# The Chiropractic Report

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## Professional Notes

**DCConsult**

In February, the US-based Foundation for Chiropractic Education and Research (FCER), in partnership with many others, launched something that the profession and clinicians everywhere have been waiting for – a sophisticated, online resource center through which chiropractors worldwide can access best current information to guide and assist them in their practices.

This is named DCConsult, and information in this new global resource center for the profession may be found at www.dcconsult.com. Until August the individual annual subscription rate has been significantly discounted to US$297.00 ($97.00 for FCER members) to welcome charter subscribers.

How does this new clinician/patient/research information resource help you in practice? Say, for example, you have a patient with osteoarthritis or migraine or disc herniation or plantar fascitis? You log on and:

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*continued on page 4*

# BJD Neck Pain Task Force Report

*A New Model for the Management of Neck Pain*

## A. Introduction

ON FEBRUARY 15 THE JOURnal *Spine* published the long-awaited report of the Bone and Joint Decade 2000-2010 Task Force on Neck Pain and its Associated Disorders.[1]

This comprehensive report (220 pages) is from a multidisciplinary international Task Force led by neurologist Scott Haldeman, DC MD PhD from the University of California at Irvine. It involved seven years work from more than 50 researchers from 9 countries and 19 different clinical and scientific disciplines including chiropractic. It redefines neck pain and will have a very significant impact on all health professionals who manage patients with this common and costly cause of disability.

The key findings of the Task Force are overall very positive for the chiropractic profession, including for example:

• Manipulation and mobilization are safe, effective and appropriate treatment approaches for most patients with disabling neck pain (Grade 2 under the Task Force's new classification), whether traumatic or non-traumatic in origin.

• For various reasons, including the fact that no one treatment approach is markedly superior to others or works best for everyone, and the more prominent role of personal and psychosocial factors in neck pain/headache than back pain, patient preference and choice must be seen as of central importance. The patient should be informed of all effective treatment options and fully involved in treatment decisions for best clinical results.

• To avoid compensation policies that promote poor patient results and increased disability, public and private insurers should "adopt universal (multi-provider/multi-modality) evidence-based treatment guidelines when paying for services."[2]

• The risk of vertebrobasilar artery stroke (VBA stroke), a very rare form of stroke that has been associated with chiropractic adjustment, is exactly the same for neck pain patients whether they consult a doctor of chiropractic or a primary care medical physician. An estimated 80% of such stroke patients have neck pain from artery dissection during the days before their strokes, this leads them to seek medical or chiropractic care, and subsequent stroke is therefore "associated with" rather than "caused by" the medical or chiropractic care.[3]

2. What indications are there that the Task Force's report will be seen as authoritative, and will influence health care systems internationally and daily chiropractic practice? The first is the self-evident quality and range of the report. This is a far more extensive and broad-based work, for example, than the report of the Quebec Task Force on Whiplash-Associated Disorders in 1996,[4] the last major report and guidelines with international impact in this field. Other indications are these official pronouncements and editorials published at the time of the report:

• A February 18 press release from the Bone and Joint Decade, representing the international musculoskeletal medicine community, describes the report as "a major milestone for musculoskeletal science" that will have "a significant impact on the way in which neck pain is perceived, treated and studied around the world." This "monumental document, one of the most extensive reports on the subject of neck pain ever developed" offers "the most current expert perspective on the evidence related to the treatment of neck pain."

• The first preface to the report in *Spine* is written by Lars Lidgren, MD PhD from the Department of Orthopedics, Lund University, Sweden and Chairman of

the Bone and Joint Decade. He notes that this "authoritative study" with its documented and evidence-based guidelines represents a "key step towards understanding and addressing the major disability caused by neck-related pain."[5]

• The second preface in *Spine* is written by Bjorn Rydevik, MD PhD, also from Sweden and Deputy Editor of *Spine*. Professor Rydevik, an orthopedic surgeon, explains the Task Force "represents a unique gathering of international expertise" and then notes:

"Considering the huge impact of neck pain on individuals, health care systems and society at large, and the lack of systematic knowledge in this field, the work by the Task Force represents a milestone achievement which will be of major significance and importance for patients, the medical profession, the health care system, researchers, research funding agencies, and insurance companies."[6]

