ORIGINAL ARTICLE

Role of Mobilization to Improve Cervicogenic Headache

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ABSTRACT

Objective: To determine the effect of Mobilization (headache SNAG and Reverse headache SNAG) to treat Cervicogenic headache.

Study Design: Randomized control trial.

Place and Duration of Study: The study was conducted from 1st January to 30th July 2015 in Riphah Rehabilitation Center, Riphah International University Lahore.

Materials and Methods: A sample of 42 patients with cervicogenic headache, 30-60year age were included through non probability purposive sampling techniques and randomly divided into two groups (headache SNAG and Reverse headache SNAG). The demographic data was recorded and informed consent was taken from all participants. Eight weeks of treatment session was provided to both group and assessment of improvement in cervicogenic headache was done at baseline, after 04, 06 and at the end of 8th week.

Results: The sample had 57 % male and 43% female distribution. Patients with acute cervicogenic headache were 48% and chronic cervicogenic headache were 52%. The p value ($p<0.05$) showed that there was a significant difference in the improvement of headache at 06 weeks and 08 weeks in patients treated with headache SNAG. There was no difference in outcome of headache scale in both treatment approaches (Headache SNAG and reverse headache SNAG) after 04 weeks.

Conclusion: The mobilization is very effective in the management of Cervicogenic headache. The headache SNAG is more effective as compared to the reverse headache SNAG in the reduction of pain and headache scale.

Key Words: *Cervicogenic Headache, Mobilization, Pain, Quality of Life.*

Introduction

The Cervicogenic headache can be defined as the chronic semi-crainal headache and the etiology is the upper cervical vertebrae. The prevalence of chronic unilateral headache is 15-20%.[1] Globally it is estimated that prevalence of headache is 47% in adults which is symptomatic at least once in a last year. 1.7 to 4% adult population have headache on 15 or more days in a single month.[2] The Cervicogenic headache (CEH) is defined as "the pain that arises from cervical region to posterior head" It affects the quality of life of persons. The whiplash injury is one of major contributing factor for headache; this type of headache is short term.[3] The prevalence of CEH from the general population aged 30-44 year through self-reported questionnaire and it was 0.17% and the prevalence is more in females as compare to males in the general population.50% headache is co related with the use of medication and migraine was 42 %.[4]

It is characterized by dull pain and stiffness in the back of the head and neck and often radiate to the forehead. Pain is often on one side of head and may proceed to shoulder and arm on same side.[5] Cervicogenic headache has various symptoms including the refereed pain to the posterior side of head from the cervical region. The referred pain can be from the muscle and joints around the cervical region.[6] Risk factors may include two types of events like repetitive activities or whiplash injuries which can cause cervicogenic headache. Sedentary life style, stress, dehydration, bending forward and shoulder forward activities and slouched posture can also be a major risk factor for cervicogenic.[7]

The findings of CEH include the decreased range of motion, painful upper cervical joints, muscular tightness especially the upper back cervical muscles in the later phase of CEH.[8] The following techniques are used in the treatment of the CH: medical therapy,

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acupuncture, local botulinum toxin injection, neural therapy[9], cervical epidural corticosteroid injection[10] greater occipital nerve (GON) block,[11,12] physical therapy, massage, traction, kinezitherapy and surgical treatment. It shows that the good results are obtained by a combination of physical therapy, manual therapy and kinezitherapy. [11-13] Patients group who are given SNAGs showed significantly greater improvement in neck disability index (NDI), when compared to the control group.[14] Upper cervical spine mobilization showed better results than massage therapy with regard to headache pain scale parameters and neck range of motion.[15]

The evidence suggested that the manual therapy, soft tissue mobilization and exercises for neck region have greater improvement as compared to other alternative strategies. The non-invasive management is also integral part of radiculopathy.[16] The data base showed the evidence based literature of cervical manipulation and mobilization and they reported that the mobilization of the cervical joints with appropriate strengthening exercises was more effective outcome in CEH in terms of pain intensity as compared to other treatment strategies.[17] The exercises have significant effects on the pain intensity, range of motion and activity of daily life in CEH but there are limited improvements in other secondary outcomes.[18]

The mobilization and mobilization with combination to other approaches have strong effect on the neck pain. The reviews reported that there is some evidence of improvement in the pain, functional disability, quality of life, global perceived effect on the CEH.[19] The main purpose of this study was to comapre the effects of Headache SNAG and Reverse Headache SNAG for treating Cervicogenic headache.

Materials and Methods

This was a Randomized control trial and conducted from 1st January to 30th July in Riphah Rehabilitation center, Riphah International University Lahore. The non-probability sampling was used to collect the data and randomly divided into two groups. Group-A: Patients in this group were treated with Headache SNAG. Group-B: Patients in this group were treated with Reverse Headache SNAG. Sample selection was done on the following inclusion and exclusion criteria. The inclusion criteria include Age 30–60 years, both gender; cervicogenic headache (clinically diagnosed) and patient with radiculopathy, trauma and systemic illness were excluded from the study. Total 50 patients, who met the selection criteria, were enrolled for the study. The sample was calculated through software while considering the literature reference. Informed consent was taken from each patient stating about the safety of the study and their right to withdraw from the study at any time. Demographic details (name, age, sex,) were noted along with the necessary medical history. Then patients were divided into two groups by using card allocation method. In group-A patients were treated with Headache SNAG and in group-B patients with reverse headache SNAG. Each Patient received two treatment sessions per week with maximum eight treatment sessions over the period of four weeks.[15] Three patients were dropped from sample, one because of conveyance issue while remaining two moved out of city**.** The treatment procedure was done by the Researcher himself and all the information regarding the demographic data were gathered by using a pre-designed Performa. Improvement regarding the outcomes of the treatment was measured using Visual Analogue Scale and Headache Pain Scale. The measurement was taken before the study and then after 04, 06 and at the end of 8th week of treatment. SPSS version 21 was used for data analysis and T independent samples test was used to compare the two groups.

