

A statistical evaluation of mechanical and segmental traction in patients of cervicalgia

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Objective: To find out effectiveness of segmental traction as compared to mechanical traction.

Methodology: This randomized control trial was carried out at the Department of Physiotherapy Sheikh Zayed Hospital Rahim Yar Khan. Non-Probability, purposive sampling technique was used for sample selection. Out of 70 cases, 35 were randomly taken in Mechanical traction (Group A) and 35 in segmental traction group (Group-B). Data was analyzed using SPSS v 16.

Results: Mean age of patients in Group-A and Group-B was 36.11 ± 6.07 and 34.65 ± 4.73 years. Mean pain score at different interval showed that in both groups pain was reduced with the passage of time and both treatments were effective for pain

reduction. However, in Group-B pain was significantly reduced as compared to Group-A ($p < 0.05$). Also, in Group-B patients were more satisfied with their treatment as compared to patients in Group-A ($p < 0.05$).

Conclusion: Pain reduction and patient satisfaction regarding final outcome were significantly improved in segmental traction group. It is concluded that segmental traction was better as compared to mechanical traction for the treatment of cervicalgia. (Rawal Med J 2013;38:260-262).

Key words: Posterior Neck pain, anterior neck pain, cervicalgia.

INTRODUCTION

Cervicalgia is neck pain toward the rear or the side of the cervical vertebrae. It covers a wide-ranging neck pain origins, including whiplash, muscle strain, ligament sprain, and inflammation of the neck joints.¹ The prevalence of cervicalgia is 23.6%.² The pain may also be associated with symptoms like arm fatigue, headache, dizziness, generalized weakness, tingling, etc. Intensity of pain, its location and nature (dull, sharp, constant, intermittent) as well as anxiety levels of patients may determine the duration and chronicity of disease.³ Exercise, behavioral interventions and various occupational therapies are recommended along with medication to overcome the problem.⁴

Conservative management has proved to be effective in this regard though studies focusing on them are few. Segmental traction and mechanical traction has a mix review as segmental traction has a strong proponent circle with high recovery rates of patients. The reported improvement is 81% with mild to moderately severe cervicalgia after segmental traction.⁵ This study aims to compare these two techniques for better management of patients.

METHODOLOGY

The study was conducted at the Department of Physiotherapy Sheikh Zayed Hospital Rahim Yar Khan, Pakistan. A Non-Probability convenient sampling criterion was used for selection of sample and patients were randomized and study lasted for 6 months. Out of 70 cases, 35 were in each group; calculated with 95% confidence level, 3% margin of error and taking prevalence of cervicalgia as 23.6%.² In Group A patients were treated with mechanical traction while in Group B they were treated with segmental traction. Both genders in age group of 25-45 years were included while patients with history of previous steroid intake, spinal tuberculosis and/or any traumatic history were excluded from the study. Informed consent was obtained from each patient or attendant.

After recording demographic details (name, age, gender, height, weight), patients were assigned to two groups using lottery method. Pain was measured on visual analogue scale (VAS). Satisfaction level was measured as per the subjective feelings to the patients. Follow up was done for 4 weeks. Segmental or Mechanical Traction was applied to subjects of relevant groups

according to guideline criteria developed by Erhard.¹⁶ A traction force sufficiently high to decrease the symptoms in resting position or actual resting position of cervical spine was used. For Group A, sustained maximum poundage ranging from 6 to 16 Lbs. were used for duration of 15 minutes. For Group B, a specific subjective assessment was made and manual force was applied by the therapist at individual segment (one spinal segment includes two vertebral bodies with intervertebral disc and facet joints) of the cervical spine using a hold time of 30 to 90 seconds with maximum 3 repetitions per session. Subjects were monitored throughout the traction treatment procedure to make sure that the symptoms did not aggravate.

Data were analyzed through SPSS v 16.0. Repeated measurement ANOVA was applied to compare the mean difference of quantitative variables in both groups and over a period of follow up respectively. Chi-square test was applied to compare the difference of qualitative variables. A $p \leq 0.05$ was taken as significant.

RESULTS

Mean age of patients in Group A was 36.11 ± 6.07 and in Group B it was 34.65 ± 4.73 years. In Group A, 14 patients were male and 21 were female while in Group B 16 patients were male and 19 were females. Before treatment pain score in Group A and in Group B was 6.45 ± 0.85 and 5.97 ± 1.42 , respectively. At 1st week in both groups, it was 5.74 ± 1.17 and 4.02 ± 1.27 and at 2nd week pain in both groups was 4.71 ± 1.36 and 2.51 ± 1.17 respectively. At 4th week mean pain score in both groups was 3.82 ± 1.56 and 1.14 ± 0.91 , respectively. At 6th week pain score in both groups was 3.54 ± 1.59 and 0.37 ± 0.59 , respectively. In Group B pain level was significantly reduced as compared to Group A ($p=0.000$ both for pain relief overall and for individual group). At the end of treatment, 12 (34.28%) were recovered in Group A and 34 (97.14%) recovered in Group B ($p=0.000$). Group B patients were more satisfied with their treatment as compared to patients in Group A.

DISCUSSION

Neck pain and disability related to it have massive and destructive influences on sufferers as well as their families and may cost heavily on communities, health-care systems and businesses.^{6,7} Their capabilities in work, social and sporting activities and other movements get reduced.⁸ A number of studies provide evidence that indicates a higher prevalence of neck pain among women compared with men.⁸⁻¹⁰

In current study male to female ratio presenting with cervicalgia was 1: 2 indicating that women suffered more from cervicalgia as compared to men. This may be related to environmental and personal factors.^{6,7} The risk factors for cervicalgia have an occupational aspect too, including duration of sitting, duration of twisting and also winding the trunk in working postures.¹¹ Ariens et al¹² showed that high quantitative job demands (e.g. working under time pressure or working with deadlines) having low co-worker support are independent risk factors for neck pain. Many mechanical interventions studies for prevention of neck pain in the work place have failed to demonstrate any benefit, except for exercises, which modestly reduce the future incidence of neck pain and work absenteeism.¹³

Two patients reported headaches following traction. Although literature shows the possibility of other unsafe effects, such as nausea, fainting and injury to tissue when implementing mechanical traction,¹³ in our study side effects were not noted in both groups. Greater pain reduction was seen in Group B patients. Thus, segmental traction in our study provided a superior pain reduction compared to mechanical traction. This has been confirmed by a systematic review of mechanical traction for cervicalgia.^{14,15}

CONCLUSION

In pain reduction, final outcome (recovered/not-recovered) and patient satisfaction, segmental traction was better as compared to mechanical traction for the treatment of cervicalgia. There is lack of good quality research on traction (Mechanical/Segmental) that demands more in

depth studies particularly randomized controlled trials.

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