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POLISH JOURNAL OF PHYSIOTHERAPY

OFICJALNE PISMO POLSKIEGO TOWARZYSTWA FIZJOTERAPII

THE OFFICIAL JOURNAL OF THE POLISH SOCIETY OF PHYSIOTHERAPY

NR 3/2021 (21) KWARTALNIK ISSN 1642-0136

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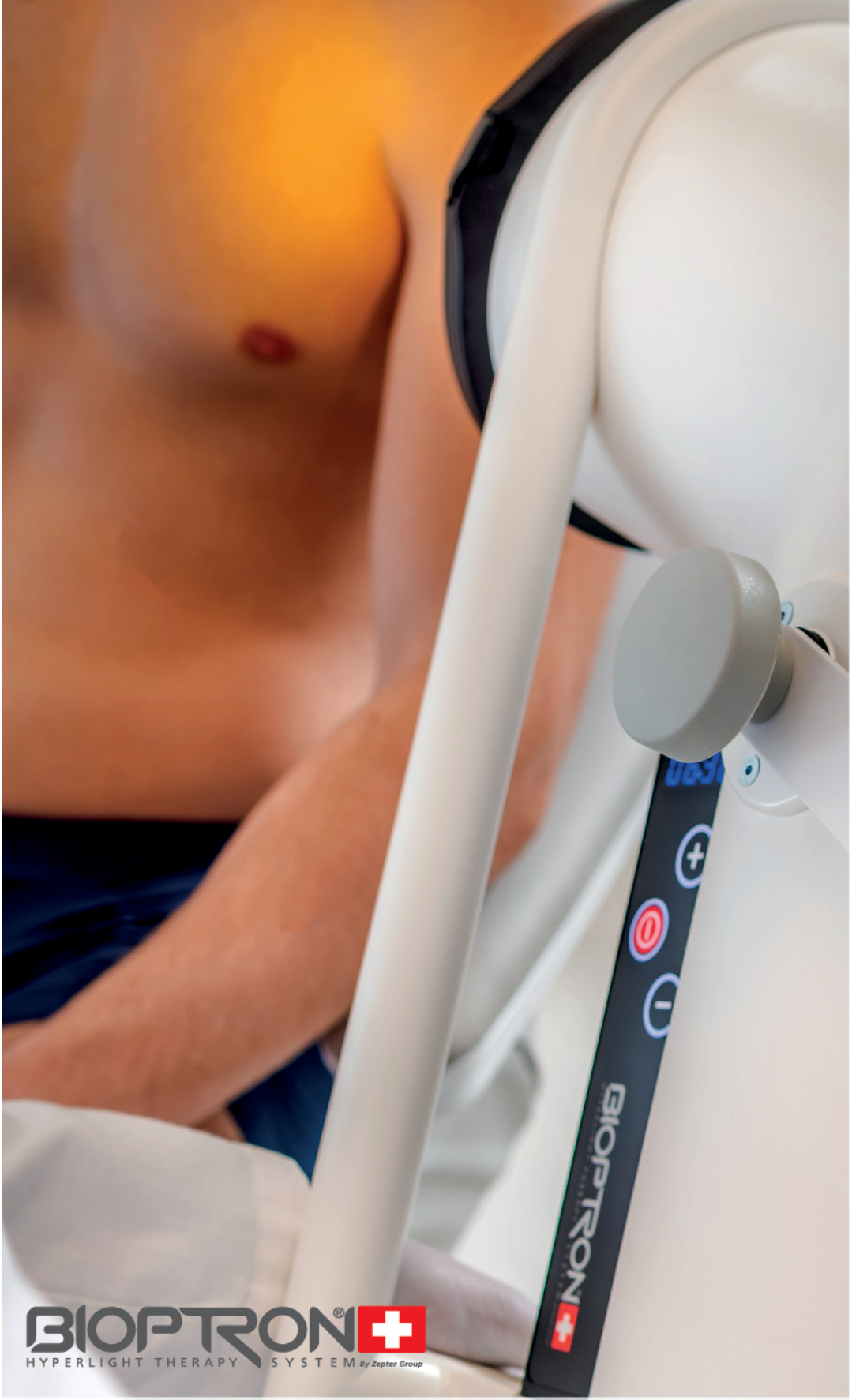

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Dzień 9 lipca 2020 roku był dla METRUM CRYOFLEX wyjątkowy, ponieważ właśnie w tym dniu firma została partnerem Polskiego Związku Narciarskiego. Dla polskiej marki, od ponad 29 lat produkującej nowoczesny sprzęt do rehabilitacji i fizjoterapii, była to duża nobilitacja, ale też dodatkowa motywacja do dalszego rozwoju.

