Dynamic Chiropractic

BACK PAIN

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Editorial Staff

Long-term follow-up of a randomized clinical trial assessing the efficacy of medication, acupuncture, and spinal manipulation for chronic mechanical spinal pain syndromes.
Reinhold Muller, PhD; Lynton G.F. Giles, DC, PhD

Objective: To assess the long-term benefits of medication, needle acupuncture, and spinal manipulation as exclusive and standardized treatment regimens in patients with chronic (>13 weeks) spinal pain syndromes.

Study Design: Extended follow-up (>1 year) of a randomized clinical trial was conducted at the multidisciplinary spinal pain unit of Townsville's General Hospital between February 1999 and October 2001.

Patients and Methods: Of the 115 patients originally randomized, 69 had exclusively been treated with the randomly allocated treatment during the 9-week treatment period (results at 9 weeks were reported earlier). These patients were followed up and assessed again 1 year after inception into the study, reapplying the same instruments (i.e., Oswestry Back Pain Index, Neck Disability Index, Short-Form-36, and Visual Analogue Scales). Questionnaires were obtained from 62 patients, reflecting a retention proportion of 90%. The main analysis was restricted to 40 patients who had received exclusively the randomly allocated treatment for the whole observation period since randomization.

Results: Comparisons of initial and extended follow-up questionnaires to assess absolute efficacy showed that only the application of spinal manipulation revealed broad-based, long-term benefit: 5 of the 7 main outcome measures showed significant improvements, compared with only 1 item each in the acupuncture and medication groups.

Conclusions: In patients with chronic spinal pain syndromes, spinal manipulation, if not contraindicated, may be the only treatment modality of the assessed regimens that provides broad and significant long-term benefit.

Subjective nature of lower- limb radicular pain.
Geoffrey M. Bove, DC, PhD; Asia Zaheen, MD; Zahid H. Bajwa, MD

Background: Lumbar pathologies may cause the perception of leg pain, but the character of this pain has not been described. Diagnosis is often based on dermatomal charts, but observations reveal that the pain is not typically perceived on the skin.

Objective: To document the incidence of superficial versus deep pain localization among patients with

lumbar radicular pain.

Methods: Twenty-five patients with lower limb radicular pain were questioned to determine the specific localization of their pain. The investigator categorized the pain location into general areas (e.g., posterior thigh or anterior leg). Patients were asked if their pain was perceived as being on the skin or deep, as a forced choice question. These data were gathered in 2 conditions: at rest (spontaneous pain) and during a straight leg raise test (mechanically evoked pain). Data were recorded using a standardized form for later analysis.

Results: In all cases, symptoms were reported to be in deep structures. Pain was typically reported at sites correlated with multiple spinal levels.

Conclusion: Because radicular pain symptoms are perceived in deep structures rather than on the skin, the diagnostic value of dermatomal charts is questioned. Clinicians are advised to be specific when questioning patients with radicular pain symptoms, and to refer to myotomal and sclerotomal charts when making diagnoses.

Consent or submission? The practice of consent within UK chiropractic.

Jennifer M. Langworthy, MPhil; Christine le Fleming, BSc (Hons), MSc Chiropractic

Background: A patient's right to accept or reject proposed treatment is both an ethical and legal tenet. Valid consent is a multifaceted, controversial and often complicated process, yet practitioners are obligated to try to obtain consent from their patients. Its omission is a common basis for malpractice suits, and increasing utilization of complementary and alternative services in conventional medical settings is intensifying the focus on medical liability issues. This has important implications for individual professions and their members.

Objective: To investigate approaches to consent among a small (n = 150) sample of practicing UK chiropractors.

Results: Of 150 randomly selected chiropractic practitioners in the United Kingdom, 55% responded. Of these, 25% report not informing patients of physical examination procedures prior to commencement. By contrast, only 6% do not fully explain proposed treatment, although over one-third do not advise patients of alternative available treatments. Nearly two-thirds of the practitioners report that there are no specific procedures for which they always obtain written consent, and 18% that there are no instances in which they document when verbal consent has been obtained. Ninety-three percent said they always discuss minor risk with their patients, but only 23% report always discussing serious risk. When treatment carries a possible risk of a major side-effect, only 14% of the sample obtain formal written consent. Documentation of patient understanding is omitted by 75% of practitioners in this sample.

Conclusion: Results suggest that valid consent procedures are either poorly understood or selectively implemented by UK chiropractors.

Neck muscle endurance, self-report, and range-of-motion data from subjects with treated and untreated neck pain.

Jaejung Lee; Leslie L. Nicholson, PhD; Roger D. Adams, PhD

Background: Despite the high prevalence and cost of neck-pain problems, there is currently little data available on the physical characteristics associated with different levels of neck pain.

