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1. Introduction

In 2003, The CCA•CFCRB-CPG committed to an ongoing process of development, dissemination, implementation, evaluation, and revision of the guidelines it is producing on behalf of the Canadian chiropractic profession. This commitment was described in the DevDIER plan.[1] In keeping with this commitment, an Evidence Monitoring Committee (EMC) tracks emerging evidence and the implications of evidence-related feedback about each guideline after its publication, and recommends to The CCA•CFCRB-CPG appropriate action (work method details can be found online[2]). This update is the result of this work. This update applied the evidence rating method used in the original guideline,[3] as adapted from the Oxford Centre for Evidence-based Medicine (OCEBM) levels of evidence.[4] Accordingly, results and recommendations reported here are of Level 5 caliber unless otherwise noted.

2. Noted change

Table 3b of the 2005 *Chiropractic clinical practice guideline: evidence-based treatment of adult neck pain not due to whiplash*[3] lists risk factors that are absolute contraindications to cervical manipulation (and possibly mobilization). Listed under neurologic difficulties or symptoms, the absolute contraindication in Table 3b, "evidence of involvement of spinal nerve root caused by space-occupying lesions," should be changed to "Spinal cord compression, or nerve root compression with increasing neurologic deficit."

3. Rationale

The GDC discussed the implication of feedback questioning the validity of "evidence of involvement of spinal nerve root caused by space-occupying lesions" being an absolute contraindication to high velocity, low amplitude (HVLA) cervical manipulation. The feedback suggested HVLA manipulation was warranted in the presence of disc lesions where neurologic involvement was not progressive.

This is an ambiguous topic. For example, Browder and collegues[5] recently reported using intermittent cervical traction and manipulation of the thoracic spine, to manage 7 (acute and chronic) cervical pain patients with grade 1 cervical compressive myelopathy attributed to a herniated disc; treatment showed benefit with no adverse events. However, the manipulative treatment was outside of the anatomic area of the lesion. In addition, the authors concluded that "A thorough neurological screening exam is recommended prior to mechanical treatment of the cervical spine."

Concern about overstating the case for a contraindication to cervical HVLA manipulation is appropriate; incorrectly naming all space-occupying lesions absolute contraindications needlessly curtails patients benefitting from treatment where there is no legitimate contraindication. Evidence of benefit where there is a non-contraindicated disc lesion includes case studies of cervical

Table 3b-rev1: Risk factors that are absolute contraindications to cervical manipulation (and possibly mobilization)

Risk factor (occurs or has its effect in the neck unless otherwise noted) READ TEXT SECTION 5.3.1.1 TO INTERPRET PROPERLY	Contraindicates manipulation in area of ...	Adapted from reference #
History of cervical artery dissection	neck	Appendix 1
Active or existing VAD or CAD	neck	
Active cervical spine cord injury	neck	Appendix 2
Symptomatic, significant, extracranial carotid stenosis	neck	
Acute cardiac disease (e.g., unstable angina, atrial fibrillation, stages 3 or 4 congestive heart failure [both atria involved], acute MI, atrial fibrillation)	neck	
Cardiac abnormalities that predispose to thrombus formation, because of potential for thrombi to be present in cervical arteries	neck	
Contact with integumentary lesions	region*	107
Active inflammatory arthritides	region	95, 135, 195–197
Mediolytic arteriopathy with widespread mucoid degeneration and cystic transformation of the vascular wall (caused by segmental degeneration of smooth muscle cells of the tunica media)	neck	198
Patient positioning cannot be achieved because of pain or resistance	neck	95, 135
Known malingering	neck	196
Somatoform disorder with no physical involvement	neck	196
Hypochondriasis without a legitimate complaint	neck	196
Neurologic difficulties or symptoms	neck	135, 198
Spinal cord compression, or nerve root compression with increasing neurologic deficit	neck	135
Cervical myelopathy	neck	135
Pathology resulting in bone/joint/ligament weakening/malformation (e.g., osteogenesis imperfecta), including iatrogenic syndromes (e.g., those caused by prolonged corticoid use)[95,135]	region	39, 93, 95, 135, 195, 196, 199–202
Moderate or severe (involves rupture/tears of ligaments/muscles/tendons) sprains and strains	region	196
Acute or unhealed cervical spine fracture	neck	98, 119, 195, 203, 204
Infection (e.g., discitis, osteomyelitis, tuberculosis) localized to the neck	neck	95, 135, 195, 196
Congenital disorders leading to instability of the involved area (e.g., dysplasia, unstable os odontoideum)	region	135, 205
Obvious misalignment of greater than 3 mm of translation	region	195
Ossification of the posterior longitudinal ligament	region	195
Miscellaneous		
Malignant thyroid tumors (to avoid metastases)	neck	196
Malignancy involving the cervical spine	neck	95
Hereditary disorders of connective tissue (Ehlers-Danlos Type III, Marfan syndromes)	neck	103, 206, 207
Chronic calcium deposit in the cervical musculature	neck	208
Gout	region	95
Failed back surgery syndrome (FBSS) related segment fusion or instability	region	209