Cała załoga METRUM CRYOFLEX od zawsze trzymała kciuki za Narodową Kadrę Skoczków Narciarskich, a od lipca 2020 roku może wspierać ich również sprzętowo.

Skoczkowie polskiej kadry są pod doskonałą opieką profesjonalnego sztabu, który codziennie dba o ich dobrą kondycję i zdrowie. METRUM CRYOFLEX poprzez podpisaną umowę stało się częścią tego medalowego zespołu, a dostarczony przez nich sprzęt pomaga w regeneracji skoczków po obciążających treningach i zawodach, umożliwiając szybki powrót do formy.

Fizjoterapia jest nieodzownym składnikiem sukcesu we współczesnym sporcie, ponieważ przed sportowcami stawia się coraz wyższe wymagania. Muszą oni walczyć nie tylko z rywalami, ale także z wydajnością własnego organizmu. Z pomocą przychodzą nowoczesne urządzenia do fizjoterapii i rehabilitacji, które dają wytchnienie zmęczonym mięśniom, przyspieszając ich regenerację i likwidując bóle.

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nr 3/2021 (21)

Ischemic Compression Technique Versus Myofascial Release of Upper Trapezius Muscle in Mechanical Neck Pain in Females of Jouf University

Technika kompresji niedokrwiennej kontra rozluźnienie mięśniowo-powięziowe górnego mięśnia czworobocznego w mechanicznym bólu szyi u kobiet z Uniwersytetu Jouf

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Abstract

Background. Neck pain can have an insidious [mechanical] or traumatic onset. Mechanical neck pain is defined as pain in the cervical spine and shoulder area with symptoms of neck position, movements or contact with cervical muscles. Aim. is to compare the effect of ischaemic compres-sion (IC) and myoficial release of the trapezius muscle in patients with mechanical neck pain. Mate-rials and methods. A two-week randomized experimental study. Thirty female patients who had mechanical neck pain, aged from 18 to 55 years old, were randomized into 2 equal groups. Group A received myofascial release technique plus cryotherapy for two weeks, 3 sessions per week., while Group B received ischemic compression plus cryotherapy for two weeks, 3 sessions per week. All participants in both groups were evaluated before and after training for Visual Analog scale (VAS), Neck disability index (NDI) and cervical range of motion by Universal Goniometer. Re-sults. There was a significant decrease in VAS and NDI post treatment in the group A and B com-pared with that pretreatment ($p > 0.05$). There was a significant increase in neck ROM post treat-ment in the group B and A compared with that pretreatment ($p > 0.001$). Comparison between the group A and B post treatment revealed a significant decrease in VAS and NDI of the group B com-pared with that of the group A ($p > 0.05$). Also, there was a significant increase in flexion, exten-sion, side bending, and rotation of the group B compared with that of the group A ($p > 0.001$). Con-clusions. It was concluded that application of ischemic compression 3 times / weeks for 2 weeks is an effective short-term method to reduce pain, increasing cervical ROM, and functional abilities of patients with mechanical neck pain.

