

THE CHIROPRACTIC REPORT

Editor: David Chapman-Smith LL.B. (Hons.)

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PROFESSIONAL NOTES

Adjusting Blood Pressure

The *Journal of the Autonomic Nervous System* has just published the first study measuring heart rate and blood pressure continuously during manipulation – a study from the Tokyo Metropolitan Geriatric Hospital and RMIT University School of Chiropractic, Japan. Previous studies have taken measurements before and after manipulation which is invalid, since blood pressure varies spontaneously second by second.

Ten subjects each received 30 minute sessions of increasing mechanical stimulation to the neck, commencing with light palpation and passive rotation and progressing to left and right cervical manipulation “consisting of holding the neck at the physiological limit of rotation and applying a quick, light thrust to the intervertebral joints to produce an audible cavitation.” Interestingly, the only form of stimulation associated with “significant changes in both systolic and

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CERVICAL ADJUSTMENT

Rotation is Fine, Pre-testing is Out, but Get Consent

A. INTRODUCTION

IN recent years there has been a growing consensus of opinion that cervical adjustment techniques with rotation and extension should be avoided because of their increased risk of cerebrovascular accident (CVA). Similarly, provocative tests holding the cervical spine in rotation and extension should be performed as a pre-manipulative screening procedure.

More radical opinion has been that joint mobilization (techniques staying within the passive range of motion) should be used before manipulation (techniques adding thrust to take the joint beyond the end barrier into the parapsychological space) because the former, although having less evidence of effectiveness, may be safer.

2. Two new studies of major clinical and legal importance challenge all of this:

1) A literature review from Haldeman et al published in *Spine*,¹ by far the most exhaustive review to date on neck movements and vertebral artery dissection, concludes:

- no neck position or movement, and no form of cervical manipulation, has been shown to increase the risk of cerebrovascular accident (CVA).
- Until there is more evidence and knowledge, no adjustment technique can be said to have more risk, no patient can be seen to be at higher risk because of predisposing factors, and CVAs after any neck movement, trauma or manipulation should simply be seen as “a rare, random, unpredictable complication associated with these activities.”

2) A multidisciplinary study by Licht et

al from the University of Odense, Denmark² reports that:

- DeKleyn’s test, using extension and rotation to provoke dizziness or other signs of vertebral artery insufficiency, has no effect whatsoever on blood flow in the vertebral arteries, even with patients where the test is positive.
- Where the test is positive patients can generally be safely adjusted with good clinical results and no complications.

This issue of the Report discusses these studies and their significance for practising chiropractors.

B. RISK FACTORS, PRECIPITATING EVENTS AND CVA

3. The new study in *Spine* is by neurologist Scott Haldeman MD DC PhD, Department of Neurology, University of California, Irvine, Frank Kohlbeck DC, a graduate student in public health at the School of Public Health, UCLA, and Marion McGregor DC MSc, a chiropractic researcher and epidemiologist from Texas. It involves a review of all English-language literature up to 1993 relating to risk factors and causes of vertebral artery dissection or occlusion and stroke.

This study yielded 367 reported cases of stroke and 211 references, which were then subjected to expert review. Key observations and findings include:

- a) Cerebrovascular accidents from vertebral artery dissection (CVAs) can be an unexpected and devastating cause of stroke. However they are extremely rare – giving rise to only 1.3 in 1000 cases of stroke. “A major medical center cannot expect to see more

than 0.5 to 3 cases in a year, a number of cases that is simply insufficient for a detailed analysis of risk factors and precipitating events.”

This is the source of the current problem of unsubstantiated opinions on risk factors (e.g. hypertension, oral contraceptive use, smoking) and precipitating events (e.g. various neck positions, various activities, different forms of cervical manipulation, etc). These opinions have been “the result of extrapolation or generalization from single case reports or small case series.” The purpose of this paper was to obtain the largest body of data possible to test these largely anecdotal opinions.

b) 43% of the 367 reported cases follow no known precipitating event and are thus labelled ‘spontaneous’. Of those with identifiable trauma 16% are trivial, involving normal sporting activities, walking, household chores, turning the head while driving, coughing, etc. For a more complete list see Table 1.