• In the third preface in *Spine* Federico Balagué, MD, Department of Rheumatology, Physical Medicine and Rehabilitation, Freiburg Hospital, Switzerland is invited to provide "a clinician's perspective." He concludes that the final report of the Task Force is "a major event" and "one of the highlights of the 2000-2010 Bone and Joint Decade." For many years study of neck pain "has been well below the level appropriate for a topic of such relevance". The report has met his "high expectations" that it would address basic clinical questions well – such as the best way to manage neck pain sufferers, what is worth including in a physical examination, what can be done by patients themselves, which treatments are supported by scientific evidence, etc.[7]

Major strengths of the work, he says, are that the report covers traumatic and non-traumatic neck pain and also headaches, arm pain and other symptoms of cervical origin; and that information on all treatments – surgical and non-surgical – is presented and available in the same publication.

3. The full Task Force report may be accessed by subscription at www.spinejournal.com. We now review the Task Force and its report, with emphasis on issues particularly relevant to the chiropractic profession.

## B. Background

4. **Task Force Members.** The members of the Task Force are listed in Table 1. The Scientific Secretariat was led by Canadians David Cassidy, DC PhD, DrMedSci, an epidemiologist from the Department of Public Health Sciences, Faculty of Medicine, University of Toronto, and Linda Carroll, PhD, a psychologist from the Department of Public Health Sciences, University of Alberta. US members included orthopedic surgeon Eugene Carragee, MD from Stanford University and physical therapist Margareta Nordin, PT DrMedSci, from the New York University Medical Center.

The Advisory Committee has prominent researchers and peer leaders from epidemiology and the clinical sciences from Australasia, Europe, Latin America and North America. One of them is James Weinstein, MD MPH, the Editor of *Spine*.

5. **Goals.** The goals of the Task Force were:

• To complete a systematic search and critical review of the scientific literature on neck pain and its associated disorders, including the epidemiology, diagnosis, prognosis, economic costs, and treatment of neck pain and its associated disorders.

• To complete original research on the risks associated with the treatment of neck pain.

• To examine cost-effectiveness and patient preferences for various treatment options.

• To collate the evidence, using best evidence synthesis, to inform clinical practice for the management neck pain and its associated disorders.

• To indicate areas where further research should be required.

6. **Scope of Work**. The primary project was a systematic review of the best international research data on all aspects of neck pain and related disorders – specifically this involved screening of approximately 32,000 research citations and subsequent analysis of over 1000 studies. This involved over 25,000 hours of literature review, possibly the most comprehensive in any health care field ever.

The other important side of the Task Force's work was new original research. One of these original research papers, all of which have now been published as part of the Task Force report, was *Risk of Vertebrobasilar Stroke in Chiropractic Care* by Cassidy, Boyle, Coté et al.[3] discussed further below. Throughout its work, a period of seven years, the Task Force adopted the clear view that, although the foundation for its report had to be sound science and evidence, its impact had to be practical for patients and health professionals. This has been emphasized by Task Force leaders as they have presented results at leading international spine congresses in Switzerland, Canada, Portugal and the USA during the past several months. Haldeman, Carroll et al. emphasize in their Executive Summary to the Report:

• "The most productive use of this review is to inform and empower the public – more specifically people with neck pain or who are at risk of developing neck pain."

• "The most valuable outcome and con-

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**Table 1: Task Force Members**

**Administrative Committee**

Scott Haldeman, DC, MD, PhD, FRCP(C), (President) – USA
Åke Nygren, DDS, MD, PhD, (Vice President) – Sweden
Jon Schubert (Vice President) – Canada
J. David Cassidy, DC, PhD, Dr.MedSci, (Scientific Secretary) – Canada
Linda Carroll, PhD, (Scientific Secretary) – Canada