Key words:
Ischemic Compression, Mechanical neck pain, Myofascial Trigger Point

Streszczenie

Informacje wprowadzające.
Ból szyi może mieć przyczyny mechaniczne lub traumatyczne. Ból mechaniczny szyi definiuje się jako ból w odcinku szyjnym kręgosłupa i okolicy barku z objawami dotyczącymi ułożenia szyi, ruchów lub kontaktu z mięśniami szyjnymi. Cel. Porównanie wpływu ucisku niedokrwiennego (IC) i mięśniowo-powięziowego rozluźnienia mięśnia czworobocznego u pacjentów z mechanicznym bólem szyi. Materiały i metody. Dwutygodniowe randomizowane badanie eksperymentalne. Trzydzieści pacjentek z mechanicznym bólem szyi w wieku od 18 do 55 lat zostało losowo przydzielonych do 2 równych grup. Grupa A była poddawana terapii techniką rozluźniania mięśniowo-powięziowego oraz krioterapii przez dwa tygodnie, 3 sesje w tygodniu, natomiast grupa B była poddawana kompresji niedokrwiennej oraz krioterapii przez dwa tygodnie, 3 sesje w tygodniu. Wszystkie uczestniczki w obu grupach były oceniane przed i po treningu pod kątem wizualnej skali analogowej (VAS), wskaźnika niepełnosprawności szyi (NDI) i zakresu ruchu kręgosłupa szyjnego za pomocą uniwersalnego goniometru. Wyniki: Po leczeniu w grupie A i B w porównaniu ze stanem przed leczeniem wystąpił istotny spadek wartości VAS i NDI ($p > 0,05$). Wystąpił istotny wzrost zakresu ruchu szyi po leczeniu w grupach B i A w porównaniu z tym przed leczeniem ($p > 0,001$). Porównanie grup A i B po leczeniu wykazało istotny spadek VAS i NDI w grupie B w porównaniu z grupą A ($p > 0,05$). Zaobserwowano również znaczny wzrost zgięcia, wyprostu, zgięcia bocznego i rotacji w grupie B w porównaniu z grupą A ($p > 0,001$). Wnioski. Stwierdzono, że zastosowanie ucisku niedokrwiennego 3 razy/tydzień przez 2 tygodnie jest skuteczną krótkoterminową metodą zmniejszenia bólu, zwiększenia zakresu ruchu szyi i zdolności funkcjonalnych pacjentów z mechanicznym bólem szyi.

Słowa kluczowe
kompresja niedokrwienna, mechaniczny ból szyi, mięśniowo-powięziowy punkt spustowy

Introduction

There may be an insidious [mechanical] or painful onset of neck pain. Mechanical neck pain is characterized as pain with symptoms of neck position, movements, or contact with cervical muscles in the cervical spine and shoulder region [1]. In the general population, the incidence of mechanical neck pain is 45-54 percent, and in terms of lifestyle, up to 30 percent of men and 50 percent of women suffer from neck pain. Increased rates among office staff, users of computers and women. The prevalence of neck pain in women is higher than in men. [2]

Prevalence of neck pain has been estimated to be between 13.4 and 22.2 percent. The risk of neck pain becomes chronic causing neck pain expensive in terms of absenteeism and health care costs [3]. Neck pain is characterized by referred pain, reduced mobility of the joint range and a twitch response due to mechanical deformation of the facial and muscular areas known as myofascial trigger points [MTPts]. Myofascial pain syndromes result from a high percent-age of muscular pain. Myofascial trigger point is intense skeletal muscle tension that is associ-ated with hypersensitive palpable nodules in a taut muscle band [4].

Micro trauma, macro trauma, overuse, physical stress and emotional stress are some of the factors affecting myofascial trigger points. The patho-physiology of its origin is not clear and recent research indicates that injured/overused muscle fibers have fewer oxygen and nutri-ents, leading to spontaneous muscle contractions [5]. In a recent narrative study of physio-therapeutic treatment for myofascial trigger points, it was concluded that the most used short-term pain management methods were release of trigger point pressure, ischemic compression [6].

A manual therapy procedure, ischemic compression acts on the same concept of applying sus-tained pressure to the trigger point and relieving muscle stress, compression is applied progressively with the finger, thumb, elbow relative to how much the patient can bear and sus-tained for up to 90 seconds [7].

Myofascial release is a commonly used direct manual medicine procedure that uses specifical-ly directed mechanical forces to manipulate different somatic dysfunctions and minimize my-ofascial restrictions. Myofascial release is effective in providing immediate pain relief when used with other traditional therapies to alleviate tissue tenderness [8, 9]. Additional clinical effects after treatment include edema and inflammation attenuation, analgesic usage reduc-tion, enhanced post-trauma muscle recovery and increased range of motion in affected joints [10, 11]. This study is therefore designed to assess which technique is more effective ischemic compression or myofascial release in reducing pain, improve ROM and functional abilities of the patients.

Materials and Methods

Research design

A two-week randomized experimental study was conducted from January 2020 to February 2020 at Jouf university in Alquarryat. Signed informed consent was obtained from all partici-pant's, including their agreement to participate in the study. This study followed the princi-ples of the Declaration of Helsinki 1975, revised Hong Kong 1989.

