in reducing pain, improving ROM and improving balance.

CHAPTER 2
REVIEW OF LITERATURE

REVIEW OF LITERATURE

(1) the aim of the study to identify psychosocial risk factors for neck pain, a systematic review of the literature was carried out. The outcome shows some evidence for a optimistic correlation between neck pain and high quantitative job demands, poor social (coworker) support, low job control, low skill discretion, and low job satisfaction.[1]

(2) the purpose of the study is to conducted a prospective study of adults from a general population sample who were primarily free of neck pain, in order to determine risk factor for increasing new or recurrent episodes of neck pain, as well as an investigation of whether a history of neck injury is an independent risk for later neck pain. We have found that the 1-year cumulative incidence of neck pain among those who were free of neck pain at baseline was 17.9%, rather higher in women than men but showing little variation with age.[2]

(3)The purpose of our study was to assess immediate effects of two different modes of acupuncture (non local, non segmental acupuncture at distant points and local needling of myofascial trigger points) on movement related pain and cervical spine mobility in chronic neck pain patients compared to a sham acupuncture procedure. Our result indicates that acupuncture has definite effects on movement-related pain and ROM in patient with chronic neck pain. Besides, point selection appears significant with distant points improving ROM more than needling at local points, and local points seeming unsuccessful to obtain immediate pain relief.[3]

(4)The aim of this randomized clinical trial was to recognize the impact of TrPDN on pain and common pressure pain sensitivity in individual with acute mechanical neck pain and active trigger points in the upper trapezius muscle. The outcome of this randomized clinical study advise that a single session of trigger point dry needling decreased neck pain intensity and common pressure pain sensitivity in individual with acute mechanical neck pain. In addition, TrPDN also increased cervical range of motion.[4]

(5)The study compared the effects of a series of 5 pneumatic pulsation therapy treatments with that of standard medical care in alleviating chronic nonspecific neck pain. Pneumatic pulsation

therapy appears to be a safe and effective method to alleviate pain and to enhance function and quality of life in patients suffering from chronic neck pain.[5]

(6)The aim of this investigation is the purpose of minimal clinically important differences (MCID) and substantial clinical benefits (SCB) in patients with chronic nonspecific neck pain after cupping treatment. Results from this study exposed that MCIDs and SCBs for pain intensity were generally equivalent between chronic non specific neck pain and chronic pain in general. For neck disability and quality of life the differences were lower than in other studies which may reflect less disability and higher than quality of life at baseline compared to other studies.[6]

(7)The aim of this study was to evaluate the efficacy of IASTM for the treatment hamstring TED in three following patients. Our outcome far exceeded these reported range of motion improvements over a shorter period of time, which recommends that IASTM application with passive movements might be more successful than traditional stretching.[7]

(8)The aim of the study was to whether any differences existed in selected standing balance tests and gait speed parameters between elderly subjects with neck pain when compared to elderly subjects without neck pain. The consequences of this study shows that elderly subjects with neck pain demonstrate some deficits in standing balance and gait parameters when compared to asymptomatic elderly subjects, which may alter their functional balance and gait ability and possibly increase their risk of falling.[8]

(9)the aim of this study was to determine if a series of six IASTM treatments rendered over three weeks influence the PPT of a MTrP. A 5-min intervention using three IASTM techniques can effectively increase the PPT of a MTrP in six treatments over a three-week period of time.

CHAPTER 3
MATERIAL AND METHOD

MATERIAL AND METHOD

3.1 STUDY DESIGN:

The research design of current study is RCT.

3.2 STUDY SETTING:

Data for the study was obtained from out patient department (OPD), department of physiotherapy, lovely professional university campus, Punjab.

3.3 POPULATION AND SAMPLING:

The pre diagnosed mechanical neck pain subjects, who have reported in the Outpatient Department (OPD), Department of physiotherapy, Lovely professional university, Punjab.

