

The Effects of Manual Therapy and Therapeutic Exercise on a Young Patient with Chronic Cervicogenic Headaches: A Case Study

Abstract

Background: It has been reported that 21% of boys and 26% of girls aged 10-17 experienced head or facial pain once per week, therefore, it is crucial for a clinician to be able to identify the source of the noxious stimuli in order to properly treat each case. Cervicogenic headaches are often the result of referred signals from the cervical spine, such as structures that are innervated by spinal nerves C1-C3, including the upper cervical synovial joints, upper cervical muscles, and the C2-C3 disc. Because of the debilitating nature of this condition, clinicians should identify the root cause in a time-effective manner to be able to provide an effective treatment. Due to the low effectiveness of pharmacological treatment, CGH are often managed using conservative methods, such as physical therapy. The purpose of this study is to examine the effects of therapeutic exercise and manual therapy on a 17-year-old female with chronic and functionally debilitating cervicogenic headaches, which limited the patient's ability to attend and participate in regular school hours.

Methods: Self-report outcome measures were used to evaluate the patient's average pain level and functional capabilities throughout the 15-visit treatment sessions over the course of 6 weeks, including Focus on Therapeutic Outcomes (FOTO), Numeric Pain Rating Score (NPRS), and the Headache Disability Index (HDI). Physical measurements included cervical range of motion (ROM), upper extremity (UE) resistance testing, thoracic joint mobility, and palpation of upper cervical, paraspinal, and upper trapezius muscle tension. Each session was initiated with moist heat to the upper trapezius bilaterally, followed by manual therapy techniques such as cervical distraction, prone thoracic mobilizations, and soft tissue massage to the cervical and shoulder musculature. Therapeutic exercise focused on strengthening of the upper back and shoulder musculature to improve daily posture.

Results: By the end of the 15th session, the NPRS score demonstrated the most significant improvement from baseline, decreasing from 7/10 on average to 3/10. The FOTO and HDI showed minimal improvements (FOTO: 63%-61%; HDI: 60%-56%). No significant changes in cervical ROM, or UE strength were noted. No palpable changes in muscle tension were noted, however, the patient reported a decreased sensitivity to soft tissue massage by the 15th session. Subjectively, the patient reported a drastic decrease in overall pain levels since baseline, allowing her to complete ADLs, return to school, and improve her quality of life, which has been a positive factor on her mental health. These functional improvements were verbally emphasized by the patient despite the lack of changes in the FOTO, HDI or physical exam.

Discussion: At baseline, the patient reported symptoms of cervicogenic headaches for 4 months, stating that she was only able to attend school 4 days since the onset due to pain levels. By the end of the 15th session, she reported a return to school and social activities, which have drastically improved her mental health status. With the disconnect between subjective

reports and outcome measure results, further research is needed to determine the validity of the FOTO and HDI. Further, the lack of improvement in physical impairments in combination with the patient's increased physical function calls for additional exploration. Limitations in this study include time restraints due to commitments to other patients in the outpatient facility, as well as delayed application of certain manual therapy techniques. This case report highlights the effectiveness of manual therapy and therapeutic exercise on a young patient with severe cervicogenic headache symptoms. Further research in this field would be appropriate to determine the true efficacy of this treatment method with a patient population aged less than 18-years-old.

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