Journal of Pain & Relief
ISSN: 2167-0846

Mini Review Open Access

Proposition of a New Cervical Spine Manipulation

Ahasan R*

Department of Medicine and Health Sciences, Universiti Sultan Zainal Abidin, Malaysia

Abstract

HVT manipulations regularly improve symptomatology's, such as stiff necks and headaches. Additionally, the HVT technique has been shown to immediately increase the range of motion. The range of motion induced by the practitioner during the HVT manipulation is a result of the moment of force applied and generally represents a major risk for adverse effects, especially in the cervical spine. Risk factors for adverse effects can be categorised as extrinsic or intrinsic.

Keywords: Spinal treatment; HVT Manipulation; Physiological rotation; Carotid arteries; Manual medicine; Multiple-component technique

Introduction

The extrinsic factors depend on the manipulative technique used, the competence and skills of the practitioner, the force applied, the amplitudes induced during manipulation, and possibly on diagnostic errors. The intrinsic risk factors could be congenital or acquired abnormalities of the vertebral and/or carotid arteries. Complications can be caused by the excessive force or amplitude of the movement, in one or more directions. Thus, the choice of the HVT manipulation is important. Furthermore, full cervical rotation and traction is one of the most influential positions for vertebral artery compromise [1]. Segmental range of motion during high-velocity manipulative spinal treatment is generally considered an important factor for the risk of adverse side effects, especially in the cervical spine region. Among the many techniques reported, the so-called multiple-component technique is increasingly recommended. Such a technique is assumed to induce a relatively low three-dimensional segmental ROM compared with other techniques. The aims of our study are to quantify the 3D segmental ROM and to determine the pattern of motion between cervical vertebrae during the pre-manipulative position at the C4-C5 level. Ten healthy volunteers participated in this study. Two CT scans were conducted: one in a neutral position and the other in the pre-manipulative positioning. The manipulation using MCT was carried out by a skilled practitioner [2]. During positioning, the head was rotated to the left and bent laterally to the right, and the upper cervical spine was rotated to the left and bent laterally to the right. In contrast, the lower cervical spine underwent right rotation and was bent laterally to the right.

Discussion

Segmental ROM was lower than the values obtained during active physiological rotation. This study provides new insight into the 3D kinematics of the cervical spine during manipulation. An unexpected mechanism of counter-rotation was identified at the lower cervical levels and could represent a valuable and convenient way for precisely focussing on the level for manipulation. High-velocity thrust cervical spine manipulation is largely used in many manual therapies, such as osteopathy, manual medicine and chiropractic. Thiel and Bolton estimated the number of treatments involving cervical spine manipulation performed by the members of the British and Scottish Chiropractic Associations over a one-year period to be approximately 2.25 million [3]. In Canada, chiropractors delivered close to 135 million neck manipulations over a 10-year period between 1988 and 1997, and in the United States, between 18 and 38 million such treatments are performed on an annual basis. The mean axial rotation of the total head-neck movement obtained in our study. The experimental set-ups was also different in both studies. Because of the scarcity of available data concerning 3D segmental ROM, it is impossible to compare our results with other studies [4]. To the best of our knowledge, this is the first study to document the 3D intervertebral cervical spine movement analysis in the pre-manipulative position. In this study, the practitioner using the multiple-component technique at the C4/C5 level positions the head in rotation and lateral fl exion to the opposite side. The left rotation component is usually supposed to turn all cervical spine levels to the left. Simultaneously, the right lateral flexion component bends all cervical spine levels to the right side. At lower cervical segments, this right lateral flexion induces a coupled rotation to the right, despite the left rotation of the head. Even if this coupled axial rotation in fact represents the normal physiological coupled motion pattern at these segments, we can consider it a paradoxical counter-rotation with respect to the rotation of the head. The amplitude of this counter-rotation decrease from C2/C3 to C4/C5 levels; this finding could be a useful mechanism for locking the upper levels and keeping the segment to be manipulated close to the neutral position [5]. Such a mechanism could improve the precision of the manoeuvre. Furthermore, extension was observed in the upper cervical spine and flexion in the lower cervical spine. This model can be compared to a torsional mechanism in the transvers and sagittal planes in which the upper cervical segments turn to one side and the lower ones turn to the other side. The target joint exhibits minimal ROM and is consequently located as close as possible in the neutral zone. Moreover, our experimental model supports the idea that the kinematics of manipulation using MCT are based on the combination of a physiological coupled motion pattern. This result largely contrasts with the classical ancient theory of HVT that used the end of range of motion, often with rotation and traction. Our experimental model seems to support the theoretical model of

***Corresponding author:** Ahasan R, Department of Medicine and Health Sciences, Universiti Sultan Zainal Abidin, Malaysia, Tel: 01096658236, E-mail: ahasanr123@gmail.com

Received: 28-Mar-2023, Manuscript No. JPAR-23-95843; **Editor assigned:** 30-Mar-2023, PreQC No. JPAR-23-95843(PQ); **Reviewed:** 13-Apr-2022, QC No. JPAR-23-95843; **Revised:** 18-Apr-2023, Manuscript No. JPAR-23-95843 (R); **Published:** 25-Apr-2023, DOI: 10.4172/2167-0846.1000498

Citation: Ahasan R (2023) Proposition of a New Cervical Spine Manipulation. J Pain Relief 12: 498.

