



TO STUDY AND COMPARE THE EFFECTS OF TRACTION ALONG WITH ISOMETRIC EXERCISE AND TRACTION ALONE IN CERVICAL SPONDYLOSIS

Healthcare

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ABSTRACT

Objective:

- 1) To study and compare the effects of Traction along with isometric exercise and traction alone in cervical spondylosis.
- 2) To determine the cumulative effects of traction and isometric exercise cervical spondylosis.

Methods:- 30 subject complaining of cervical pain were screened for cervical spondylosis on the basis of inclusion and exclusion criteria using Visual Analog Scale. The Age group included was 40-60 years. These subject were randomly assigned to Group A and B . Group A subject were treated with combination of cervical traction and isometric exercise and Group B subject were treated with Traction alone. **Result:-** The pre and post treatment VAS score within both the Groups was analyzed using t-test. This analysis showed that there was significant reduction in pain when compared with the base line measures in both the Groups at the end of treatment session. Paired t-test was applied between Group A and Group B at 1st and 14th day. The t values were 14.24 and 8.91. The comparison of mean difference for changes between Group A and Group B 14th and 1st day was 5.90 and 3.33 respectively. The mean of the the post intervention values when compared with the pre intervention values between the two Groups , subject of Group A showed more reduction in pain as compared to Group B. **Conclusion:-** Combination of Traction and Isometric exercise is more effective as compared to Traction alone in treatment of cervical spondylosis.

KEYWORDS

VAS , Cervical Traction, Isometric Exercises

INTRODUCTION

This reaserch would be able to give some concrete baseline information regarding the most beneficial techniques for relieving pain and gaining functional independence in cervical spondylosis dysfunction.

Cervical spondylosis is a term that encompasses a wide range of progressive degenerative changes that affect all the components of the cervical spine (i.e., intervertebral discs, facet joints, joints of Luschka, ligamenta flava, and laminae). It is a natural process of aging and presents in the majority of people after the fifth decade of life.^[1]

In the cervical spine this chronic degenerative process affects the intervertebral discs and facet joints, and may progress to disk herniation, osteophyte formation, vertebral body degeneration, compression of the spinal cord, or cervical spondylotic myelopathy.^[2]

Symptoms of cervical spondylosis manifest as neck pain and neck stiffness and can be accompanied by radicular symptoms when there is compression of neural structures.

Neck pain is a widespread condition, and the second most common complaint after low back pain. This condition is associated with a significant burden of disease with substantial disability and economic cost,^[1] Although ageing is the primary cause^[3], the location and rate of degeneration as well as degree of symptoms and functional disturbance varies and is unique to the individual.

Evidence of spondylotic change is frequently found in many asymptomatic adults, with evidence of some disc degeneration in:

- 25% of adults under the age of 40,
- 50% of adults over the age of 40, and
- 85% of adults over the age of 60

Asymptomatic adults showed significant degenerative changes at 1 or more levels

- 70% of women and 95% of men at age 65 and 60 were affected
- The most common evidence of degeneration is found at C5-6 followed by C6-7 and C4-5"

Risk factors

- Age, gender and occupation.^[4]
- The prevalence of cervical spondylosis is similar for both sexes, although the degree of severity is greater for males.^{[5][6][7]}
- Repeated occupational trauma may contribute to the development of cervical spondylosis.^[8]
- Increased incidence in patients who carried heavy loads on their heads or shoulders and in dancers and gymnasts.
- In about 10% of patients, cervical spondylosis is due to congenital

bony anomalies, blocked vertebrae, malformed laminae that place undue stress on adjacent intervertebral discs.^[9]

Methodology:

This study was carried out in Dynamic Health Home, JanakpurDham, Nepal . Age of participants was ranges from 40 to 60 years . There was two group, each group has 15 subjects.

Reaserch design:

Age group: 40 to 60 years.

Sample collection : Simple Random Technique.

Selection criteria:

Inclusion criteria:

Age : 40 to 60 years

Sex: No sex bar, both male and female subjects were included.

Exclusion criteria :

Any sensory loss

Any trauma to shoulder and cervical region.

Malignancies and hypertensive patient.

Protocol:

30 males and females with age 40 to 60 years as per inclusion criteria where included. Written consent was taken from volunteer and procedure was explain to them in details. The subject for the study were chosen randomly and were assigned to two group.

At first day:

Intensity of pain is measured by VAS

Neck flexibility was measured by Goniometer.

Group A : Given cervical traction along with isometric exercises.

Group B : Given cervical traction , duration 15 to 20 minutes

At 7th day:

Again Intensity of pain is measured by VAS .

At 14th day :

Again grading of pain was measured by VAS .

Measurement of pain intensity:

Visual Analog Scale (VAS) is 10 cm horizontal line used to access subjective level of pain intensity . the left end mark was labeled as 0 and (measuring no pain) and right end mark as 10 (most severe pain imaginable)

The scale has 1 cm interdivision from 0-10 including pain intensity . The patient were instructed to rate their average pain intensity on VAS scale.

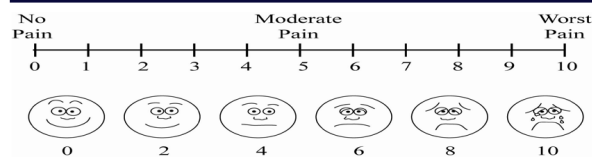


Fig. 1.1 Visual Analog Scale

OBSERVATION AND RESULT

In this study, all data collected were statistically analyzed using SPSS Software. The data was presented using descriptive statistics such as mean, standard deviation (SD) followed by multiple bar charts. Further comparison between Group A and Group B was done using independent sample t-tes. The recorded value were expressed as mean $\pm$ SD. The level of significance was set at 5%. All p-value less than 0.05 were considered to be significant.

