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EFFECTIVENESS OF KALTENBORN MOBILIZATION TECHNIQUE VERSUS CONVENTIONAL EXERCISE FOR SUBJECTS WITH CERVICAL SPONDYLOSIS

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ABSTRACT

BACKGROUND & AIM:

The application of joint mobilization to the upper thoracic spine has been reported to have an positive effect, sometimes immediately, on cervical spine dysfunction, in conjunction with the provision of pain relief. However, previous including joint mobilization, have been ineffective in a busy clinical setting because they involve the direct and passive intervention of therapists. So the purpose of this study is to evaluate the effectiveness of kaltenborn mobilization technique among cervical spondylosis.

OBJECTIVE:

- To determine the effectiveness of kaltenborn mobilization technique on reducing pain by using VAS
- To evaluate the effectiveness of kaltenborn mobilization technique on improving cervical spine range of motion (ROM) by using goniometer.

METHOD:

STUDY DESIGN: experimental study

SAMPLING TECHNIQUE: Convenient sampling technique

SAMPLE SIZE: 30

RESULT: Statistical study revealed that among 30 individuals, The test shows that the subjects received kaltenborn mobilization along with interferential therapy have improved reduction in pain and increased in ROM among cervical spondylosis.

CONCLUSION: From this results it has been concluded that there was a definite and positive effect of Kaltenborn mobilization technique along with Interferential therapy for cervical spondylosis patients.

KEYWORDS: kaltenborn mobilization, goniometer, cervical spondylosis, isometric exercises.

INTRODUCTION

Chronic pain in the cervical spine region is commonly due to overuse or recurrent trauma, and may be due to instability of the spinal segments. This causes restriction to the movement of the adjacent joints, leading to impaired functional movement of the cervical spine [(1)].

A relationship between the cervical and thoracic spine has been described as close and ergonomically related. From the functional viewpoint of the entire spine, since the movement of the cervical vertebrae includes the movement of the upper thoracic ('1st thoracic spine; T1' to '4th thoracic spine; T4'), hypomobility of the upper thoracic can cause pain in the cervical spine because of compensation, whereas hypermobility of the upper thoracic can induce incompetence of the upper cervical reports that patients with dysfunctional cervical spine have excessive kyphosis compared to healthy normal persons, and kyphosis is closely related to pain around the neck. Cervical spondylosis is a general term for age-related wear and tear affecting the spinal disks in your neck. As the disks dehydrate and shrink, signs of osteoarthritis develop, including bony projections along the edges of bones (bone spurs) [(2)].

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. 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) [(4)].

Physical therapists have employed glenohumeral anterior glide mobilisation to enhance the external rotation ROM of the shoulder, which follows the notion of the "convex on concave rule" of joint mobility. The capsular constraint mechanism, proposed by Harryman et al., compares the convex on concave hypothesis. Some studies have demonstrated that posterior gliding manipulation of the shoulder enhances external and internal rotation ROM. [(7,8,9)]

Johnson et al. conducted a randomised control experiment in 20 patients with adhesive capsulitis, comparing anterior and posterior glide mobilisation with glenohumeral joint lateral traction. It was established that Kaltenborn's grade III posterior glide mobilisation can augment external rotation ROM. [(10)]

This illness can be caused by a variety of circumstances, including poor posture, anxiety, depression, neck strain, and participation in sports. It is characterised mostly by neck discomfort and stiffness, and is occasionally accompanied with numbness and radicular pain in the shoulders, arms, and fingers. In a high-risk group, the total prevalence of neck discomfort ranges from 0.4% to 86.8%, and the incidence ranges from 10.4% to 21.3%. [(11)]

Review of Literature:

1. Surabhi Agarwal et al., (2016), Surabhi Agarwal concludes that this study supports the clinical use of the reverse distraction technique as a mobilization method alternative to conventionally used techniques aimed at decreasing pain and improving ROM and functional scores in patients with adhesive capsulitis.
2. C. Copurgensli et al., (2016), C. Copurgensli concludes that study showed that MM and KT have no additional effects on neck pain, muscle strength and neck related disability in CS. In patients with cervical spondylosis, by the use of Mulligan's Mobilization and Kinesio Taping in addition to conventional rehabilitation, the gain in cervical ROM and deep cervical flexor muscle strength may be increased during treatment period.