**Scientific Secretariat**

J. David Cassidy, DC, PhD, Dr.MedSci
Eugene Carragee, MD – USA
Linda Carroll, PhD – Canada
Pierre Côté, DC, PhD – Canada
Stephen Greenhalgh, MA, MLIS – Canada
Jaime Guzman, MD, MSc, FRCP(C) – Canada
Scott Haldeman, DC, MD, PhD, FRCP(C)
Sheilah Hogg-Johnson, PhD – Canada
Lena Holm, PhD – Sweden
Eric Hurwitz, DC, PhD – USA
Margareta Nordin, PT, Dr.MedSci – USA
Paul Peloso, MD, MSc, FRCP(C) – USA
Gabrielle van der Velde, DC, PhD – Canada

**Advisory Committee**

Dorcas Beaton, BSc, OT, PhD – Canada
Nikolai Bogduk, MD, PhD – Australia
Claire Bombardier, MD, FRCP(C) – Canada
Eduardo Bracher, DC, MD – Brazil
Jiri Dvorak, MD – Switzerland
Alex Grier, DC, MBA – Canada
Saundra Johnson, MPA – USA
William Johnson, PhD – USA
Murray Krahn, MD, MSc, FRCP(C) – Canada
Andreas Maetzel, MD, MSc, PhD – Canada
Hal Morgenstern, PhD – USA
Daniel Riddle, PhD – USA
Rachid Salmi, MD, PhD – France
James N. Weinstein, MD, MPH – USA
Kazuo Yonenobu, MD, DMSc – Japan
Brian Freeman, MB, BCh, BAO, FRCS – UK
William C. Watters III, BSc, MSc, MD – USA

tribution will be a change of attitudes and beliefs about neck pain and its prevention, diagnosis, treatment, and management." [2]

## C. Key Findings

7. The following key findings are taken from the Task Force's Executive Summary, its Summary of Key Findings released in late January, and the prefaces published in *Spine*.

8. **Epidemiology of Neck Pain.**

a) Neck pain, and disability from neck pain, are widespread experiences. Neck-related pain "has become a major cause of disability around the world" and workers' compensation data studied by the Task Force "significantly underestimate the burden of neck pain in workers."

b) "In North America about 5% of the general population is disabled because of neck pain. In any given 6 month period another 10% report experiencing low-level disability along with high-intensity neck pain." [5]

c) In Europe surveys show that "chronic or persistent neck pain affects between 10% and 20% of the population." Studies in other countries confirm these statistics. [5]

9. **Risk Factors for Neck Pain.** There is usually no single cause of neck pain – it has a multi-factorial etiology.

a) Non-modifiable risk factors include age, gender and genetics. There is no evidence says the Task Force, that common degenerative changes in the cervical spine are a risk factor for neck pain.

b) Modifiable risk factors for neck pain include smoking, exposure to environmental tobacco and degree of physical activity/inactivity. In the workplace "high quantitative job demands, low social support at work, sedentary work position, repetitive work and precision work increase the risk of neck pain". However, there is still no good evidence to support workplace interventions that may be successful in reducing neck pain.

10. **Course and Prognosis.**

a) Neck pain is a persistent or recurrent condition. Most people do not experience a complete resolution of symptoms – "between 50% and 80% . . . will report neck pain again one to five years later". This appears to be true in the general population, in workers, and after motor vehicle crashes.

b) Prognosis, like neck pain itself, "appears to be multifactorial." Younger age is associated with better prognosis, poor health and prior neck pain are associated with poorer prognosis. So are poor psychological health, and worrying and frustration or anger in response to neck pain.

11. **Classification of Neck Pain.** All neck pain, including whiplash associated disorders (WAD), should be classified into a common system with four grades as follows:

- *Grade 1: neck pain with little or no interference with daily activities:* No signs or symptoms suggestive of major structural pathology and no or minor interference with activities of daily living; will likely respond to minimal intervention such as reassurance and pain control; does not require intensive investigations or ongoing treatment.
- *Grade 2: neck pain that limits daily activities*. No signs or symptoms of major structural pathology, but major interference with activities of daily living; requires pain relief and early activation/intervention aimed at preventing long-term disability.
- *Grade 3: neck pain accompanied by radiculopathy*. No signs or symptoms of major structural pathology, but presence of neurologic signs such as decreased deep tendon reflexes, weakness, and/or sensory deficits; might require investigation and, occasionally more invasive treatments.
- *Grade 4: neck pain with serious pathology.* Signs or symptoms of major structural pathology, such as fracture, myelopathy, neoplasm, or systemic disease; requires prompt investigation and treatment.