*Area of involvement of the factor, as estimated by the practitioner based on practice experience and expertise.

manipulation: in a patient with a magnetic resonance imaging (MRI) diagnosed C6–7 herniated nucleus pulposus;[6] in a patient with cervical radiculopathy associated with an MRI-diagnosed C6–7 herniated disc (posterior and lateral herniation);[7] in a patient subsequent to unsuccessful surgery for cervical disc herniation;[8] and, in 3 patients with MRI-diagnosed cervical disk herniation confirmed by neurophysiologic testing.[9] More convincingly, across 27 patients with MRI-diagnosed, symptomatic, herniated cervical or lumbar discs, a multi-modal treatment including spinal manipulation was associated with a benefit considered "good" in 80% of patients.[10] Ultimately, MRIs showed that 63% of patients had a reduced or resorbed disc herniation. The statistical significance of outcomes was not clear, but a return-to-work rate of 78% suggested the outcomes were clinically significant.

The GDC discussed this issue at length. Consideration was given to the underlying reason space-occupying lesions were of concern; cord compression. For example, progressive disc herniation, tumors or vascular involvement each possesses the potential to compress the grey or white matter of the cord as facet joints are put under rotational strain, and the subarachnoid or epidural spaces compromised. Considering the treatment of neck pain with cervical manipulation, the GDC ultimately agreed with Gibbons and Tehan[11] in concluding that it is only specific space-occupying lesions that are neurologic contraindications; specifically where there is cervical myelopathy, overt spinal cord compression, or nerve root compression with an increasing neurologic deficit.

This conclusion is congruent with cases where spinal manipulation has been used to treat conditions of the lumbar spine without evidence of cord compression. For example: in a patient with post-surgical chronic cauda equina syndrome;[12] in a patient with lower back pain associated with leg pain and neurologic defici;[13] in a review of cases of lumbar disc herniation from the Back Pain Clinic at the Royal University Hospital (Saskatoon), treated with side-posture manipulation;[14] and, in a randomized double-blind trial,[15] which suggested manipulation (53 patients, maximum of 20 sessions at a rate of 5 per week) was better than simulated manipulation (49 patients) for treating symptomatic acute back pain and sciatica with disc protrusion. In the latter study, manipulation was associated with significantly more pain-free cases, less intensity of local or radiating pain, and less days with any, moderate or severe pain – in the short, medium and long term {L–2b}. Interestingly, manipulation did not improve quality of life or psychosocial scores differently than the sham treatment {L–2b}, suggesting a placebo response to the sham.

As a result, the following Table3b-rev1 should supercede the Table 3b included in the published guideline[3] (reference numbers remain the same). The rating of the evidence underlying this recommendation is Level 5.

4. References

1 The Canadian Chiropractic Association and the Canadian Federation of Chiropractic Regulatory Boards Clinical Practice Guideline Development Initiative (The CCA•CFCRB-CPG) development, dissemination, implementation, evaluation, and revision (DevDIER) plan. J Can Chiropr Assoc. 2003; 48(1):56–72.

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3 Anderson-Peacock E, Blouin JS, Bryans R, Danis N, Furlan A, Marcoux H, Potter B, Ruegg R, Gross Stein J, White E; Guidelines Development Committee (GDC), The Canadian Chiropractic Association and the Canadian Federation of Chiropractic Regulatory Boards, Clinical Practice Guidelines Development Initiative (The CCA•CFCRB-CPG). Chiropractic clinical practice guideline: evidence-based treatment of adult neck pain not due to whiplash. J Can Chiropr Assoc. 2005; 49(3):158–209.

4 Oxford Centre for Evidence-based Medicine. Oxford Centre for Evidence-based Medicine Levels of Evidence (May 2001). Oxford (UK). 2001 [cited 2006 July 3]. Available from: http://www.cebm.net/levels_of_evidence.asp

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15 Santilli V, Beghi E, Finucci S. Chiropractic manipulation in the treatment of acute back pain and sciatica with disc protrusion: a randomized double-blind clinical trial of active and simulated spinal manipulations. Spine J. 2006; 6(2):131–7.