Accordingly 6 in 10 (59%) of CVAs have a trivial cause.

c) The other 41% of cases have been attributed to cervical manipulation (31%) and major trauma (10%) – motor vehicle accidents, significant sports injuries, lifting injuries, etc. The facts of various individual cases make it plain that manipulation can be the proximate cause of CVA. Haldeman et al suggest that it may not be the underlying cause, or even a cause, in many cases where it is assumed to be. Patients may have had spontaneous dissection from minor trauma, and consulted a practitioner with the resulting symptoms of neck pain or headaches. Spinal manipulation is then “administered to patients who already had spontaneous dissection in progress”.

This conclusion is supported by a compelling argument. If the primary cause of CVA was cervical manipulation, or indeed any specific head position or movement or trauma, “considerably more cases could be anticipated”. There are about 250 million office visits to chiropractors in the US each year and millions of whiplash injuries, falls and other activities causing violent movements to the head and neck, but very few

CVAs. This suggests that there may be “some unique factor that causes certain people to be at risk.”

d) Interestingly, new research suggests that some patients may have a disorder “that increases the fragility of the vertebral arteries to trauma”. There have been “recent reports of specific ultrastructural aberrations in connective tissue” and “a unique . . . Type 1 collagen tissue disease” in patients with spontaneous cervical artery dissection.

e) In 61% of cases where manipulation was assumed to be the cause of CVA there was no description of the technique. Of the remaining 39%, 28.7% had some element of rotation. Doesn’t that mean that rotation carries additional risk? The authors say no for two reasons:

i) Dissections have occurred during other manipulative movements – traction, range-of-motion movements, passive mobilization, flexion and extension. Additionally, various of the other ‘trivial trauma’ CVAs have involved movements other than rotation – e.g. ceiling painting and tamponing after a nose bleed.

ii) “Rotation is the most common cervical spinal manipulation procedure in use and the largest number of cases would be expected to occur after rotational manipulation, whether it represents the primary movement causing the dissection or not.”

Haldeman et al’s conclusion, clinically and legally important, is that “examination of the data fails to show a consistent position or movement of neck that could be considered particularly dangerous.”

f) If one cannot isolate the neck position or movement that causes most CVAs, whether spontaneous, trivial trauma or manipulative technique, it becomes important to determine why certain people appear to be prone to CVA. Here again the literature provides no answers.

Haldeman et al note:

i) “The most logical explanation for dissection would be intrinsic arterial disease” but this is not supported as a risk factor by the literature. In a number of cases where post-mortem evaluation of

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the vertebrobasilar arteries has been possible there has not been evidence of disease beyond the dissection.

ii) The most commonly quoted risk factors are hypertension, oral contraceptive use and smoking. However the percentage of cases where each of these factors is present is no higher than the prevalence in the general population. Some investigators suggest that migraine is a factor – again the prevalence is no higher than in the general population.

Haldeman et al. conclude that “it is impossible based on an analysis of the entire database to consider these conditions to be established risk factors for vertebrobasilar artery dissection”. A large population multi-center prospective study will be necessary to provide any credible evidence.

g) With respect to CVA following manipulation, the potential risk is “reported to be somewhere between 1 in 1.3 million treatment sessions to 1 in 400,000.” More accurate statistics will require a

database of multiple millions of treatments, and studies on this are underway.

On the literature and the above statistics, read dispassionately, is any form of major trauma, minor trauma or manipulation a proven risk factor? The facts are that “vertebrobasilar CVAs can be associated with mundane common activities of daily living” and new evidence raises the possibility that certain people simply have “either an inherited or acquired disorder of unknown origin that increases the fragility of vertebral arteries to trauma.” Haldeman et al’s overall conclusion is that “given the current status of the literature it is impossible to advise patients or physicians about how to avoid vertebrobasilar artery dissection when considering cervical manipulation or about specific sports or exercises that result in neck movement or trauma.”