The great majority of patients have Grade I or Grade II neck pain. This new classification is designed to "help people with neck pain, researchers, clinicians and policy-makers in framing their questions and decisions" – for more on this see below.

12. **Patient Assessment.**

a) Most assessment tools, including electrophysiology, imaging, injections, discography, functional tests and blood tests, have no good evidence of validity and utility/value.

b) All health care providers should conduct a thorough patient history and physical examination to rule out Grades 3 or 4 neck pain.

c) Proven patient self-assessment questionnaires provide valuable information for management and prognosis.

13. **Treatments for Neck Pain**.

a) Treatments chosen should be based on grades of neck pain. Most patients have Grades 1 and 2 neck pain and when choosing treatments "patients and their clinicians should consider the potential side effects and personal preferences."

*continued on page 6*

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*continued from page 1*

information on the condition, chiropractic management, other conservative care options, medical management

• review accepted methods of assessment, management and measurement of outcomes – knowing that when you use any of these methods you have expert support for your clinical decisions and services with patient, payors, referring practitioners, etc.

• where there are references, you have links to abstracts and full papers so you can go to the primary research if you so wish

Sample information you can see at present at the website relates to osteoarthritis. There is review of chiropractic management, thirteen other conservative approaches (e.g. exercise, acupuncture, nutraceuticals, spa therapy, etc), medical treatment (e.g. medications, injection techniques, knee replacement) and prevention strategies (e.g. relative to nutritional factors, occupational factors, sports participation, biomechanical factors, etc).

DCConsult provides much more. You can develop and print customized patient handouts and search various other healthcare related databases including MANTIS™ (Manual Alternative and Natural Therapy Index System) and Medline.

"Although this is a new service offered by FCER, the core of this website has been under development for many years", says FCER president, Dr Charles Herring. Much of this development has been under Dr Ron Rupert, Parker College Chiropractic Dean of Research, and Editor-in-Chief of MANTIS.

DCConsult is the centerpiece of FCER's new mission of providing the premier global information resource center for the chiropractic profession. The recent launch is just the first stage of a vast, multiyear, building project to develop the Google of chiropractic practice. Check it out, support it – if this fulfils half of its potential it will be huge for you and the profession.

## Research Notes

1. **Canada – CHIRO Evidence-Based Care More Effective than Usual Medical Care for Back Pain.** A new randomized controled trial from Canada has demonstrated that clinical guidelines-based management that includes chiropractic manipulation is more effective than usual medical care for patients with acute low-back pain.

The CHIRO or Chiropractic Hospital-Based Interventions Research Outcomes Trial comes from Paul Bishop, DC MD PhD and colleagues in Vancouver, and found that the group of patients receiving chiropractic care in accordance with evidence-based guidelines had a significant advantage in terms of pain relief and improved function. The trial, reported by Bishop at the 2007 meeting of the International Society for the Study of the Lumbar Spine (ISSLS) meeting in Hong Kong, and to be published in *Spine*, has led to adoption of the CHIRO protocol in two other hospital spine clinics together with funding for a multicenter clinical trial to see if results can be replicated on a wider basis.

Points are:

1. 88 subjects with acute low-back pain (up to four weeks) but no radiating pain below the knee, were randomly assigned to:

a) Usual medical care – from family physicians, and typically including advice, medication, rest, passive physical therapies and massage.

b) Guidelines-based care that included chiropractic manipulation, reassurance, avoidance of rest and passive therapies, acetaminophen for pain control and chiropractic manipulation twice a week for four weeks.

2. The primary measure of results was changed disability scores on the Roland Morris Questionnaire 16 weeks after commencement of treatment – in other words 12 weeks after the treatment phase ended. The secondary outcome measures were pain reduction and improved physical function on the SF-36 General Health Questionnaire.

3. The CHIRO group receiving guidelines-based care had statistically significant better results than the usual medical care group on all measures. Roland Morris improvement was 2.5 to points in the guidelines-based group, 0.25 points in the usual medical care group.