Results

Total 50 patients were recruited including 27 male and 23 females. 48% of the sample was categorized as acute while 52% was chronic cervicogenic 33% patients had sedentary life style while 67% have active life style. 60% patients were computer user while 40% were not routine users. 86% used the hard pillow while 14% were users of soft pillow. The table shows that the mean age of sample was 40.17±9.42, mean computer use was 4.19 ±1.7 hours and mean sleeping hours were 6.21±0.951. There was no significant difference at baseline and 04 weeks ($p>0.05$) and it showed that both groups were homogeneous at the time of recruitment. There was a significant difference at 06weeks and 08 weeks ($p<0.05$) and it showed significant difference in the improvement of symptoms in two groups. Headache SNAG is more effective after 06 and 08 weeks of treatment than reverse headache SNAG. (Table I and II).

Table I: Comparison of Groups for Headache Scale

Variable	Headache scale at Baseline	Headache after 04 weeks	Headache after 06 weeks	Headache after 08 weeks
Headache SNAG	4.95±1.071	3.57±1.076	2.29±1.007	1.14±1.49
Reverse Headache SNAG	5.24±1.446	4.00±1.483	3.33±2.106	2.51±2.51
P value	0.471	0.291	0.046*	0.018*

Table II: Comparison of Groups for Visual Analogue Scale

Variable	VAS scale at Baseline	VAS after 04 weeks	VAS after 06 weeks	VAS after 08 weeks
Headache SNAG	4.23±.88	3.09±.094	1.80±.92	0.95±1.16
Reverse Headache SNAG	4.52±1.364	3.33±1.42	2.76±1.42	2.33±2.24
P value	0.426	0.527	0.054	0.016*

Discussion

The results show that headache SNAG technique is more effective as compared to reverse headache SNAG to treat Cervicogenic headache. Although initially there was no significant difference in outcome but continuous application of headache SNAG was effective and showed good results long term. The improvement was recorded in headache scale and visual analogue scale after 04, 06 and 08weeeks of application of both manual techniques.

SNAG is considered a comprehensive mobilization in reducing the pain intensity and improving the functional status of patients. A study conducted by Muhammad Khan to determine the effect of upper cervical Sustained natural apophyseal glide (SNAG) with posterior anterior mobilization showed that there was significant difference in disability index and pain scale. The results are similar with this study finding that the SNAG mobilization has more effective than other treatment approaches in reducing pain in Cervicogenic headache.[20] A systematic review was conducted by Stephanie Racick in 2013 to determine the evidence based and effective treatment approach in the treatment of Cervicogenic headache. They included the study related with mobilization, manipulation, strengthening and other treatment options and concluded that mobilization with other approaches is effective in reducing pain in patients of Cervicogenic headache. (54) Janusz Kocjan conducted a study in 2015 to determine the effectiveness of SNAG in CEH. They compared the cervical rotation in conjunction with SNAG mobilization. The result showed better improvement when compared to other mobilization techniques.[21]

The reverse SNAG is used to mobilize the cervical segments for mobility and improving the joint movement. A study conducted in 2014 by Susan A. Reid on the comparison of Maitland and mulligan SNAG for the treatment of Cervicogenic dizziness. They compared the both techniques 1 and 2 weeks and concluded that the both technique are effective in reducing the pain and frequency of dizziness in patients with Cervicogenic dizziness.[22] The literature showed that the different approaches are effective for the pain relief, dizziness intensity reduction and improvement of range of motion. The study finally concluded that there is limited evidence in the literature about the SNAG although there is relief in pain scale and other symptoms related with Cervicogenic headache.[23] The study conducted by Armed in 2014 on the effectives of SNAG glide and manipulation on the cervical disorder. They took measurement on neck disability index, ranges and visual analogue scale for the recording of improvement in the patients with cervical impairment. They used manipulation while in current study mobilization was used to assess the effects on pain. Finally they concluded that the mobilization SNAG with manipulation has good effects and showed the significant statistical difference as compares to the other treatment options like simple exercise alone in improving the pain and disability index in patients with cervical disorder.[24]

The limited sample size and lack of quantitative equipment for detecting change are major limitation in study. Further studies with physiological biomarker, radiological findings and with larger sample size are recommended.

Conclusion

Mobilization is very effective in the management of Cervicogenic headache. The headache SNAG is more effective as compared to the reverse headache SNAG in the reduction of pain on headache scale. The mobilization should be included in the appropriate management of Cervicogenic headache.

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