4. The first reason why health care professionals and the legal community can accept these opinions as authoritative is that they are based on the most thorough literature review to date and one published in the leading health science journal *Spine*. A second reason is the expert qualifications of the authors, particularly the lead investigator Dr. Scott Haldeman. Academically he has formal qualifications in neurology, neurophysiology and chiropractic, is widely published, and is on the editorial boards of major journals. Professionally he is a past president of the North American Spine Society and has held many other professional appointments. Forensically, he has been widely used as an expert witness in the field of CVAs and stroke and is a leading - arguably the leading - expert in this field.

C. PRE-MANIPULATIVE TESTS

5. Because of the possible risk of a CVA following cervical manual therapy, and because of legal considerations, pre-manipulative testing of the function of the vertebral arteries has become common.

There are many different tests – for example Wallenberg’s, Barré-Leiou’s, George’s, Maigne’s, Hautant’s, Underberg’s and DeKleyn’s – but all have the same basis. The head and neck are held in positions of extreme rotation and ex-

tension to provoke symptoms of cerebral ischemia. It is thought that the vertebral artery on the side of the neck opposite to the rotation-extension stretches, and that blood flow is restricted. The test is positive if it provides symptoms of vertebrobasilar insufficiency such as vertigo, dizziness, nystagmus, tinnitus, visual blurring or nausea. This is considered a contraindication to cervical manipulation.

6. Strong doubts had been cast on the legitimacy and value of these tests^{3,4,5} prior to the new study from Licht et al from Denmark.² A Canadian study by Haymo Thiel DC MSc and colleagues from the Departments of Neurology, Radiology and Orthopaedics at the Royal University Hospital, Saskatoon examined Wallenberg’s test, in which the head and neck are held in sustained extension-rotation for at least 30 seconds. In this study:

- 1) Vertebral artery blood flow was measured in a group of normal subjects (number 30, ages 19–40) and a group with a positive Wallenberg’s test and a history of dizziness and other related symptoms during certain positions of the head and neck (number 12, ages 25–68).
- 2) Measurement of blood flow velocity was by Duplex Doppler Ultrasound, a scanning technique which allowed real time imaging of the vertebral arteries.

3) Blood flow was found not to be restricted or impeded during Wallenberg’s test in either normal subjects or those with symptoms of suspected vertebrobasilar insufficiency. Thiel et al concluded that Wallenberg’s test had no validity or reliability as a screen for vertebrobasilar insufficiency. Following a secondary analysis of the data Coté, Thiel et al made a positive recommendation against use of the extension-rotation test as a clinical screen for the risk of stroke caused by neck manipulation.⁵

7. Licht et al’s new study, by an interdisciplinary team of medical and chiropractic researchers and first reported at the World Federation of Chiropractic’s 5th Biennial Congress in Auckland, New Zealand in May, goes further. Patients with a positive pre-manipulative test were subsequently treated with good clinical results. In summary:

- a) Chiropractors in private practice in three Danish counties referred 20 consecutive patients with a positive DeKleyn’s pre-manipulative test to the Department of Clinical Physiology and Nuclear Medicine, Odense University Hospital, for an ultrasound examination of vertebral artery blood flow. In DeKleyn’s test, commonly used in Denmark, the patient’s head is positioned

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Table 1. Description of Trivial Trauma Associated with Vertebrobasilar Artery Dissection/Occlusion Cases

Type of Trial Trauma	Examples	Number of Cases
Sporting activities	Basketball, tennis, softball, swimming, calisthenics	18
Leisure activities	Walking, kneeling at prayer, household chores, sexual intercourse	8
Sustained rotation and/or extension	Wall papering, washing walls and ceilings, archery, yoga	10
Short-lived rotation and/or extension	Turning head while driving, backing out of driveway, looking up	7
Sudden head movements	Sneezing, fair ride, violent coughing, sudden head flexion	7
Miscellaneous minor trauma	Minor fall, “banging” head	2
Miscellaneous	Atlantoaxial instability, postpartum, post-gastrectomy	6
Total		58

