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Comparison of the Effect of Dry Cupping Therapy versus Dry Cupping with Myofascial Release Technique in Physiotherapy students with Trapezius Spasm

[1]Uday A. Sonkusare, [2]Nupoor Kulkarni

[1]BPT Intern, [2]Associate Professor

[1]Department of Community Physiotherapy,

[1] Dr. APJ Abdul Kalam College of Physiotherapy, PIMS, Loni (Bk), 413736, Ahmednagar, Maharashtra, India.

Abstract: **Background:** Neck pain which is frequently seen in the back of the neck and between the bases of neck to shoulder chiefly specifies the association of upper trapezius muscles. About two third of students will experience neck pain at some point in their lives. The study aims to compare the effect of dry cupping therapy versus dry cupping with myofascial release technique in physiotherapy students with trapezius spasm. Objective of the study is to compare the effect of dry cupping therapy versus dry cupping with myofascial release technique in physiotherapy students with trapezius spasm.

Material and Methodology: Convenient sampling was done for 60 physiotherapy students with trapezius spasm. The students were taken in the age range of 18-25 years. The students were allocated to the two groups according to the inclusion criteria in which Group A (N=30) was given Dry cupping therapy for 3 times in a week for 20 mins and Group B (N=30) was given Dry cupping with Myofascial Release technique for 3 times in a week for 35 mins. Pre and Post interventional scores were measured using Numerical Pain Rating Scale (NPRS).

Results: The pre interventional scores (Mean±SD) of Group A was (6.73 ±1.28) and Group B was (7.26±1.25) and (t=1.62, p=0.109) stated that the difference was not significant. The post interventional values of Group A and Group B was (5.23±0.97) and (2.96±0.85) and (t=9.617, p = <0.0001) stated that the difference was extremely significant.

Conclusion: The study concluded that Dry Cupping therapy with Myofascial Release Technique (Group B) is more effective than Dry Cupping therapy (Group A) alone in treating Trapezius spasm.

Index Terms- **Dry Cupping Therapy, Myofacial Release Technique, Trapezius Spasm.**

I. INTRODUCTION

Neck pain is a very common condition and the average lifetime prevalence being recorded is 48.5%. The causes of chronic neck pain are many and can consist of various inflammatory diseases, degenerative processes, trauma, space-occupying lesions, or systemic conditions. It is then generally referred to as simple or non-specific neck pain. In addition, patients with chronic non-specific neck pain commonly show hyperalgesia, that is, enhanced sensitivity to mechanical pain, even though it is still under discussion whether the hyperalgesia is localized or widespread[1].

The trapezius is also activated by stressful thoughts and feelings or by abnormal breathing pattern. With pain and tightness in the trapezius, patients may have symptoms like headaches, dizziness, neck pain and mid back pain which are commonly noted. At other end spasm is caused due to involuntary contraction of a muscle or a group of muscles which indirectly causes severe neck pain. Muscle spasm occurs early after injury. This feels like tightness in the muscles and sometimes is very painful. When basic injury is not treated, spasm causes formation of muscle knots, so called trigger points. The myofascial trigger point in the trapezius is most commonly found at the midpoint of the upper border of the trapezius muscle. Satellite trigger points are seen in temporalis, masseter, splenius, semispinalis, levator scapulae and rhomboid major. Myofascial trigger points can be acute due to immediate injury or chronic due to micro trauma over a long period of time. Trigger points are typically located by palpation on the specific muscle[2].

Myofascial release technique is a soft tissue mobilization technique, defined as “the facilitation of mechanical, neural and psycho physiological adaptive potential as interfaced via the myofascial system”. Myofascial Release technique is used treating patients with trigger points on trapezius and various major muscles. Myofascial Release technique is a technique which mainly helps in relaxing contracted muscles also increasing the blood flow throughout the muscle and enhancing lymphatic drainage, and stimulating the stretch

reflex of muscles and overlying fascia. Myofascial release is commonly used to reduce the soft tissue adhesions which results into increasing flexibility and mobility[2].