Speaking at the ISSLS meeting Bishop, who is both a medical and chiropractic doctor, suggested that the evidence-based CHIRO protocol probably succeeded for two reasons – because it followed clinical guidelines and was effective in itself, and secondly because the usual medical care did not, was not best medical care and made excessive use of rest, passive therapies and narcotic medications.

**Association of Italian Chiropractors (AIC) Celebratory Dinner**

On Saturday January 19, 2008, members and supporters of the Associazione Italiana Chiropratici (AIC) gathered in Milan, Italy at the Four Seasons Hotel to celebrate their new chiropractic law.

Special guests of honor, pictured with AIC President Dr. John Williams (presenting award) were (from right):

Senator Luigi Lusi, who was instrumental in pushing the chiropractic legislation through the Italian Parliament, Philippe Druart, DC, President, European Chiropractors Union, David Chapman-Smith, LLB (Hons), Secretary General, World Federation of Chiropractic.

(Bishop PB et al. The CHIRO (Chiropractic Hospital-Based Interventions Research Outcomes Part I: *A Randomized Controlled Trial on the Effectiveness of Clinical Practice Guidelines in the Medical and Chiropractic Management of Patients with Acute Mechanical Low Back Pain*, Spine, in press.)

Source: The BackLetter, 2008.

2. **Netherlands - Clinically Important Change – Back Pain**

Patient reported results of treatment by means of validated questionnaires are established as a principal method of measuring results for back pain patients in clinical practice. The five principal areas are pain, back-specific function, work disability, generic health status and patient satisfaction. The two most fundamental clinical outcomes are level of pain and back-specific function. But a key question for these two areas has remained unanswered – namely what constitutes a clinically significant and important change.

This question has now been reviewed by an 8-member panel of experts from Europe and North America that included such well-known figures as Dr. Richard Deyo from the University of Washington, Dr. Gordon Waddell of Cardiff University and Dr. Lex Bouter of the VU University, Amsterdam.

• The panel also received input from 36 others invited to an international Forum on Primary Care Research on Low Back Pain held in Amsterdam. The result of all of this is that the following minimal important clinical changes were agreed.

• Visual Analog Scale (0-100): An improvement of 15

• Numerical Rating Scale (0-10): 2

• Roland Disability Questionnaire (0-24): 5

• Oswestry Disability Index (0-100): 10

• Quebec Back Pain Disability Questionnaire (0-100): 20

However, to calculate whether this "minimal important clinical change" is significant one must take into account the baseline score – on all the above measures "a 30% change from baseline may be considered clinically meaningful improvement." The authors offer this analysis as a new common point for use of these various questionnaires in clinical practice and in future research.

(Ostello RWG, Deyo RA et al. (2008) *Interpreting Change Scores for Pain and Functional Status in Low Back Pain: Towards International Consensus Regarding Minimal Important Change,* Spine 33(1):90-94.).

3. **US – Ankylosing spondylitis Update:** A paper by Saeed Shaikh, MD in the *Journal of the Canadian Chiropractic Association* discusses recent breakthroughs in the diagnosis and treatment of ankylosing spondylitis (AS), which most commonly begins when patients are in their twenties though is relatively common in late teenage years also. Although it is a systemic disorder with various symptoms, the main symptom is inflammatory back pain.

While AS is easy to diagnose when characteristic findings are present on radiographs (bamboo spine and fused sacroiliac joints), most patients suffer for 7-10 years before these changes are seen, and historic treatment options have been inadequate at that time. Points emphasized by Shaikh include:

(a) Clinical history that differentiates inflammatory back pain from mechanical back pain are:

• Morning stiffness of greater than 30 minutes duration

• Improvement in back pain with exercise but not with rest

• Awakening because of back pain during the second half of the night only

• Alternating buttock pain

(b) Two major developments in recent years allowing earlier diagnosis of AS, alleviation of pain and prevention of structural changes leading to loss of function are:

• The use of magnetic resonance imaging to visualize in inflammatory changes in the SI joint and the axial spine

• Demonstration of the presence of AS by the use of tumor necrosis factor (TNF) blocking agents that are highly effective in reducing spinal inflammation

(c) Accordingly, referral for MRI studies should be considered in young back pain patients with characteristics for inflammatory back pain and who have other clinical features increasing the likelihood of AS – such as uveitis, positive family history of AS, response to NSAIDs, peripheral joint swelling or presence of inflammatory bowel disease or psoriasis.