Adapted from Haldeman et al, Spine 1999.¹

World Federation of Chiropractic's 5th Biennial Congress – Highlights

The WFC's 5th Biennial Congress held in Auckland, New Zealand from May 18-22, 1999, and co-sponsored by the New Zealand Chiropractors' Association, the Chiropractors' Association of Australia and the World Health Organization, attracted representatives from 36 countries and presented the profession's leading research from all world regions. Highlights included:

1. Membership. National associations from Argentina, Bahamas, Cayman Islands, Chile, Costa Rica, El Salvador, Hungary, Iceland, Japan, Namibia, Peru and Slovenia were admitted into WFC membership. The WFC now represents 69 national associations. Contact addresses in each of these countries, and all other countries where chiropractors are known to be in practice, can be found at the WFC's website www.wfc.org.

2. Policy – Use of Drugs in Chiropractic Practice. Some in the profession have advocated an amended scope of practice to include the use of prescription drugs. Following a three year consultation process the WFC passed the following policy, which represents the clear democratic decision of your profession:

WHEREAS the scope of chiropractic practice includes the management of patients with acute and chronic headache, neck pain and back pain and other neuromusculoskeletal disorders

AND WHEREAS some of these patients may at times benefit from the use of prescription drugs and, as a result, a small minority of chiropractors has advocated seeking an expansion of the scope of chiropractic practice to include rights to prescribe drugs

AND WHEREAS the art, philosophy and science of chiropractic have always emphasized the inherent recuperative power of the body to heal itself without the use of drugs or surgery and the legal scope of practice of chiropractic in all jurisdictions is based upon that premise

AND WHEREAS it is desirable that there be international consistency in the essential components of the practice of chiropractic

NOW THEREFORE the World Federation of Chiropractic resolves that for reasons of chiropractic principle, patient welfare and interdisciplinary cooperation the practice of chiropractic does not include the use of prescription drugs, and chiropractic patients who may benefit from prescription drugs should be referred, where appropriate, to a medical doctor or other suitably qualified health care practitioner.

3. Policy – Definition of Chiropractic. Three years ago Dr. Peter Rome, an Australian chiropractor pointed out to the CAA and the WFC that major dictionaries were using archaic and unacceptable definitions of chiropractic. Following wide consultation, and with virtually unanimous support, the following definition was approved by the WFC Assembly for use in general dictionaries throughout the world:

Chiropractic: A health profession concerned with the diagnosis, treatment and prevention of mechanical disorders of the musculoskeletal system, and the effects of these disorders on the function of the nervous system and general health. There is an emphasis on manual treatments including spinal manipulation or adjustment.

4. Research Awards. 95 original research papers were accepted for presentation at the Congress. They came from all world regions. The four prize-winning papers, all of major interest to clinicians, came from Canada, the US, Australia and Brazil. Awards were presented by Dr. Scott Haldeman, Chair, WFC Research Council and His Honour Judge Donald Inglis, former Chairman of the New Zealand Commission of Inquiry into Chiropractic.

Knee Pain and the SI Joint

First Prize – The Scott Haldeman Award

Effects of Sacroiliac Joint Manipulation on Quadriceps Inhibition in Patients with Anterior Knee Pain: A Randomized Controlled Trial, Esther Suter PhD, Gordon McMorland DC, Walter Herzog PhD and Robert Bray MD, University of Calgary, Canada.

In their practices chiropractors observe that anterior knee pain (AKP) and related inhibition of the knee extensor muscles are frequently associated with sacroiliac (SI) joint dysfunction. SI adjustment then relaxes the extensor muscles and resolves the knee pain.