Participants

Thirty female patients who had mechanical neck pain were included in this study, participants with active Trapezius myofascial trigger point with less than 3 months of dura¬tion., patients were from female sex, with age ranged from 18 to 55 years old. All patients with age more than 55 years or less than 18 years, History of cervical spine surgery. Skin diseases and lesions in the area of the trapezius region Any sensory disturbances in the trapezius region, Neck and back deformities like torticollis, scoliosis were excluded from this study. A written consent form was obtained from patients before starting the study.

Sample size and Randomization

Forty-seven patients were checked for eligibility. Medical records were reviewed to assure the fulfillment of inclusion criteria of the study [e.g., diagnosis and location] without any of the exclusion criteria. Thirty patients met the inclusion criteria and were randomly assigned by an independent researcher into two equal groups. Group A received myofascial release tech-nique plus cryotherapy for two weeks, 3 sessions per week., while Group B received ischemic compression plus cryotherapy for two weeks, 3 sessions per week. The allocation was per-formed before initiating the study program using sealed envelopes prepared with random numbers. Distribution was hidden in sequentially numbered opaque envelopes [12]. Figure 1 shows the flow diagram of the study.

Outcome measures

Assessment were done before and after treatment for both groups by using the following tools.

Visual Analog scale (VAS)

It is a rating scale in which the participant assesses their health outcomes. Participant inserts a corresponding mark along a drawn line. It is usually characterized as a line la-beled for a specific variable at its ends with the "minimum and maximum rating" [13].

Neck disability index (NDI)

It is intended to assess the particular impairment of the neck. The questionnaire has 10 items relating to pain and everyday life habits, including personal care, lifting, sleeping, reading, concentrating headaches, driving, work status and leisure. The measure is intended to be completed by the patient and provide valuable information for those with neck pain control and prognosis [14].

Universal Goniometer

To measure cervical range of motion [CROM], a wide universal goniometer with 12-inch arms and a full-circle plastic body was used. It is also used in hospitals to assess joint ROMs [15].

Goniometer (Anymedi, Korea) was used for measuring the range of operation of the neck joint, the subject was to take a neutral posture and not be affected by other parts of the torso. The subjects were maintained for 3 seconds in the setting posi-