3. Hyung-Taek Oh et al., (2018), Hyung-Taek Oh concludes that the study demonstrated that self-mobilization of the upper spine, using a Kaltenborn wedge, was useful in alleviating pain in and dysfunction of the cervical spine, and in particular, in improving cervical spine extension in this study.
4. Syed Muhammad Hammad et al., (2019), Syed Muhammad Hammad concludes that Kaltenborn mobilization combined with thermotherapy was found to be more effective than Kaltenborn mobilization alone in patients with adhesive capsulitis.
5. Furqan Hassan et al., (2019), Furqan Hassan concludes that Both Maitland's oscillatory mobilization and Kaltenborn's sustained stretch mobilization techniques are found to be effective in the management of cervical radiculopathy in terms of pain, range and disability. However, Maitland's mobilization is found to be superior to Kaltenborn's mobilization in terms of functional ability and improvement in cervical range of motion, however, no significant differences in terms of pain and range of motion in cervical lateral flexion were observed.

INCLUSION CRITERIA:

- Age group 40-60 years
- Both the genders
- Persistent pain more than 3 months
- Limitation of movements (uni or bi-directional flexion with lateral rotation limitation)

EXCLUSION CRITERIA:

- Recent history of trauma
- Rheumatoid conditions
- Recent spine surgery
- Patient undergoes corticosteroid injection

STATISTICAL ANALYSIS:

The collected data was tabulated and analyzed. The Paired t-test was used to analyse the significant changes between pre-test and post-test measurements. Unpaired 't' test used to calculate the difference between the post-test values of Experimental therapy group and Control group.

RESULTS

From the statistical analysis made with the quantitative data revealed statistically significant differences between the experimental group and control group and also within the group. Statistical analysis of the samples reveals that there was a statistically significant difference between pre-test and post-test values.

Table-1: Comparison of pre-test and post-test values of VAS SCORE for

Experimental Group & Control Group

VAS SCORE		Mean	Standard deviation	t value	p value
Experimental Group	Pre test	7.80	0.77	29.9333	< 0.0001
	Post test	4.60	0.91		
Control Group	Pre test	7.80	0.77	12.4353	< 0.0001
	Post test	6.00	0.65		

Graph- 1: Comparison of pre-test and post-test values of VAS SCORE for Experimental Group & Control Group