Suter, Herzog and Bray are from the Departments of Kinesiology and Surgery at the University of Calgary in Canada. In a preliminary study with McMorland, a chiropractor in private practice, they demonstrated a decrease in muscle inhibition (quadriceps) after SI joint manipulation in a series of patients with AKP. The present work was a controlled trial to test whether the increase in muscle function was directly related to the SI manipulation. They found that it was. In summary:

- 1) The subjects were 28 patients with knee extensor muscle inhibition (MI) measured by strength tests (Cybex dynamometer) twitch technique and EMG activity. 5 had had knee surgery, and 17 had received other treatments such as strengthening exercises or electrical therapy without success.
- 2) They were randomly assigned to 1 of 2 groups – 14 to a control group that received a chiropractic lower back functional assessment only (active forward bending, motion palpation, sit-up tests) and 14 to a treatment group that also received a side-posture adjustment of the sacroiliac joint.
- 3) All patients were found to have SI joint dysfunction. In the treatment group there was significant decrease in MI, in the control group there was no significant change. It was concluded

that MI was related to, and was alleviated by, SI adjustment. This research was funded by the University of Calgary, the Canadian Chiropractic Association, the College of Chiropractors of Alberta and CMCC.

Reactions to Childhood DTP and Tetanus Vaccinations

Second Prize

The Effects of Diphtheria-Tetanus-Pertussis (DTP) or Tetanus Vaccination on Allergies and Allergy-Related Respiratory Symptoms among Children and Adolescents in the United States, Eric L. Hurwitz DC PhD and Hal Morgenstern PhD, UCLA School of Public Health and the Los Angeles College of Chiropractic, USA.

Allergic disorders have more than doubled among US children over the past 20 years, and this study from the UCLA School of Public Health and LACC reports that "vaccination may be partly responsible for the increased prevalence of asthma and other allergic hypersensitivity disorders." In summary:

4) It is known that diphtheria and tetanus toxoids and pertussis (DTP) and tetanus vaccinations may induce allergic responses. The objective of this study was to estimate the relationship of DTP or tetanus vaccination and subsequent risk of asthma and other allergies among US children and adolescents.

5) Data came from interviews with parents/guardians of 13,612 children up to age 16, taken in the Third National Health and Nutrition Examination Survey (NAHNES III) conducted between 1988 and 1994. There were questions regarding DTP or tetanus vaccination, lifetime history of asthma, hay fever and severe allergic reactions, and allergy-related respiratory symptoms in the past 12 months.

6) Of the 13,612 subjects, 284 did not receive vaccinations. The chances of having a lifetime history of physician-diagnosed asthma was twice as great among vaccinated subjects, and the odds of having had any allergy-related respiratory symptom in the past 12 months was 63% greater among vaccinated subjects. The association between vaccination and subsequent allergies or symptoms was greatest amongst children between the ages of 5 and 10. (Examples of typical allergies or symptoms were asthma, sinusitis or other sinus problems, allergy-related nose and eye symptoms, wheezing or whistling in the chest and hay fever).

Migraine

Third Prize

A Randomized Controlled Trial of Chiropractic Spinal Manipulation Therapy for Migraine, Peter J. Tuchin GradDip Chiro, Henry Pollard BSc GradDip Chiro and Rod Bonello DC DO, Centre for Chiropractic, Macquarie University, Australia.

This, the best-designed trial of chiropractic management of patients with migraine yet performed, reports a statistically significant improvement in migraine frequency, duration, disability and medication use after chiropractic manipulation in patients with chronic migraine – having suffered from migraine attacks for an average of 18.1 years. In summary:

7) This was a randomized controlled trial with 127 subjects between the ages of 10 and 70 with a diagnosis of migraine according to the International Headache Society (IHS) definitions of migraine with aura (MA) and migraine without aura (MW) - the terms that have now replaced the former terms of classic migraine and common migraine. Subjects also had a minimum of one migraine attack per month. The three stages of the six month trial were two months of baseline data collection (pre-treatment), two months of treatment, and two months of post-treatment data collection.

8) Subjects were randomly assigned to a treatment group (two months of Diversified adjustment at vertebral levels of fixation/subluxation determined by the treating chiropractors, with a maximum number of 16 treatments) and a control group (detuned interferential therapy). Main measurement of results or outcomes was by a standard headache diary.