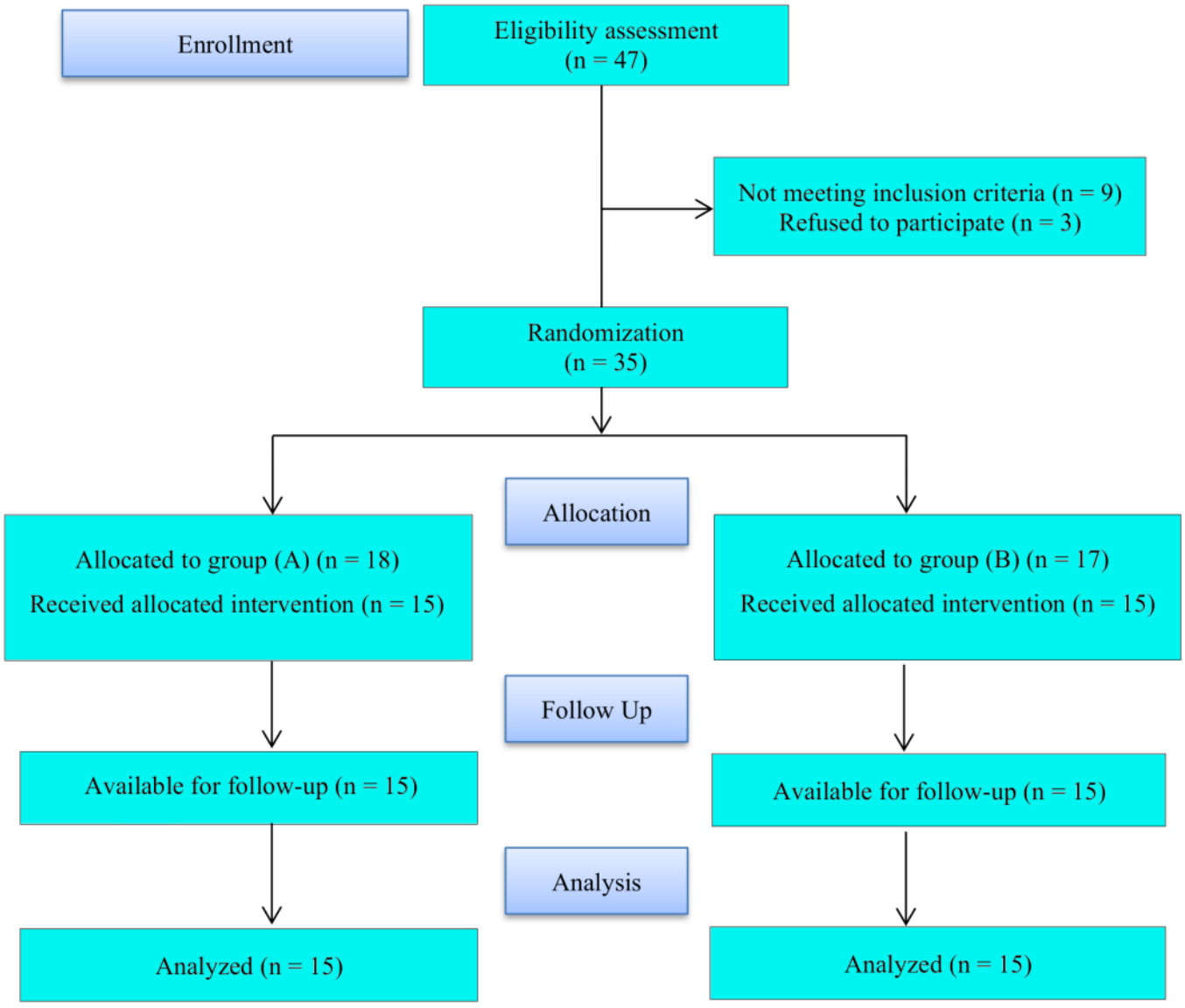

Figure 1. Flow chart of the study

tion for the setting self-tax, the experimenter was to have a break of 1 minute after the re-positioning exercise to remove the learning effect of the participant, [16], the rest time between the measurements was set to 10 seconds [17]. All the operation was actively performed bending to attach the jaw of the par-ticipant as much as possible to the chest, and the grouping was measured by allowing the chin to be wet as far back as possible. The side bending was so that the ears touched the shoulders, the turning was measured in a state of turning to the maximum. The angle of all joint ranges was measured starting at the first 0 degrees, the measurement sequence was in order of dam-age, left and right side bending, bending, left and right turn and the measurement was used twice after repeated measurements the average value [18].

Intervention

Ischemic compression

Patients treated with ischemic compression were placed supine on the couch in order to re-lieve stress in the trapezius muscle, with their head completely on the surface of the couch [19]. Participant's arms were placed with the elbow bent and their hand lying on their stom-ach in a mild shoulder abduction. The therapist stands at the head of the couch to conduct this Ischemic compression [IC] on the trapezius. First, with a pincer grasp moved throughout the fibers of the trapezius and made note of the any active trigger points. Palpate the muscle to feel for a taut band or a twitch reaction in the muscle belly to find a trigger point. In the middle of the muscle belly, approximately 1 to 2 inches medial to the scapula acromion pro-cess, a common site of trapezius trigger points is. Apply an IC while located on the trigger point by slowly applying pressure with your thumb to the trigger point. In a question mark pattern, the patient will possibly sense referred pain [along the back of the neck, around the side of the head, and then a focused pain right behind the eye]. Keep in contact with the patient, checking to ensure that she remains within her pain tolerance limits. Keep for around 20 seconds to 1 minute with this technique, the patient tells you that the pain has reduced or until the muscle fiber starts to relax under your pressure. When you feel this relieve, release the pressure gradually. All the trigger points fo-

und have been treated. To flush out the area, then add a few effleurage strokes and follow up with a passive stretch to the muscle.