Objective: To investigate associations between categories of response to neck pain/discomfort and (1) the endurance time of neck muscles, neck range of motion (ROM), and neck and head morphology; (2) sensitization or stretch effects arising from repeating end-of-range measurements; and (3) self-report data from neck pain and disability questionnaires.

Design: A cross-sectional study design.

Methods: Fifty-five Australian volunteers with and without neck pain, who were not taking time off work, were measured for neck muscle endurance, active neck ROM, craniocervical and thoracic posture, neck length, and head circumference and completed questionnaires about any neck pain/discomfort and disability.

Results: Twenty-two subjects reported a level of neck pain/discomfort that had required treatment (treated neck pain), a group of 17 subjects reported experiencing low-level neck pain/discomfort on a recurrent basis for which they had not sought treatment (untreated neck pain), whereas 16 subjects had no experience of neck pain or discomfort (no pain). Neck muscle endurance time was significantly lower for both pain groups. The affective dimension of the Short-Form McGill Pain Questionnaire and neck disability questionnaires were scored significantly higher by subjects who had sought treatment than by those in either of the untreated groups. Both pain groups showed a range decrease for most directions of neck motion at second measurement.

Conclusions: Neck muscle endurance times, repeated end-ROM testing, the Short-Form McGill Pain Questionnaire, and disability questionnaires may distinguish between groups with untreated, treated, and no neck pain.

Experience and practice organization in learning asimulated high-velocity low-amplitude task.

Brian Enebo, DC; David Sherwood, PhD

Objective: To evaluate the effect of practice schedule, type of feedback, and experience level on simulated force production accuracy in chiropractic students.

Methods: Thirty-three chiropractic students simulated a high-velocity low-amplitude prone thoracic spine manipulation. Three force goals based on percent of maximum thrusting ability were used in blocked and random variable practice. Participants received either visual feedback or knowledge of performance feedback regarding their force-time history. Serial retention tests without feedback followed blocked and random variable practice. Peak and average rates of thrust development, as well as the constant error, absolute constant error, and variable error of peak force production, were calculated.

Conclusion: Familiarity and practice of high-velocity low-amplitude spinal manipulation resulted in greater accuracy of peak force production. Lower error scores were observed in acquisition with blocked variable practice. However, short-term accuracy was enhanced in retention when participants had used random variable practice. Random variable practice combined with visual feedback improved

force production accuracy in retention. The variability of peak force production increased to 61% of maximum thrusting ability and then decreased. The greatest accuracy with least variability of peak force production was seen near 75% of maximum thrusting ability.

Autonomic nervous system function among individuals with acute musculoskeletal injury.

David R. Grimm, EdD; Brian M. Cunningham, DC, MS; Jeanmarie R. Burke, PhD,

Objective: To determine differences in peripheral and cardiovascular autonomic function between individuals with acute musculoskeletal injury (<1 week) and healthy controls.

Methods: Autonomic cardiovascular modulation, baroreceptor sensitivity, skin conductance, and peripheral skin temperature were obtained in 6 subjects with acute musculoskeletal injury and 6 age- and sex-matched controls. Power spectral analysis was performed on both beat-to-beat R-R intervals and continuous systolic blood pressure (SBP) peaks. Baroreceptor sensitivity was derived using both heart rate and blood pressure spectral analysis components.

Results: The SD of R-R intervals was significantly different for the acute injury group relative to controls (49.8 Â± 10.5 vs. 76.8 Â± 12.7 ms; P < .01). Continuous SBP peaks and skin conductance (sympathetic vasomotor and sudomotor indices, respectively) were significantly higher (59.6 Â± 6.7 vs. 23.8 Â± 6.4 mm Hg2/Hz, and 3.87 Â± 1.04 vs. 2.19 Â± 0.3 mhos; P < .01, respectively) and baroreceptor sensitivity was lower (0.97 Â± 0.07 vs. 1.10 Â± 0.08 mm Hg; P < .02) in the acute injury group compared with controls. Regression analysis revealed a significant relationship between skin conductance and continuous SBP peaks (r = 0.75; P < .01).

Conclusions: These findings suggest that interaction between cutaneous and vasomotor sympathetic neurons in response to acute musculoskeletal injury, reflected as increased afferent input from sensitized nociceptors and other sensory neurons, results in alterations in autonomic function.

Interexaminer reliability of the deltoid and psoas muscle test.

Henry Pollard, DC, PhD; Bronwyn Lakay, MChiro; Frances Tucker, MChiro; Brett Watson, MChiro; Peter Bablis, DC

Objective: To determine if 2 practitioners of differing skill levels could reliably agree on the presence of a weak or strong deltoid or psoas muscle.

