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Research Article

**A CROSS-SECTIONAL STUDY TO COMPARE THE EFFECTS  
OF HEADACHE SNAG AND REVERSE HEADACHE SNAG  
FOR THE TREATMENT OF CERVICOGENIC HEADACHE****Dr Kamranullah<sup>2</sup>, Dr Abdul Wahab<sup>3</sup>, Dr Muhammad Younas Khan<sup>1</sup>**<sup>1,2</sup> POF hospital, Wah Cantt, <sup>3</sup>Khyber Medical University, Peshawar**Article Received:** November 2020 **Accepted:** December 2020 **Published:** January 2021**Abstract:**

**Objective:** The aim of our study was to compare the effects of headache SNAG and reverse headache SNAG for the treatment of cervicogenic headache.

**Study Design:** A cross-sectional study.

**Place and Duration:** This study was conducted at Medicine department, POF hospital, Wah Cantt for the duration of seven months starting from March, 2020 to September, 2020.

**Methodology:** In our study we include samples of 50 patients who were having cervicogenic headache and their age ranges from 30 to 60 years. We noted demographic details (name, age, gender) of patients along with the necessary medical history. After collection of details, we use card allocation method to divide patients into two groups. Patients with Headache SNAG were in group A and patients with reverse headache SNAG were in group B. For the analysis of data SPSS v.20 was used.

**Results:** In our study we include samples of 50 patients. According to gender distribution 23 patients (43%) were females and 27 patients (57%) were males. 48% patients were having acute cervicogenic headache and 52% patients were having chronic cervicogenic headache. In both treatment approaches (Headache SNAG and reverse headache SNAG) no difference was found in results of headache scale after 4 weeks.

**Conclusion:** At the end of our study, we conclude that in the management of Cervicogenic headache the most effective thing is mobilization. In the reduction of pain and headache scale, headache SNAG is more effective as compared to the reverse headache.

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

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**INTRODUCTION:**

The Cervicogenic headache can be defined as the chronic semi-cranial 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 correlated 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 referred 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, acupuncture, local botulinum toxin injection, neural therapy [9], cervical epidural corticosteroid injection [10], greater occipital nerve (GON) block [11,12], physical therapy, massage, traction, kinesiotherapy and surgical treatment. It shows that the good results are obtained by a combination of physical therapy, manual therapy and kinesiotherapy [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 compare the effects of Headache SNAG and Reverse Headache SNAG for treating Cervicogenic headache.

**METHODOLOGY:**

This cross-sectional study was conducted at Medicine department, POF hospital, Wah Cantt for the duration of seven months starting from March, 2020 to September, 2020. 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. 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

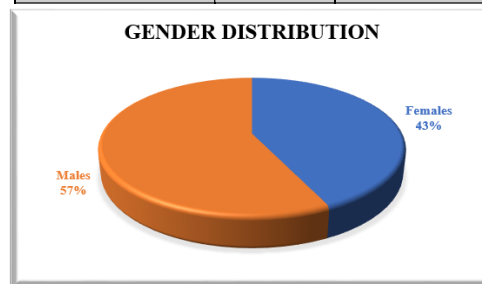
treatment. SPSS version 20 was used for data analysis and T independent samples test was used to compare the two groups.

### RESULTS:

In our study we include samples of 50 patients. According to gender distribution 23 patients (43%) were females and 27 patients (57%) were males.

**Table No 01: Gender Distribution**

Gender	Qty	%age
Females	23	43%
Males	27	57%
Total	50	100%



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  $40.17 \pm 9.42$ , mean computer use was  $4.19 \pm 1.7$  hours and mean sleeping

hours were  $6.21 \pm 0.951$ . 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 06 weeks 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 02 and 03).

**Table No 02: Comparison of Groups for Headache Scale**

Variables	Headache			
	Baseline	After 4 Weeks	After 6 Weeks	After 8 Weeks
Headache SNAG	4.59±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 No 02: Comparison of Groups for Visual Analogue Scale**

Variables	VAS			
	Baseline	After 4 Weeks	After 6 Weeks	After 8 Weeks
Headache SNAG	4.23±0.88	3.09±0.094	1.80±0.92	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 08 weeks 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 techniques 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 effectiveness 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:**

At the end of our study, we conclude that in the management of Cervicogenic headache the most effective thing is mobilization. In the reduction of pain and headache scale, headache SNAG is more effective as compared to the reverse headache.

**REFERENCES:**

1. Grgic V. [Cervicogenic headache: etiopathogenesis, characteristics, diagnosis, differential diagnosis and therapy]. *Lijecnicki vjesnik*. 2017; 129: 230-6.
2. Van Suijlekom H, Van Zundert J, Narouze S, Van Kleef M, Mekhail N. Cervicogenic headache.