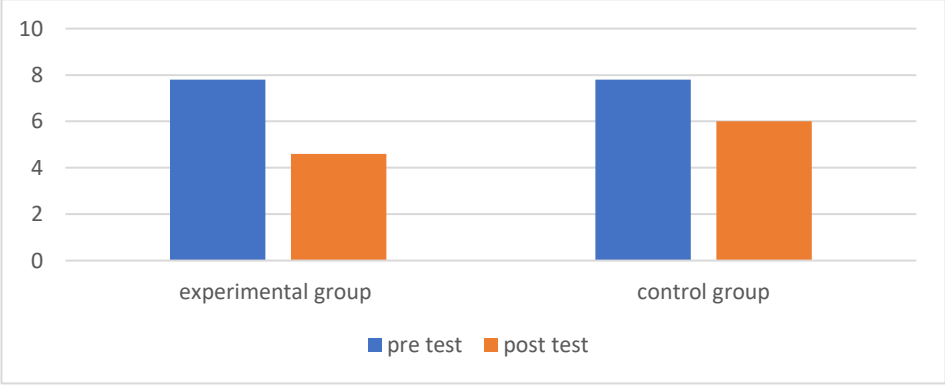
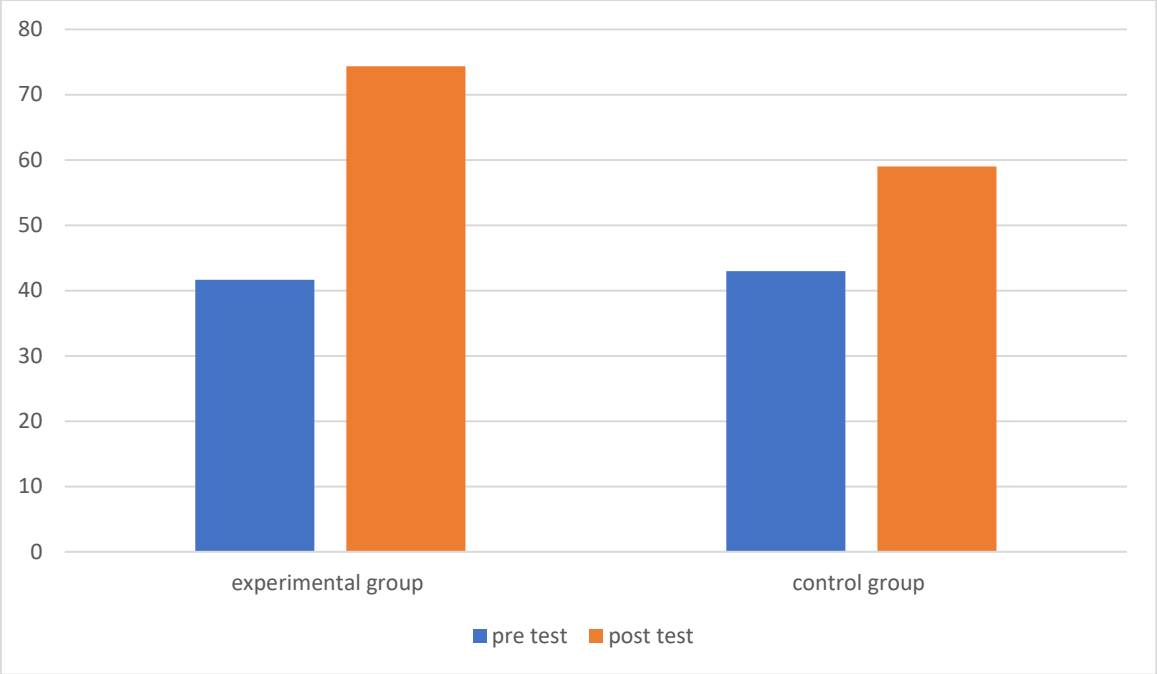


Table-2: Comparison of pre-test and post-test values of GONIOMETER for Experimental Group & Control Group

GONIOMETER		Mean	Standard deviation	t value	p value
Experimental Group	Pre test	41.67	5.88	23.8690	<0.0001
	Post test	74.33	4.58		
Conntrol Group	Pre test	43.00	5.28	10.2670	<0.0001
	Post test	59.00	5.73		

Graph- 2: Comparison of pre-test and post-test values of GONIOMETER for Experimental Group & Control Group



DISCUSSION:

The study's goal is to look into the impact of kaltenborn mobilization technique with interferential therapy on improving range of motion and reducing pain in people who have cervical spondylosis.

According to Faria Riaz et.al.,in 2018 in BLDE University journal of health sciences he concluded that A prevalent medical condition brought on by illnesses or biomechanical issues is cervical spondylosis. Growing older and a lack of physical activity can both contribute to an increase in symptoms. muscles constrict, limiting the range of motion in the neck. Using continuous traction, compression, and glides in translatory movement, Kaltenborn procedures are utilised to alleviate discomfort, enhance ROM, and lessen pain. It entails passive movements with lower velocities at the joint's limit or in the range of motion limit of the joint. [17]

Cervical spondylosis, a degenerative arthritis is the most common in the Middle-aged individuals due to wear and tear of spinal discs. Causes due to increase of ageing which results in decreased mobility and leads to neck stiffness. In order to decrease stiffness, kaltenborn mobilization along with Interferential therapy can helps to reduce stiffness over cervical spine and also improve range of motion of cervical spine among cervical spondylosis individuals. Also, the collected data stated that using kaltenborn mobilization along with interferential therapy is effective to improve mobility and range of motion of cervical spine. Therefore, for the individuals with cervical spondylosis using both the interferential therapy and kaltenborn mobilization is effective.

CONCLUSION:

The results and the data obtained from this research was statistically signified and can be concluded that there was a definite and positive effect of Kaltenborn mobilization technique for cervical spondylosis individuals. Cervical spondylosis can be avoided by combining Kaltenborn mobilisation with interferential treatment.

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