Cupping therapy is a type of alternative medicine in which a local suction is produced on the skin. Through suction, the skin is pinched into the cup by creating a vacuum in the cup located on the skin over the targeted area. The vacuum can be produced via a mechanical pump. The cup is usually left in place for somewhere between five to fifteen minutes[3]. Types of cupping: 1. Dry cupping 2. Fire cupping 3. Wet cupping. Dry cupping method normally involves creating a small area of low air pressure next to the skin. Cupping therapy may be beneficial for pain conditions, and recent trials have indicated significant effects after cupping for patients with chronic non-specific neck pain[4].

II. MATERIAL AND METHODOLOGY:

The study received approval from institutional ethical committee (IEC) of reference no. PIMS/DR.DR.APJAKCOPT/IEC/2019/480. Written informed consent was obtained from the participants. In participants the spasm was screened by palpation method and the participants were asked to rate their pain in eleven point scales of 0-10 according to which the score of pain was determined. The participants (students) in the study were screened according to the inclusion and exclusion criteria. This study had included 60 physiotherapy students within the age group of 18-25 years out of which 30 participants were selected by convenient sampling. The students were allocated to the two groups according to the inclusion criteria in which Group A (N=30) was given Dry cupping therapy for 3 times in a week for 20 mins and Group B (N=30) was given Dry cupping with Myofascial Release technique for 3 times in a week for 35 mins. Pre and Post interventional scores were measures using Numerical Pain Rating Scale (NPRS).

In Group A the patient was made to lye in prone on a massage couch or treatment table with their upper torso unclothed in a comfortable way. Their back was covered with moisturizing cream, and a cupping glass (diameter 3.5-5 cm) was used. Negative pressure was created using the rubber ball at the top of the glass with the help of vacuum pump. The cup used for the technique was then drawn over the skin along the spine, from the occiput towards the mid-level thoracic spine and also over the upper trapezius muscle, maintaining the negative pressure within the cup. The cupping therapy was conducted for approximately 10 min and the patient wasadvised that the cupping therapy might cause bruise being visible for days, necessitating awareness in social settings. Cupping treatments was repeated twice weekly[4].

Fig A. Dry Cupping from the Occiput towards the mid-level thoracic spine.

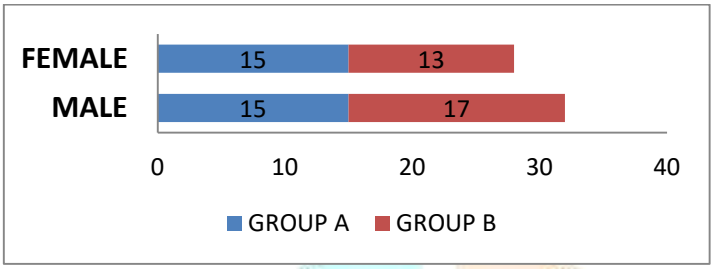
Figure B. Dry cupping from the Upper trapezius.

In Group B deep transverse friction was given for 10 minutes followed by myofascial stretching of upper trapezius muscle for 3 times, each holding for 90 seconds. The patient was in comfortable sitting position on the chair and both feet steadily planted on the floor, then myofascial release technique was given to the upper trapezius by the ulnar border of both palms of the therapist. At the time of myofascial release technique the patient was made to side flex the cervical spine to the opposite side. The therapist then made the patient move to the treatment bed in supine position and follows the same steps performed for dry cupping technique as mentioned above[5].

Figure C. Myofascial release technique for Upper Trapezius

III. DATA ANALYSIS:

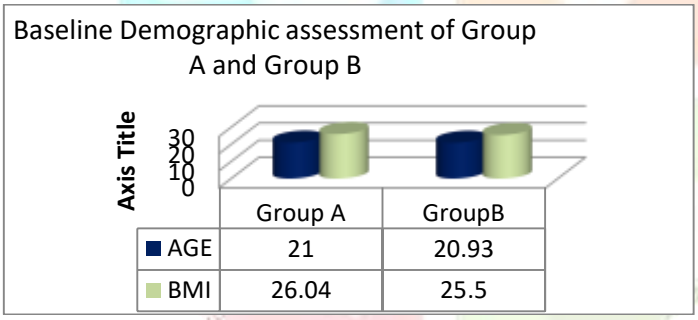
Table no. 1 Gender wise distribution of Group A and Group B.