(Shaikh SA (2007) Ankylosing Spondylitis: Recent Breakthroughs in Diagnosis and Treatment, J Can Chiropr Assoc 51(4):249-260.

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b) For Grade 1 and 2 neck pain, treatments with similar evidence of safety and effectiveness and "that are worth considering" are: education, exercise, mobilization, manipulation, acupuncture, analgesics, massage, and low-level laser therapy.

The most effective interventions are those that "focus on regaining function".

Treatments "unlikely to help" and not supported by evidence for Grades 1 and 2 neck pain are: surgery, collars, ultrasound, electrical muscle stimulation, transcutaneous electrical nerve stimulation (TENS), most injection therapies, including corticosteroid injections in cervical facet joints, and radio-frequency neurotoxins (overheating of small nerves in the neck to suppress pain).

a) For Grade 3 neck pain, "proceed cautiously". There is little research on non-surgical interventions, epidural corticosteroid injections may be considered for temporary relief of radiculopathy, and surgery may be considered "in the presence of serious pathology or persistent radiculopathy." (On chiropractic management of patients with Grade 3 pain see para 22).

b) Grade 4 patients should be treated in accordance with "best practices for the diagnosed pathology".

c) Whiplash-associated disorders (WAD) may fall into any of the four grades of neck pain – and should be assessed and treated according to grade.

d) There is no "best" treatment for neck pain that is effective for everyone and "trying a variety of therapies or combination of therapies may be needed to find relief."

e) "Lengthy treatment is not associated with greater improvements" – see para 14d) below for more on this.

14. **Advice to People with Neck Pain.**

a) Do not expect to find a single "cause" for your neck pain. Stay as active as you can, reduce mental stress, try over-the-counter pain relievers.

b) If you need treatments "talk to your health care provider about the range of effective treatment options that make sense to you – you may need to try a variety of options".

c) Have realistic expectations for relief – "relief is often modest."

d) "Do not continue treatment that doesn't provide improvement within a reasonable period of time – you should see improvement after 2-4 weeks if the treatment is the right one for you". (This advice is very similar to the standard for management of patients with back pain. If there is evidence of improvement within 2-4 weeks, from patient questionnaires such as the Neck Pain Disability Index or otherwise, there is a basis for continued treatment.)

15. **Advice to Public and Private Insurers**.

a) Adopt universal (multi-provider/multi-modality) evidence-based treatment guidelines when paying for services.

b) Create health care provider incentives which reward doing the 'right thing' (e.g. thorough examination and history; effective treatment options, education and monitoring).

c) Recognize the role that compensation policies have on patient outcomes; ensure that insurance policies don't inadvertently promote disability.

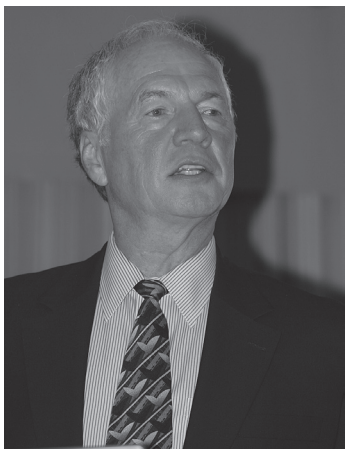
d) The risks associated with effective, non-surgical treatments are about the same; all are low risk.

16. **New Conceptual Model for Neck Pain**. The Task Force's new model puts the patient and his/her preferences at the center of successful management and outcomes rather than health care providers. Neck pain is a multifactorial and episodic or recurring problem, with variable rates of recovery between episodes of pain. Because patients have many but different personal factors underlying their problems, best management requires informing/educating patients on their options and respecting their preferences. Those averse to taking medication are likely to have better outcomes with manual treatments and/or exercise, those preferring medication to physical treatments should start with medication.