9) The treatment group showed significantly greater improvement in migraine frequency, duration, disability and medication use than the control group. 22% reported substantial remission (defined as more than a 90% reduction in migraines). The single greatest area of improvement for these chronic patients – a finding that has importance from the perspective of cost as

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Rehabilitation in Chiropractic Practice

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face up over the end of the examination table and is then passively given maximum extension and rotation to either side for a minimum of 15 seconds.

b) At the hospital examination 5 patients were excluded from the study because an experienced chiropractor could not reproduce the positive test on the day of the ultrasound examination. The other 15 had repeat positive DeKleyn's tests and then received the vascular ultrasound examination (colour duplex sonography – Siemens Elegra). There was no significant difference in peak flow velocity or time-averaged mean flow velocity of blood in the vertebral arteries in any head position.

c) As part of the study there had been an anonymous survey of 21 chiropractors attending a Danish Chiropractors' Association meeting. 19 (90%) said they would treat a patient with a positive DeKleyn's test if a vascular ultrasound examination proved normal. As a result the 15 patients were offered cervical manipulation.

Eight consented – after treatment 6 were symptom-free, 2 improved and there were no complications. The remaining 7 refused treatment and still suffered from the same symptoms at follow-up.

8. Some will still argue for pre-manipulative testing given the vagaries of the legal system, the differing views of experts, and existing prejudices concerning the risk-benefit ratio of cervical manipulation amongst those not current with the literature supporting the benefits of cervical manipulation.^{6,7,8} However there are now convincing reasons for following the advice of Coté et al and abandoning them, including:

a) Firstly, a screening test must influence some physical measure relevant to the problem which requires screening – here the risk of stroke following manipulation. The above discussion presents two fundamental problems. Extension-rotation tests, contrary to earlier beliefs, do not alter blood flow in the vertebral arteries in normal or compromised patients. Next, it is unproven that patients are more likely to experience CVAs after techniques using rotation and extension than any other cervical manual technique.

b) Secondly there must be the likelihood – certainly the possibility – that the pre-symptomatic condition of interest will be detected by a screening test. Although the exact mechanism for stroke following manipulation is not established, the most likely one is dissection of the vertebral artery wall, leading to clotting then releasing of an embolus which blocks one of the vessels supplying blood to the brain. How can an extension-rotation test that is not designed to cause, and does not cause, dissection be of predictive value?

c) Thirdly a screening procedure must not put the patient at similar risk to the actual treatment being screened for. A second suggested mechanism for stroke is that the extension-rotation neck position during manipulation may dislodge an embolus or clot that is secondary to athero-sclerotic plaque formation in the vertebral arteries. But this would mean that the screening procedure puts the patient in the very position assumed to be potentially harmful – which is unjustifiable. (Again, however,

today you are hearing that the literature does not support the assumption that there is any greater potential risk in the extension-rotation position).

d) Fourthly from an ethical point of view as Coté et al have noted, it is unacceptable to alarm patients about the risk of a potential stroke from an invalid screening test.

e) Finally and most importantly, dizziness or vertigo may have nothing to do with vascular disease or insufficiency. It may be cervical vertigo, with proprioceptive and other neuromusculoskeletal causes. Patients with this condition respond excellently to cervical manipulation. Previous evidence of this^{9,10} is confirmed in the studies by Bracher et al¹¹ and Licht et al² reviewed in this Report.

D. CONCLUSION

9. All of this amounts to good and bad news. The good news is that in chiropractic practice you can use any cervical adjustment technique you deem appropriate, since the best evidence is that no position or technique carries additional risk. Additionally, studies from North America and Europe report that pre-manipulative tests of vertebral artery function are invalid and unnecessary.

The bad news is that rare patients are CVAs waiting to happen. No one knows why. They cannot be screened in advance, competent and skilful practice will not protect you, and a CVA can happen in your office tomorrow. Fortunately the risk is remote. Most persons turning to reverse their car out of a driveway will not have a CVA, and most chiropractors will never experience one in a lifetime of practice.