Graph no. 1 Gender wise distribution of Group A and Group B.

Result: This graph represents the Male and Female ratio of Group A and Group B. In Group A males are 15 and females are 15 and on the other side there are 17 males and 13 females in Group B.

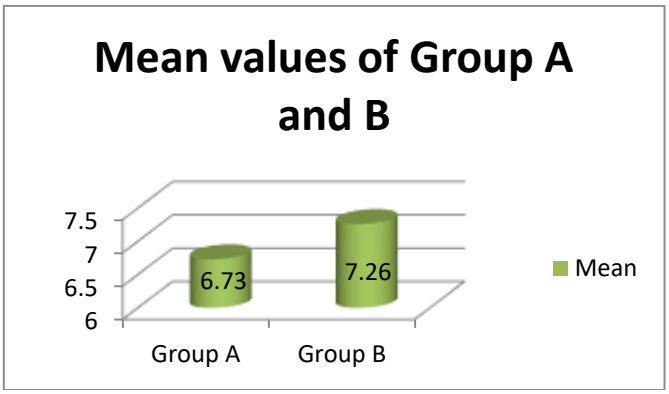
Table 2- Demographic data of group A and group B.



Graph no. 2 Mean and SD values of Age and BMI of group A and B, using unpaired 't' test.

Result: This graph shows the Mean and SD values of Age and BMI of group A and B**,** using unpaired 't' test.

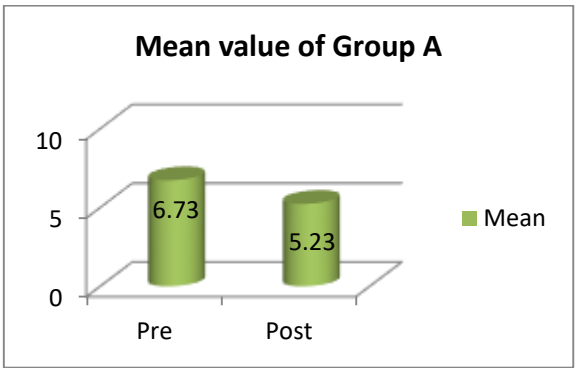
Table no. 3 - Pre NPRS scores of group A and B, using unpaired 't' test



Graph no. 3 Represents the Mean and SD (pre) NPRS scores of group A and B

Result: This graph represents the pre interventional scores (Mean and SD) of Group A and Group B.
Values of Group A (6.73 ±1.28) and Group B (7.26±1.25). These values were obtained using unpaired 't' test (1.62) and the p value was also obtained using unpaired 't' (0.109) that is not significant.

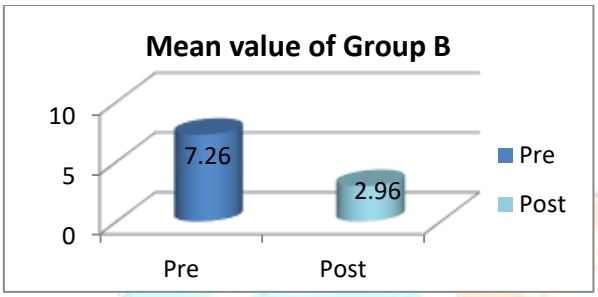
Table no. 4- Comparing the pre and post NPRS scores of group A, using paired t test.



Graph no.4 Represents the Mean NPRS scores of group A.

Result: In group A, the pre-intervention NPRSMean±SDis6.73±1.28 and post-intervention NPRS (Mean±SD) is 5.23±0.97.