## D. VBA Stroke Study

17. In recent years two case-control studies of vertebrobasilar artery stroke (VBA stroke) following neck manipulation, by Rothwell, Bondy et al. in Canada[8] and Smith, Johnston et al. in the US,[9] have reported that individuals experiencing VBA stroke are 5 or 6 times more likely to have visited a doctor of chiropractic (DC) than age-matched people in the general population without stroke. These studies have been cited by

**Task Force Leaders Present Results at the World Federation of Chiropractic's 9th Biennial Congress in Vilamoura, Portugal in May 2007.**



Dr. Scott Haldeman
*President*

Dr. David Cassidy
*Scientific Secretary*

Dr. Jaime Guzman
*Member, Scientific Secretariat*

Dr. Linda Carroll
*Scientific Secretary*

some as evidence that chiropractic neck adjustment or manipulation increases the risk of stroke.

However, no one had ever done a case-control study to see if the same thing applies to medical care – namely that there is an association between visiting a primary care medical provider (PCP) and stroke similar to that for chiropractic. The purpose of this stroke study by the Task Force therefore was "to investigate the association between chiropractic care and VBA stroke and compare it to the association between recent PCP care and VBA stroke." One of the authors was Susan Bondy, PhD, also an author of the Rothwell, Bondy et al. study just mentioned. Features of the study design were:

a) Cassidy, Boyle et al. used a large government database from the Province of Ontario, Canada, which covered 109 million person years for the 8 years between April 1, 1993 and March 31, 2002. Health care and billing records covered all PCP and DC visits, and provided diagnostic codes to identify neck pain and headache patients and services. Records also documented all new VBA stroke cases resulting in acute care hospital admissions during that period.

b) Comparisons were made in two ways:

• **Case Control** – four age and sex-matched control persons were selected randomly from the Ontario government database for each VBA stroke person case.

• **Case Crossover –** for each person who had a VBA stroke, there was examination of four controlled periods during the 12 months prior to his/her stroke. (The advantage of this design is that it controls for various genetic and behavioral factors that are not controlled under the case-control study design).

18. Results included:

a) Over 190 million person years there were only 818 VBA strokes from all causes in the population. This amounts to 4.3 cases per million person years. This is a very rare form of stroke. (The best previous calculation of its frequency or incidence from all causes in the general population comes from the US, where in a regional population study VBA dissection causing stroke affected approximately 1 resident per 100,000 in the 17 years between 1987 and 2003 – this translates into 1.7 cases per million person years).[10]

b) 4% of cases and controls had visited a DC in the final 30 days before the stroke hospital admission date (the index date), whereas 54% of cases and 30% of controls had visited a PCP.

c) For those under age 45, 8 cases (7.8%) had consulted a DC in the final 7 days before the indexed date, 14 (3.4%) of the case controls. This means that the occurrence of VBA stroke more than doubled – 3.4% to 7.8% - amongst those seeing a DC in the past 7 days. This compared with 25 cases (24.5%) and 27 case controls (6.6%) who had visited a PCP within the final 7 days – the rate of stroke associated with medical visits almost quadrupled – 6.6% to 24.5%.

d) Age influenced the association between visiting a DC and stroke. For those under 45 there was an increased association but for those over 45 there was not. For those visiting a PCP there was an increased association at all ages.

e) On the raw figures overall there was a "more pronounced" association between VBA strokes for those visiting a PCP than a DC. However, because "the data are sparse" (i.e. the frequency or incidence of this type of stroke is so rare), it was impossible to say whether or not this was statistically significant.

f) Cassidy, Boyle et al. report that there was "a similar association" between either DC visits or PCP visits and VBA stroke and conclude that the increased risk of VBA stroke associated with chiropractic and PCP visits "is likely due to patients with headache and neck pain from VBA dissection seeking care before their stroke. We found no evidence of excess risk of VBA stroke associated with chiropractic care compared to primary care." [3]

19. If this is so how do you explain patients who experience stroke in a chiropractic office immediately following an adjustment? Cassidy, Boyle et al. explain that any motion can lead to stroke where there has already been damage to a vertebral artery and formation of a blood clot - "a chiropractic manipulation or even simple range of motion examination by any practitioner could result in a thromboembolic event in a patient with pre-existing vertebral dissection" – in other words release of an embolus and stroke. In this connection it is interesting to recall that Leboeuf-Yde, Rasmussen et al. [11] and Johnson Lawler et al. [12] report cases where patients scheduled to receive chiropractic care died of stroke prior to receiving treatment - one 20 minutes before his first appointment and another while next in line in the waiting room. Yet another had chiropractic neck manipulation 15 days before his stroke, but on post mortem examination was found to have cystic mucoid degeneration (medial cystic necrosis) an accepted pre-disposing cause of arterial dissection.