Myofascial release (MFR)

It is a type of manual therapy involving the application to the myofascial complex of a low load, long lasting stretch, intended to restore optimum length, relieve pain, and improve func-tion [20]. The patients were asked to sit on a chair with cervical spine in side flexion towards the opposite side while the therapist standing behind the patient. After that, both hands crossed over the affected side applying one hand on the shoulder with the other hand placed under the ear by using the ulnar border of both hands. Hands placement should be with the direction of the upper trapezius muscle fibers. Then, myofascial stretch was applied Locally for 20 seconds in a slow man-ner with 3-4 repetitions, 3 times per week for 2 weeks [21, 22].

Statistical analysis

Data was analyzed through the statistical package for social studies [SPSS] version 25 for windows [IBM SPSS, Chicago, IL, USA]. The level of significance for all statistical tests was set at $p < 0.05$. Age compared between groups by unpaired t-test Normal distribution of data was checked using the Shapiro-Wilk test. Levene's test for homogeneity of variances was conducted to ensure the homogeneity between groups. Mixed design MANOVA was performed to compare within and between groups effects on VAS, NDI and neck ROM. Post-hoc tests using the Bonferroni correction were carried out for subsequent multiple com-parison.

Results

Participant characteristics

The groups were similar pre training ($p > 0.05$) regarding age, weight, height, BMI, and out-come measures (Tables 1 and 2).

Table 1. Baseline characteristics of participants in both groups

	Group [A] [n = 30]	Group [B] [n = 30]	P value*
Age [yrs.]	27.3 ± 8.36	26.15 ± 7.91	0.65^{NS}
Weight [kg]	75.57 ± 12.91	76.57 ± 10.76	0.746^{NS}
Height [cm]	171.47 ± 8.55	171.27 ± 7.41	0.923^{NS}
BMI [kg/m^2]	25.54 ± 2.70	26.35 ± 5.13	0.447^{NS}

^{NS} = P > 0.05 = non-significant, P = Probability

Mixed MANOVA revealed that there was a significant interaction of treatment and time ($F = 25.15$, $p = 0.001$). There was a significant main effect of time ($F = 300.1$, $p = 0.001$). There was a significant main effect of treatment ($F = 4.77$, $p = 0.001$). Within group comparison, there was a significant decrease in VAS and NDI post treatment in the group A and B com-pared with that pre-treatment ($p > 0.05$). There was a significant increase in neck ROM post treatment in the group B and A compared with that pre-treatment ($p > 0.001$) (table 2). While between groups comparison, there was no significant difference in all parameters between both groups pre-treatment ($p > 0.05$). Comparison between the group A and B post treatment revealed a significant decrease in VAS and NDI of the group B compared with that of the group A ($p > 0.05$). Also, there was a significant increase in flexion, extension, side bending, and rotation of the group B compared with that of the group A ($p > 0.001$) (table 2).

Table 2. Descriptive and Inferential Statistics of the Dependent Variables in the Experimental and Control Groups Pre and Post the Eight-Week Study Period

		Group [A] [n = 15]	Group [B] [n = 15]	MD [95% CI]	P value*
VAS	Pre training	4.55 ± 0.88	4.7 ± 0.97	−0.15 [−0.74:0.44]	0.61
	Post training	1.8 ± 0.69	1.35 ± 0.48	0.45 [0.06: 0.83]	0.02^{S}
	MD [95% CI]	2.75 [2.4: 3.09]	3.35 [3: 3.7]		
	P value**	0.001^{S}	0.001^{S}		