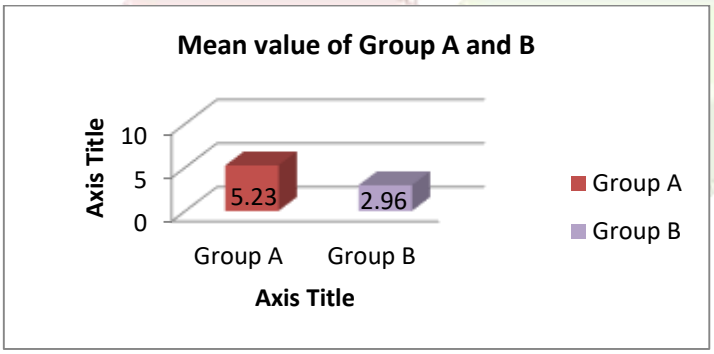
Table no. 5 - Comparing the pre and post NPRS scores of group B, using paired t test.



Graph no.5 Represents the Mean and SD NPRS scores of group B.

Result: In group B, the pre-intervention NPRS (Mean±SD) is 7.26±1.25and post-intervention NPRS (Mean±SD) is 2.96±0.85.

Table no. 6 - Comparing the post and post NPRS scores of group A and B, using unpaired 't' test.



Graph no.6 – This graph represents the post NPRS scores of Group A and Group B, using unpaired 't' test.

Result: This graph represents the post interventional scores (Mean and SD) of Group A and Group B.
Values of Group A (5.23±0.97) and Group B (2.96±0.85). These values were obtained using unpaired ‘t’ test (9.617) and the p value was also obtained using paired ‘t’ (0.0001) that is extremely significant.

IV. DISCUSSION:

This comparative study of Dry cupping therapy versus Dry cupping therapy in combination with Myofascial release technique led to the findings that A and B treatment groups improved significantly in pain (NPRS). For both the groups, spasm was screened by palpation method and the participants were asked to rate their pain in eleven point scales of 0-10 according to which the score of pain was determined. Participants were grouped according to the inclusion and exclusion criteria. Group A were treated with dry cupping therapy and Group B were treated with myofascial release technique followed by dry cupping therapy. Interventions given and their effect on spasm and pain were noted on regular basis.

Combination of dry cupping therapy with myofascial release technique showed more relief in trapezius spasm than dry cupping therapy alone. This might be due to the combined physiological and therapeutic effects of myofascial release technique and dry cupping therapy. When Myofascial Release technique is carried out on the trapezius muscle, local chemistry changes due to blanching of the nodules which is then followed by hyperaemia. This results into flushing off the muscle’s inflammatory exudates and also acts on the pain metabolites. It also breaks down the scar tissue and desensitizes the nerve endings and reduces muscle tone indirectly. However, Myofascial Release technique is considered to be a non-invasive technique that does not produces post treatment soreness or haemorrhage.

In another study stated One physiological mechanism that has been proposed by Oshman in 2000 is that manual therapy technique may create a charge differential through a piezoelectric effect on fibroblast activity. The external pressure created by the technique could cause an up regulation in fibroblast activity leading to increased collagen production locally. This is an interesting application of Davis' law and can be applicable in increasing healing rate, which does not explain the immediate release that often occurs in the clinical setting.

Studies supporting the result of the present study that dry cupping led to significant reduction in muscle spasm and also stated that, dry cupping therapy helps into increase in the blow flow to the areas were the cups are positioned. This therapy may relieve muscle tension, which results into overall blood flow and promoting cell repair indirectly. Dry cupping therapy helps in forming new connective tissues and also creates new blood vessels in the tissues.

Hence, dry cupping therapy when combined with Myofascial release technique showed additional effect and more significant relief on spasm and also reduction in spasm and pain compared to dry cupping alone.

V. CONCLUSION:

The study concluded that Dry Cupping therapy with Myofascial Release Technique (Group B) is more effective than Dry Cupping therapy (Group A) alone in treating Trapezius spasm.

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