RESULT

An analysis of the available data of 30 patients was done, the demographic parameter in age was comparable in both the Groups without any statistically significant difference. The details of mean and standard deviation of VAS scores are given in table 1.1.

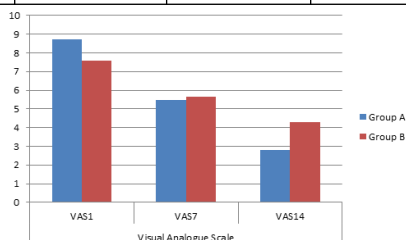
A table 1.2 shows groups comparison of VAS is also shown in the table above. It gives the mean and standard deviation of the VAS at the end of 0, 7, 14 days along with their t-values which shows both the treatments are significant. The VAS readings were significant at the end of 14th days. These are significant in both Group A and Group B.

Table 1.3 shows significant improvement was seen in level of pain between 0 to 7 days, 7 to 14 days and 0 to 14 days in both Groups.

Since, the mean difference of Group A is greater than Group B that is $5.900 > 3.33$ at the end of 14th days, the treatment of Group A is more effective than Group B.

Table 1.1, Comparison of VAS between the Groups at the end of 1st, 7th and 14th day

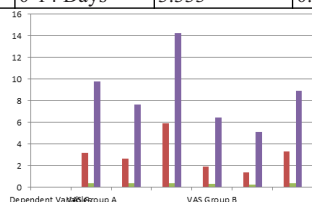
Variables	Visual Analogue Scale		
Variables	VAS1	VAS7	VAS14
Group A	8.70 ± 1.175	5.47 ± 1.598	2.80 ± 1.373
Group B	7.60 ± 1.598	5.67 ± 1.718	4.27 ± 1.981



Graph 1.1, Comparison of VAS between the Groups at the end of 1st, 7th and 14th day

Table 1.2, Comparison of mean of VAS between the Groups at the end of 1st, 7th and 14th day

Dependent Variables	Between Days	Mean Difference	Standard Error	tcal value
VAS Group A	0-7 Days	3.2	0.354	9.79
	7-14 Days	2.667	0.347	7.67
	0-14 Days	5.9	0.397	14.24
VAS Group B	0-7 Days	1.933	0.3	6.45
	7-14 Days	1.4	0.273	5.14
	0-14 Days	3.333	0.374	8.91



Graph 1.2, Comparison of mean of VAS between the Groups at the end of 1st, 7th and 14th day

DISCUSSION:-

Most study on rehabilitation of Cervical Spondylosis agreed that, this should be managed initially by conservative rather than operative means. The conservative approach includes muscle strengthening, medication, rest, modification, patient education, tense and biofeedback. This wide variety of conservative measurements shows a lack of consistent satisfaction with any approach, also the review prevention studies offers incomplete evaluation for comparison of traction therapy and isometric exercise for the treatment of Cervical Spondylosis.

The individual improvement by the use of traction therapy and isometric exercise has been shown. But no comparative study has been done. The purpose of the study was to determine the actual effectiveness of combination of traction and isometric exercise in relieving pain in cervical spondylosis as compared to traction alone.

The result showed that there was significant improvement in VAS in both the groups. There was much more significant improvement in Group A as compared to Group B.

CONCLUSION:-

The result of present study showed that application of traction along with isometric exercise is most beneficial in relieving the pain, through traction alone have also found to be effective.

The dependent variables of pain which was found to be improved in all these groups, maximum pain relieve was found in Group A.

In comparing between the two Groups A and B, it was found that $t_{cal} 28^\circ$ of freedom at 0.05 level of significance was greater than t-tabulated, i.e. $14.51 > 1.701$.

The study therefore shows that the combination of Traction with Isometric exercise is more effective in relieving pain in Cervical Spondylosis in compare to Traction alone.

REFERENCES

- Kuo DT, Tadi P. Cervical Spondylosis. InStatPearls [Internet] 2019 Nov 26. StatPearls Publishing.
- Xiong W, Li F, Guan H. Tetraplegia after thyroidectomy in a patient with cervical spondylosis: a case report and literature review. Medicine (Baltimore) 2015;94(6):e524.
- Ferrara LA. The biomechanics of cervical spondylosis. Advances in orthopedics. 2012 Feb 1;2012.
- Singh S, Kumar D, Kumar S. Risk factors in cervical spondylosis. Journal of clinical orthopaedics and trauma. 2014 Dec 31;5(4):221-6.
- D.H. Irvine, J.B. Foster, Prevalence of cervical spondylosis in a general practice, The Lancet, May 22 1965
- Sandeep S Rana, MD, Diagnosis and Management of Cervical Spondylosis. Medscape, 2015
- Kelly JC, Groarke PJ, Butler JS, Poynton AR, O'Byrne JM. The natural history and clinical syndromes of degenerative cervical spondylosis. Advances in orthopedics. 2011 Nov 28;2012.
- Moon MS, Yoon MG, Park BK, Park MS. Age-Related Incidence of Cervical Spondylosis in Residents of Jeju Island. Asian spine journal. 2016 Oct 1;10(5):857-68.
- McCormack BM, Weinstein PR. Cervical spondylosis. An update. West J Med. Jul-Aug 1996;165(1-2):43-51.