10. What should you be doing about this? The answer, in terms of patient rights, law and ethics, is be disciplined and responsible about getting informed consent. In the words of the current US national guidelines for chiropractic practice:

“Patient consent to treatment is always necessary, it is often implied rather than expressed. However, where there is risk of significant harm from the treatment proposed, this risk must be disclosed, understood, and accepted by the patient. Such informed consent is required for ethical and legal reasons. The best record of consent is one that is objectively documented (e.g. a witnessed written consent or videotape).

Recommendation 5.5.1

*Mercy Center Conference Guidelines*¹²

Informed consent is a process in which risk must be disclosed, understood, and accepted by the patient. Your professional liability insurer will have consent forms and advice on this process. In the US a good overview with sample forms and advice appears in the 1999 edition of *The Chiropractic Form and Sample Letter Book*¹³ (Practice Makers Products, 1-800-345-3099).

Failure to obtain informed consent is almost certain to lead to liability for damages and negligence in the event of a CVA. However the onus to obtain informed consent is ethical as well as legal. Worldwide this is an era of broader patient rights.

Relationship of the Vertebral Arteries to the Cervical Spine

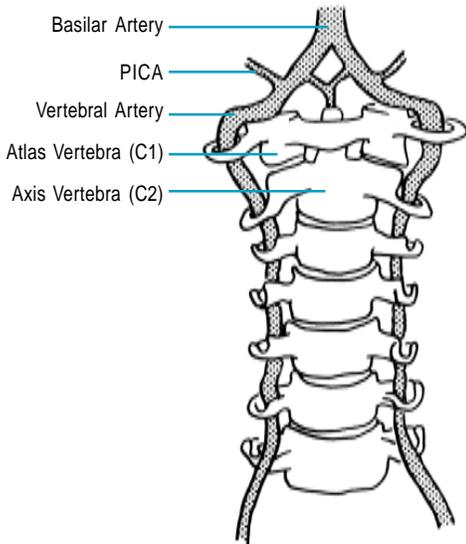


Figure 1. Relationship of the vertebral artery to the cervical spine. PICA = posterior inferior cerebellar artery.

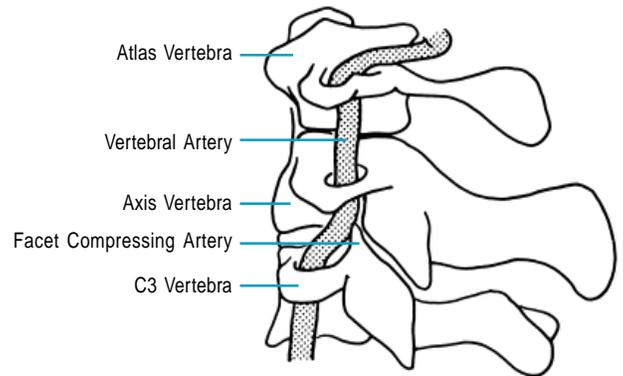


Figure 3. Compression of the vertebral artery by the superior articular facet of C3 on ipsilateral cervical rotation.

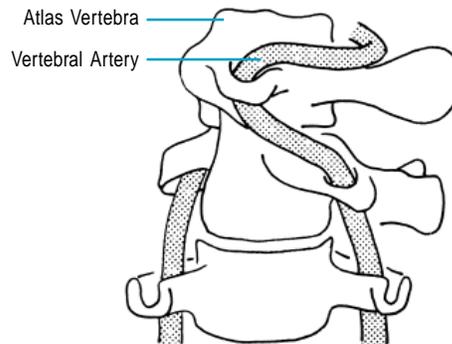


Figure 2. Stretch applied to vertebral artery between atlas and axis vertebrae with contralateral cervical rotation.

Adapted from Terrett A and Kleynhans A, in Haldeman's 'Principles and Practice of Chiropractic', Appleton and Lange, 1992.