HVT proposed by Evans and Breen in which the vertebral segment at which the practitioner wishes to produce cavitation should never be locked MCTs, which are most likely more challenging in execution, could represent an interesting alternative by maximising the number of degrees of freedom, minimising the ROM and thus decreasing the risk of adverse side effects. This study has several limitations [6]. For ethical reasons, our experimental protocol is limited to a between subjects approach, not a within-subject design, which would have been the optimal approach. Thus, the sample size is limited to 10 subjects in each group. As only one practitioner performed the pre-manipulative positioning on all subjects, inter-practitioner reliability remains unknown. In addition, participants were rather young. As general stiffness, especially in the area of the cervical spine, varies with age, the measured ROM in this study can be expected to be different from subjects of another age. Furthermore, gender differences were not considered in this study. For technical reasons, the manoeuvre is constrained to execution in the supine position. Hence, the results of this study cannot be generalised to other techniques or other cervical spine levels, whether in the supine or in other positions [7]. Moreover, we still ignore the amplitudes at the very moment of the audible release when the cavitation phenomenon is thought to happen. Finally, this study was restricted to the quantification of 3D kinematics within two positions only and does not account for continuous motion between these positions. If segmental 3D ROM during the pre-manipulative positioning is low with respect to the physiological axial rotation, soft-tissue stress can also be expected to be lower. This study does not address any soft-tissue stress. This study is the first to address 3D segmental ROM of the cervical spine in vivo during pre-manipulative positioning. It provides new insight into the 3D kinematics of the cervical spine during this manoeuvre. An unexpected mechanism of counter-rotation was identified at the lower cervical levels. This counter-rotation could represent a valuable and convenient way for precisely focussing on the level to be manipulated [8]. The multiple component technique maximises the number of degrees of freedom and could entail a reduction of segmental ROM. This may decrease the risk of adverse side effects of cervical spine manipulation. Segmental ROM was lower than the values obtained during active physiological rotation. The left supportive hand holds the chin and slightly turns the head to the left with lateral flexion to the right. The right articular pillar of the C4eC5 level is contacted by the radial edge of the MCP joint of the right index. Rotation and lateral flexion of the head are adjusted, and the head is placed in light extension. The practitioner exerts pressure on the articular process until it reaches the end-feel barrier. The definition of the anatomical coordinate system using virtual anatomical markers: The Z-axis passes by the posterior tubercle of the transverse process and is pointed to the right. The X-axis is anterior-posterior, passes by the spinous process of the vertebra and is oriented anteriorly, and the Y-axis is orthogonal to the two other axes and points upwards. Osteopathic medicine's founder, Andrew Taylor Still, originally intended for his form of medicine to utilize only a select few medications in certain situations at its conception in the 1800s [9]. However, osteopathic medicine is science-based and has greatly evolved since then. During its evolution, osteopathic medicine has incorporated varied modalities of care, including pharmaceutical drugs. Since 1929, pharmacology and the use of prescription medication have been taught in all osteopathic medical schools. While osteopathic manipulative medicine bears some similarity to chiropractic, the two fields of health care represent completely different and separate schools of thought and practice, and have since each was conceived in the late 1800s. Both American osteopathic physicians and non-U.S. osteopaths call themselves DOs. American practitioners are Doctors of Osteopathic Medicine, and European practitioners have a Diploma of Osteopathy. There is, thus, some confusion regarding the difference between U.S osteopathic physicians and osteopaths trained in other countries. Osteopaths are not physicians. Their training focuses on the musculoskeletal system and they are not licensed to prescribe medications or perform surgeries. They are trained primarily in the practice of osteopathic manipulative techniques [10].

Conclusion

Conversely, U.S.-trained osteopathic physicians are fully licensed to practice the entire scope of modern medicine. Although you may hear U.S.-trained osteopathic physicians being referred to as osteopaths, most prefer the term osteopathic physician practicing osteopathic medicine in order to distinguish themselves from foreign-trained osteopaths practicing osteopathy.

Acknowledgement

None.

Conflict of Interest

None.

References

1. Nadler SF, Weingand K, Kruse RJ (2004) The physiologic basis and clinical applications of cryotherapy and thermotherapy for the pain practitioner. Pain Physician US 7:395-399.
2. Trout KK (2004) The neuromatrix theory of pain: implications for selected non-pharmacologic methods of pain relief for labor. J Midwifery Wom Heal US 49: 482-488.
3. Cohen SP, Mao J (2014) Neuropathic pain: mechanisms and their clinical implications. BMJ UK 348:1-6.
4. Mello RD, Dickenson AH (2008) Spinal cord mechanisms of pain. BJA US 101:8-16.
5. Bliddal H, Rosetzsky A, Schlichting P, Weidner MS, Andersen LA, et al. (2000) A randomized, placebo-controlled, cross-over study of ginger extracts and ibuprofen in osteoarthritis. Osteoarthr Cartil EU 8:9-12.
6. Maroon JC, Bost JW, Borden MK, Lorenz KM, Ross NA, et al. (2006) Natural anti-inflammatory agents for pain relief in athletes. Neurosurg Focus US 21:1-13.
7. Birnesser H, Oberbaum M, Klein P, Weiser M (2004) The Homeopathic Preparation Traumeel® S Compared With NSAIDs For Symptomatic Treatment Of Epicondylitis. J Musculoskelet Res EU 8:119-128.
8. Ozgoli G, Goli M, Moattar F (2009) Comparison of effects of ginger, mefenamic acid, and ibuprofen on pain in women with primary dysmenorrhea. J Altern Complement Med US 15:129-132.
9. Raeder J, Dahl V (2009) Clinical application of glucocorticoids, antineuropathics, and other analgesic adjuvants for acute pain management. CUP UK: 398-731.
10. Świeboda P, Filip R, Prystupa A, Drozd M (2013) Assessment of pain: types, mechanism and treatment. Ann Agric Environ Med EU 1: 2-7.