20. To conclude, for the chiropractic profession a major feature of this new stroke study and the Task Force report is that they provide a strong scientific answer to questions that have been raised about the potential risks and appropriateness of chiropractic neck adjustment. Under the Task Force's work and recommendations neck manipulation is found to be safe and one of the recommended options for treatment.

## E. Grade 3 Neck Pain and Manipulation

21. The Task Force gives quite explicit guidelines for treatment of patients with Grades 1 and 2 neck pain is less explicit, but for Grade 3 patients – those with radiculopathies and neurologic signs. Its advice to all health care providers is to "proceed cautiously" because:

• There is little research on non-surgical interventions

• Epidural corticosteroid injections may bring temporary relief of radiculopathy but do not seem to have long term effect or reduced rates of surgery.

• Surgery may be necessary in the presence of serious pathology or persistent radiculopathy, but should still be used cautiously after trials of conservative therapy as with back pain.

There is no express comment on chiropractic manipulation. There is growing evidence, however, that chiropractic management may lead to excellent results and avoidance of surgery. Recently Murphy, Hurwitz et al. have presented a case series of 27 patients with neck and/or arm pain with clear findings of cervical spinal cord compression on MRI.[13] Dr. Donald Murphy, from Rhode Island and the clinician in the study, is author of the highly regarded text *Conservative Management of Cervical Spine Syndromes,* [14] and a faculty member of the Brown University School of Medicine in Providence. In this case series:

a) Patients with medicolegal involvement were excluded, but otherwise this was a consecutive series of patients with neck and/or arm pain and clear evidence of spinal cord encroachment – meaning the presence of disc material (osteophytes, ligamentum flavum hypertrophy, or some combination of these) distorting the shape of the cord or obliterating the cerebral spinal fluid signal on images as more fully described in the paper.

b) Patients had an average of 12 treatments (ranging between 2 and 32) with 18 receiving joint manipulation, 8 receiving low-velocity muscle energy techniques, and 1 receiving both.

c) Patient rate of improvement averaged 70% for pain and disability. (Bournemouth Neck Disability Questionnaire, Neck Disability Index, Numerical Pain Rating Scale). Three patients had a transient increase in pain lasting 1-4 days, but there were no major complications or new neurological symptoms or signs. The authors give a full description of assessment, pre-manipulative positions, then careful choice of manual treatments not causing peripheralization of symptoms.

Accordingly, there is a valuable role for conservative trial of chiropractic care with selected Grade 3 patients. This is one option patients should be aware of.

## F. Conclusion

22. Not everyone will be happy with the Task Force's findings. As Dr. Haldeman says in an early interview in the *Medical Post*, a Canadian newspaper that goes weekly to all physicians, with neck pain "we are talking about a huge problem and so far we don't treat it very well . . . those who make their living with one particular technique (found unhelpful for Grade 1 and 2 pain) are likely to become quite upset."[15] Further, the Task Force counsels against use or regular use of many common diagnostic tests.

For the chiropractic profession, however, the Task Force's report represents strong new supporting core practice methods – a biopsychosocial approach to patients, focus on a strong patient history and physical examination, imaging where necessary, conservative treatment methods featuring skilled manual procedures, exercise and patient motivation and education, and measurement of outcomes with the Neck Disability Index and other patient questionnaires.

Given past history the profession can expect further isolated case reports from neurologists and others suggesting that neck manipulation may not be appropriate because of an associated risk of stroke. This, however, can finally be demonstrated as being unscientific and wrong, given the stroke study and the Task Force's clear endorsement of manipulation and mobilization as conservative treatment options that are safe, effective and appropriate. TCR



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