Sampling method: lottery method

Sample size: The size of the sample is 70

3.4 SELECTION CRITERIA:

3.4.1 Inclusion criteria:

- Both males and females with age group of 20 to 30 years
- NP prolong since 2 months[3]
- The intensity of pain should be 4 NPRS [5]

3.4.2 Exclusion criteria:

- Radicular cervical pain
- Any kind of fracture or post operative condition of cervical spine
- Any utilization of medical intervention, physiotherapy intervention since past 4weeks [3]
- Congenital deformity of the spine, spinal stenosis, inflammatory rheumatic disease [5]

3.5 PARAMETERS:

1 pain:

2 Pressure point threshold

3 Range of motion

4 Balance

3.6 INSTRUMENTS AND TOOLS:

1 NPRS

2 Algometer

3 Universal Goniometer

4 Force platform testing

3.7 PROCEDURES:

Seventy patients selected based on the inclusion and exclusion criteria. The subjects received both verbal and written information about the study in their local language and the interested subjects requested to sign the informed consent.

The subjects assigned into three groups by lottery method sampling, namely group A, B and C. The group A subjects received dry needling and the group B subjects received instrumental assisted soft tissue manipulation and group C patients received cupping therapy. All the three groups were advised to do the active range of motion of neck and neck stabilizing exercises (daily two times morning and evening, 10 repetitions) and postural education. Pre test readings of pain evaluated by Numerical pain rating scale, pressure point threshold evaluated by dolorimeter and range of motion evaluated by Goniometer and balance evaluated by force platform testing.

- Group A received dry needling
- Group B received instrumental assisted soft tissue manipulation
- Group C received cupping therapy

The intervention duration was 3 weeks and then post-test readings were recorded again after the intervention.

Treatment protocol for group A:

For trapezius muscle, patient lies in prone position, the msl is needled with a pincer palpation. The needle is introduced vertical to the skin supervised towards the practitioner's finger. The needle is placed in between the fingers in the shoulder. The needle can be introduced from AP or PA. Needling should not be performed towards the rib cage as it may lead to pneumothorax.

For levator scapulae muscle, the patient is in side lying, the muscle is needled via a pincer palpation. For superior (cervical) portion, the msl is felt as a ropy muscle band of about 5mm diameter in lateral extent between anterior border of the upper trapezius and the transverse process of c1. The needle is inserted vertical to the skin directed towards the practitioner's finger. For the lower (shoulder) portion, the muscle is identified over the superior medial border of the scapula. The needle introduced through the skin at the shallow angle, projected towards the upper, medial border of the scapula. Needling should not be performed towards the rib cage as it may lead to pneumothorax.

For SCM muscle, the patient lies supine, The msl slowly slackened with some extension to support the pincer palpation. After recognizing the carotid artery, he needle is projected in a perpendicular manner to the skin and projected towards the practitioner's finger. The needle can be inserted into posterior to anterior or anterior to posterior. The carotid artery lies medial to the sternocleidomastoid muscle, next to the trachea, so needling shouldn't be performed in that region. Lift the SCM away from the carotid artery and needle between the fingers holding the muscle in a pincer grasp directed the needle as described above, to avoid needling the carotid artery.

Treatment protocol for group B:

The patient is in sitting positioned. Then use some lubricant over the skin around neck area. Examiner holds the scanner instrument in the dominant hand and with the help of scanner we are giving long slow strokes over the muscles of neck (i.e. Trapezius, levator scapulae and sternocleidomastoid).

Treatment protocol for group C:

For neck pain we need a some oil to lubricate skin. Use edge of the cup to do a screaming therapy. For screaming pressure should start from neck slowly and then gradually increased. This will do 2-5 min over the painful area or painful muscle. Then u will find the trigger point which causing neck pain. Pump the cup with the pumping kind of hand held and leave the pressure in a cup for 5-15 min.

Total duration of the study performed for a 3 weeks. The patients will be treated in a physiotherapy department for 3 sessions in a week for a period of 3 weeks. the patient will also performed the active ROM exercises for the neck and neck stabilizing exercise programme 2 times daily at home with 10 repetitions.The neck stabilizing exercises are: - chin tuck, cervical extension, chin tuck with towel, side bending isometric exercise.

3.8 STATISTICAL TOOLS:

3.8.1 One way ANOVA

3.8.2 Post-hoc test

CHAPTER 4
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