- Pain practice: the official journal of World Institute of Pain. 2012; 10: 124-30.
3. Vincent MB. Cervicogenic headache: a review comparison with migraine, tension-type headache, and whiplash. *Current pain and headache reports*. 2012; 14: 238-43.
  4. Shaheen Z, Kurji Z, Mithani Y. Are Health Care Resources Allocated Equitably in Pakistan? *International Journal of Nursing Education*. 2014; 6: 82-7.
  5. France S, Bown J, Nowosilskyj M, Mott M, Rand S, Walters J. Evidence for the use of dry needling and physiotherapy in the management of cervicogenic or tension-type headache: A systematic review. *Cephalalgia*. 2014; 34: 9941003.
  6. Bogduk N, Govind J. Cervicogenic headache: an assessment of the evidence on clinical diagnosis, invasive tests, and treatment. *The Lancet Neurology*. 2009; 8: 959-68.
  7. Ellis MJ, Leddy JJ, Willer B. Physiological, vestibulo-ocular and cervicogenic post-concussion disorders: An evidence-based classification system with directions for treatment. *Brain injury*. 2014; 29: 238-48.
  8. Zito G, Jull G, Story I. Clinical tests of musculoskeletal dysfunction in the diagnosis of cervicogenic headache. *Manual therapy*. 2016; 11: 118-29.
  9. Karadas O, Ozturk B, Ulas UH, Kutukcu Y, Odabasi Z. The efficacy of botulinum toxin in patients with cervicogenic headache: a placebo-controlled clinical trial. *Balkan medical journal*. 2012; 29: 184-7.
  10. Wang E, Wang D. Treatment of cervicogenic headache with cervical epidural steroid injection. *Current pain and headache reports*. 2014; 18: 442.
  11. Lauretti GR, Correa SW, Mattos AL. Efficacy of the Greater Occipital Nerve Block for Cervicogenic Headache: Comparing Classical and Sub-compartmental Techniques. *Pain practice: the official journal of World Institute of Pain*. 2015; 15: 654-61.
  12. Knackstedt H, Bansevicius D, Aaseth K, Grande RB, Lundqvist C, Russell MB. Cervicogenic headache in the general population: the Akershus study of chronic headache. *Cephalalgia: an international journal of headache*. 2015; 30: 1468-76.
  13. Wu JX, Fan RJ, Song WX, Chen P. [Effect of cervical paravertebral block combined with acupuncture intervention on cervicogenic headache]. *Zhen ci yan jiu = Acupuncture research*. 2013; 38: 411-4.
  14. Shin EJ, Lee BH. The effect of sustained natural apophyseal glides on headache, duration and cervical function in women with cervicogenic headache. *Journal of exercise rehabilitation*. 2014; 10: 131-5.
  15. Youssef EF, Shanb AS. Mobilization versus massage therapy in the treatment of cervicogenic headache: a clinical study. *Journal of back and musculoskeletal rehabilitation*. 2013; 26: 17-24.
  16. Hurwitz EL, Carragee EJ, van der Velde G, Carroll LJ, Nordin M, Guzman J, et al. Treatment of neck pain: noninvasive interventions: results of the Bone and Joint Decade 2000–2010 Task Force on Neck Pain and Its Associated Disorders. *Journal of manipulative and physiological therapeutics*. 2009; 32: S141-S75.
  17. Racicki S, Gerwin S, DiClaudio S, Reinmann S, Donaldson M. Conservative physical therapy management for the treatment of cervicogenic headache: a systematic review. *Journal of Manual & Manipulative Therapy*. 2013; 21: 11324.
  18. Harden RN, Cottrill J, Gagnon CM, Smitherman TA, Weinland SR, Tann B, et al. Botulinum Toxin A in the Treatment of Chronic Tension-Type Headache with Cervical Myofascial Trigger Points: A Randomized, Double-Blind, Placebo-Controlled Pilot Study. *Headache: The Journal of Head and Face Pain*. 2017; 49: 732-43.
  19. Gross A, Miller J, D'Sylva J, Burnie SJ, Goldsmith CH, Graham N, et al. Manipulation or mobilization for neck pain: a Cochrane Review. *Manual therapy*. 2013; 15: 315-33.
  20. Khan M, Ali SS, Soomro RR. Efficacy of C1-C2 Sustained Natural Apophyseal Glide (SNAG) Versus Posterior Anterior Vertebral Mobilization (PAVMs) in the Management of Cervicogenic Headache. *Journal of Basic and Applied Sciences*. 2014; 10: 226-30.
  21. Kocjan J. Effect of a C1-C2 Mulligan sustained natural apophyseal glide (SNAG) in the treatment of cervicogenic headache. *Journal of Education, Health and Sport formerly Journal of Health Sciences*. 2015; 5: 79-86.
  22. Reid SA, Rivett DA, Katekar MG, Callister R. Comparison of Mulligan sustained natural apophyseal glides and Maitland mobilizations for treatment of cervicogenic dizziness: a randomized controlled trial. *Physical therapy*. 2014; 94: 466-76.
  23. Reid SA, Rivett DA, Katekar MG, Callister R. Efficacy of manual therapy treatments for people with cervicogenic dizziness and pain: protocol of a randomized controlled trial. *BMC musculoskeletal disorders*. 2012; 13: 201.

24. El-Sodany AM, Alayat MSM, Zafer AMI. Sustained natural apophyseal glides mobilization versus manipulation in the treatment of cervical spine disorders: a randomized controlled trial. *International Journal*. 2014; 2: 274-80.