		Group [A] [n = 15]	Group [B] [n = 15]	MD [95% CI]	P value*
NDI	Pre training	32.05 ± 6.26	32.49 ± 7.53	−0.44 [−4.87:4]	0.84
	Post training	13.65 ± 3.58	6.15 ± 2.77	7.5 [5.44: 9.54]	0.001S
	MD [95% CI]	18.4 [15.01: 21.78]	26.34 [22.94: 29.72]		
	P value**	0.001S	0.001S		
ROM of Cervical Flexion	Pre training	29.9 ± 5.5	30.55 ± 5.4	−0.65 [-4.13:2.83]	0.7
	Post training	36.95 ± 5.43	46.55 ± 5.62	−9.6 [−13.14: -6.06]	0.001S
	MD [95% CI]	−7.05 [−8.75: −5.34]	−16 [−17.7: −14.3]		
	P value**	0.001S	0.001S		
ROM of Cervical Extension	Pre training	46 ± 8.01	44.95 ± 8.75	1.05 [−4.32:6.42]	0.69
	Post training	52.4 ± 7.68	61.75 ± 3.81	−9.35 [−13.23: −5.46]	0.001S
	MD [95% CI]	−6.4 [−9.67: −3.12]	−16.8 [−20.07: −13.52]		
	P value**	0.001S	0.001S		
ROM of Cervical right bending	Pre training	32.45 ± 4.45	34.05 ± 4.5	−1.6 [−4.46:1.26]	0.26
	Post training	37.5 ± 4.96	42.75 ± 3.14	−5.25 [−7.91: −2.58]	0.001S
	MD [95% CI]	−5.05 [−6.89: −3.2]	−8.7 [−10.54: −6.85]		
	P value**	0.001S	0.001S		
ROM of Cervical left bending	Pre training	31.1 ± 5.1	32.8 ± 6.71	−1.7 [−5.52:2.12]	0.37
	Post training	36.05 ± 4.63	42.65 ± 2.9	-6.6 [−9.07: −4.12]	0.001S
	MD [95% CI]	−4.95 [−6.82: −3.07]	−9.85 [−11.72: −7.97]		
	P value**	0.001S	0.001S		
ROM of Cervical right rotation	Pre training	48.9 ± 4.7	47.1 ± 5.53	1.8 [−1.48:5.08]	0.27
	Post training	55 ± 4.91	63.6 ± 5.09	−8.6 [−11.8: −5.39]	0.001S
	MD [95% CI]	−6.1 [−8.39: −3.81]	−16.5 [−18.79: −14.21]		
	P value**	0.001S	0.001S		
ROM of Cervical left rotation	Pre training	49.7 ± 7.11	48.8 ± 5.31	0.9 [−3.12:4.92]	0.65
	Post training	57 ± 7.54	64.2 ± 4.72	−7.2 [−11.22: −3.17]	0.001S
	MD [95% CI]	−7.3 [−10.37: −4.22]	−15.4 [−18.47: −12.32]		
	P value**	0.001S	0.001S		

** Inter-group comparison; ** intra-group comparison of the results pre and post treatment, NS P > 0.05 = non-significant, S P < 0.05 = significant, P = Probability, MD, Mean difference; CI, Confidence interval, NDI: neck disability index, VAS: visual analogue scale.*

Discussion

Myofascial trigger points, both local and referred, are considered to be the prevalent cause of pain and disability in musculoskeletal system. MTrPs are defined as a distinct palpable nod-ule, within tense skeletal muscle bands with tenderness during palpation producing typical referred pain and autonomic symptoms. MTrPs are insufficiently diagnosed and treated as practitioners frequently do not receive adequate knowledge

and expertise in this field. Com-plicated clinical findings may occur in patients suffering from active and latent trigger points. The most common muscles produce MTrPs are sternocleidomastoid, splenius capitis, sub-occipitalis, and upper trapezius muscles which are mainly leading to pain in head and neck [23]. The MTrP generation process and the resulting pain relief after treatment still specula-tive. Excessive muscle use resulting in overload enhances spontaneous loss of acetylcholine leading to contraction of local muscle sarcomeres and development of the contraction knob or trigger point [24]. Blood vessels are consequently squeezed and local hypoxia provoked. The weak nutrient and exchange waste contributes to a discomfort reaction, development of nox-ious chemicals that produce pain and eventually autonomic regulation that reinforces the pro-cess through positive response. Treatment techniques that disrupt this process can lead to im-provement [25].

The results of this study showed a significant decrease ($p > 0.05$) in mechanical neck pain measured by VRS and NDI in group B [Ischemic compression group] than in group A (Myo-fascial release group). In addition, there was a significant improvement ($p > 0.001$) in all neck motions [flexion, extension, right side bending, left side bending, right rotation and left rota-tion] in group B [Ischemic compression group] more than in group A [Myofascial release group]. Ischemic compression is a technique that involves applying direct manual continuous pressure with adequate force over a prescribed period of time that is often used as a method of inhibiting MTrP by restricting the blood flow and alleviating the stress inside the affected muscle. The pressure is sustained and removed gradually [26].