If a patient of yours were to suffer serious consequences from a CVA caused by cervical adjustment, wouldn't you sleep more soundly at night knowing you had disclosed this very rare but foreseeable risk of your treatment? **TCR**

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well as health – was reduced use of medication. Many patients were taking none after the trial and the two month follow-up period.

All IHS diagnostic criteria were measured – highest responses were significant reduction in photophobia (90%), nausea (89%) and needing a quite dark area in reaction to pain (83%), lowest responses were reduction in aura (33%) and vomiting (52%).

Vertigo

Clinical Practice Award

A Combined Approach for the Treatment of Cervical Vertigo, Eduardo Bracher DC MD, Cheri Bleggi DC, Clemente Almeida MD, Roberta Ameida MD and André Duprat MD, private practice, Brazil.

Bracher, the principal investigator, is a chiropractor (Palmer West) and specialist in physical medicine in private practice in Sao Paulo, Brazil. In this case series from his clinic he reports excellent results with 16 consecutive patients with cervical vertigo referred by ENT specialists for chiropractic management. In summary:

10) Cervical vertigo was defined as dizziness associated with musculoskeletal complaints in the cervical region (e.g. neck pain, headaches, restricted range of motion) but without specific labyrinth or CNS pathology – which was excluded by ENT evaluations (audiometry, electronystagmography and brainstem evoked potentials).

11) Treatment comprised a combination of manual therapy (adjustment using Gonstead and Diversified techniques, Nimmo technique combined with passive muscle stretching and

ischemic compression), proprioceptive awareness and training (balance exercises using floor exercises and balance devices, and surface EMG bio-feedback on cervical and upper trapezius areas), and an exercise program (home exercises, emphasizing increased range of motion and muscle stretching with quiet breathing). There was an average of six treatment sessions over 42 days.

12) All patients had chronic musculoskeletal symptoms prior to the onset of vertigo, most commonly cervico-thoracic pain and tension headaches. Nine patients (56.3%) reported complete remission of symptoms of vertigo at the end of treatment, 4 (25%) reported significant improvement and 3 (18.7%) reported no improvement. The authors acknowledge that this is a retrospective study only, and call for a controlled trial.

The full text of these papers will be published in the Journal of Manipulative and Physiological Therapeutics. Copies of the Symposium Proceedings of the WFC’s Congress, which contains abstracts of all original research and extended abstracts of invited lectures, can be obtained from the WFC Secretariat, 3080 Yonge Street, Suite 5065, Toronto, Ontario, M4R 1M8 Canada, Tel: 416-484-9601 Fax: 416-484-9665 E-mail: worldfed@sympatico.ca. Orders should be in writing accompanied by payment – US\$49.50 in North America and US\$69.50 internationally (inclusive of airmail shipping), payment by check drawn on a US bank or VISA/MasterCard.

5. **WFC Honour Award – Professor Andries Kleynhans.** At each Congress the WFC gives up to three honour awards for outstanding services to the international development of the chiropractic profession. One award only was made at the Auckland Congress – to Professor Andries Kleynhans, Head, School of Chiropractic, RMIT University, Melbourne, Australia, principally for his very extensive contributions to education in the United States, Australia, Japan and elsewhere in the Asian region during the past 25 years. Dr. Kleynhans, originally from South Africa, is a graduate of Palmer College.

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Adjusting Blood Pressure (continued from page 1)

diastolic pressure in alert subjects” was cervical rotation to the physiological limit.

Another important finding was that there were physical responses to stimuli that subjects reported as innocuous, even soothing – an unanticipated consequence of the study was that a number of subjects fell asleep or were on the verge of sleep before the protocol was completed. According to the Cannon ‘fight or flight’ model you have to do something noxious or painful to get a significant response in the autonomic nervous system. Not so.

(Fujimoto T, Budgell, B et al. (1999) *Arterial Tonometry in the Measurement of the Effects of Innocuous Mechanical Stimulation of the Neck on Heart Rate and Blood Pressure*, J Autonomic Nervous System, 75:109-115.)