Study Design: Interexaminer reliability study of 2 common muscle tests.

Main Outcome Measures: Cohen (unweighted) scores, observer agreement, and 95% confidence intervals (CIs).

Results: The results showed that an experienced and a novice practitioner have good agreement when using repeated muscle test procedures on the deltoid (_ 0.62) and the psoas (_ 0.67).

Conclusions: The manual muscle test procedures using the anterior deltoid or psoas showed good interexaminer reliability when used by an experienced and a novice user. These techniques may be used between practitioners in multidoctor assessment/management programs.

Cervical artery dissection. A comparison of highly dynamic mechanisms: manipulation versus motor vehicle collison.

Michael Haneline, DC, MPH; John Triano, DC, PhD

Objective: To examine the similarities and dissimilarities between cervical chiropractic manipulative therapy and whiplash, and their respective relation to cervical artery dissection.

Data Sources: A literature synthesis used MEDLINE-PubMed and MANTIS literature searches. A total list of 99 relevant articles was generated. Additional references were collected from citations incorporated within the included articles.

Results: Both neck manipulation and motor vehicle collision events apply loads to the spinal column rapidly. While neck manipulation loads are slower to develop and displacements smaller, they may reach peak amplitudes on maximum effort comparable to those seen in low-velocity collision experiments. In contrast to reports that the vertebral artery experiences elongations exceeding its physiological range by up to 9.0 mm during simulated whiplash, strains incurred during cervical manipulative therapy have been reported to be approximately one ninth of those required for mechanical failure, comparable to forces encountered in the course of diagnostic range-of-motion examination. Additionally, long-lasting abnormalities of blood flow velocity within the vertebral artery have been reported in patients following common whiplash injuries, whereas no significant changes in vertebral artery peak flow velocity were observed following cervical chiropractic manipulative therapy.

Conclusions: Perceived causation of reported cases of cervical artery dissection is more frequently attributed to chiropractic manipulative therapy procedures than to motor vehicle collision-related injuries, even though the comparative biomechanical evidence makes such causation unlikely. The direct evidence suggests that the healthy vertebral artery is not at risk from properly performed chiropractic manipulative procedures.

Postlymphoproliferative disorder affecting bone after a renal transplantation.

Michelle A. Wessely, DC; Norman Kettner, DC; Claude Pierre-Jerome, MD, PhD

Objective: To illustrate a posttransplant lymphoproliferative lymphoma presenting as a solitary osseous lesion situated in the rib.

Clinical Features: A 53-year-old man was referred to a surgical department because of persistent local pain over the lower part of his left posterior hemithorax. Due to a previous history of chronic glomerulonephritis, a renal transplant was performed 7 years previously, followed by immunosuppressive therapy with azathioprine cyclophosphamide.

Intervention and Outcome: Surgical removal of the rib lesion was performed because of the patient's history of the organ transplant. The histological study of the surgically removed tissue revealed diffuse infiltration of the marrow by lymphoid-like cells. There was evidence of interstitial fibrosis, and further immunohistochemical examination showed the presence of B cells in the specimen, confirming the diagnosis of B-cell lymphoma.

Conclusion: This case report discusses an unusual presentation of a lymphoma induced by

immunosuppressive therapy in a patient who had received an organ transplant. Such lesions may appear in any organ or system, although this is distinctively unusual to involve the skeletal system.

ONLINE EXCLUSIVE

Relief of internal snapping hip syndrome in a marathon runner after chiropractic treatment.

Clark R. Konczak, DC; Rick Ames, DC

Objective: To discuss the assessment, diagnosis and chiropractic management of a patient with sacroiliac joint dysfunction (SIJ) complicated by psoas major snapping hip syndrome (*coxa saltans interna*).

Clinical Features: A 32-year-old male marathon runner experienced low-back and left hip pain without radiation accompanied by a "popping" in the anterior hip. He ran approximately 100 to 150 km/wk for the prior 3 years. He had stopped running for the previous 3 weeks because of worsening and consistent pain.

Intervention and Outcome: Treatment consisted of side-posture SIJ "diversified" manipulation and myofascial release to the psoas muscle twice weekly for 2 weeks. The patient was also taught proprioceptive neuromuscular facilitation exercises of the psoas and iliotibial band muscles. He was instructed to substitute swimming instead of running on a daily basis. Reassessment at 3 weeks found the patient without pain in his hip or back and no clicking or popping in his left hip.

Conclusion: Clinicians should consider that runners who present with coexisting SIJ dysfunction and internal snapping hip syndrome may benefit from the combined management of both conditions.

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