Previous studies evaluated the effect of IC on mechanical neck pain, Ravichandran et al [27] used VAS, algometer and NDI to assess the effectiveness of IC. Results showed a significant improvement in scores of pain severity, pain pressure threshold, NDI and active cervical lat-eral bending in IC group when compared with ultrasonic group. In addition, Abdelhamid et al [1] compared the effect of ischemic pressure and traditional physical therapy on trapezius trigger points in treatment of chronic mechanical neck pain. The results revealed that ischemic pressure treatment produced positive results which was superior to those obtained from tradi-tional physical therapy in reducing pain, disability and increasing cervical ROMs.

Furthermore, Fernández et al [28] revealed that ischemic pressure for 90 s has a great effect in reducing pain which was assessed by using the VAS to detect the changes in the trapezius trigger points after the application of IC. Moreover, Gemmell et al [20] conducted a study to detect the effect of IC and pressure release on neck pain and trigger points of upper trapezius muscle in individuals with nonspecific neck pain. Level of neck pain was measured by VAS, degree of lateral flexion was measured by a CROM goniometer and pain pressure thresholds were assessed with a pain pressure algometer. They concluded that IC is superior to sham ultrasound in immediate reduction of pain.

In addition, Barbara et al [29] performed a study on office workers with active trigger points in neck and shoulder to evaluate the short-term effect of IC. Numeric Rating Scale and al-gometry was used to assess pain, inclinometer was used to measure cervical ROM, and NDI was used to measure neck disability. The results showed a significant improvement in neck pain, joint function and mobility with IC. On the other hand, other studies assessed the effect of MRT for relieving neck pain. MRT guides force to soft tissue's fibroblasts, and also indirect pressure applied to blood vessels, nerves, the lymphatic system, and muscles. Laboratory studies indicate that fibroblasts directly respond to compressive load in ways that rely on the intensity, length of time and frequency of the strain [30]. Meltzer et al [31], showed that treatment with MRT, after repetitive overload injury, produced a stabilization of the rate of apoptosis, and a decrease in inflammatory cytokines development.

The results of this study concerning the effect of MRT in patient with mechanical neck pain confirm the observations of Rodríguez-Huguet et al [32] who concluded that MRT could be better than a traditional physical therapy program for short-term improvement of pain and pressure pain thresholds measured by VAS in patients with neck pain.

The results of current study confirmed a study applied by Sata J, [33] who compared the effi-cacy of muscle energy techniques and MRT on MTrP in upper fibers of trapezius. Pain was measured by VAS, neck disability by the score of NDI and the threshold of pain by pressure algometer. There was statistically significant difference in all measured variables in myofas-cial release group. It was proved that MRT was better than the muscle energy techniques on MTrP of upper fibers of trapezius.

The results of the present study come in accordance with a study performed by Bukhari and Khan [34], who compared the effect of IC with deep friction massage. They concluded that IC was more effective than the deep friction massage in patients with MTrP's in the neck and upper back for decreasing pain and disability measured by NDI. Whereas, cervical ROM in-creased in both groups. Another study compared the effect of IC and MRT by kulkarin et al [35] who reported that there was a greater improvement after application of IC than MR in pain intensity measured by VAS and neck disability measured by NDI.

The superior effect of IC may be due to different theories: First, the counter irritant reaction leads to a quick decrease in pain locally. Second, a more progressive persistent hyperemia supplied the nutritive blood flow required for repair of cells and clearance of chemicals that produce pain need several treatments over time to improve clinically. The cycle can be constantly broken by repeated therapies, to avoid regression and provide long-term regeneration and recovery [36-38]. Inherently, the use of MRT is not evidence-based treatment as it depends on practitioner-patient interaction, it cannot be a rational technique; hence, as we at-tempt to assess its outcome. Most of the impact of MFR depends on the practitioner's skill and ability to recognize the tissue modifications. Moreover, the biological effects of digit contact may affect the efficacy of the procedure, based on the condition of the practitioner or the patient. This variance implies poor interrater reliability, and thus, prohibits MFR from be-ing called evidence-based [39].

Limitations

There were some limitations to the current study: Small sample size, the study was limited to female participants only and no follow-up for the participants after the end of the study. So, further studies are recommended to be applied on large group, male participants and long-term follow-up.

Conclusion

It was concluded that application of ischemic compression 3 times / weeks for 2 weeks is an effective short-term method to reduce pain, increasing cervical ROM, and disability resulting from upper trapezes trigger points.

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