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Editorial Staff

Patient characteristics and physicians' practice activities for chronic low back pain patients: A practice-based study of primary care and chiropractic physicians.

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Background: Chronic low back pain sufferers are among the highest utilizers of health care resources. Medical doctors (MDs) and chiropractors (DCs) treat the majority of these patients.

Objectives: To study the patient characteristics and physician practice activities for chronic low back pain patients treated by chiropractors and primary care medical physicians.

Methods: A longitudinal, practice-based observational study was undertaken in 14 general practice and 51 chiropractic community-based clinics. 2,945 consecutive patients with ambulatory low back pain of mechanical origin were enrolled; 835 patients comprised the chronic subgroup. Data were obtained on patient demographics, health status, and psychosocial characteristics. History, duration and severity of low back pain and disability, physicians' practice activities, and low back complaint status were monitored for one year.

Results: MD patients were younger with lower incomes; care was more often paid for by a third party; baseline pain and disability were slightly greater for MD patients. MD patients had one-fourth the visits of DC patients. Use of imaging procedures by enrolling physicians was equivalent in the two provider groups. Medications were prescribed for 80% of the patients enrolled by MDs; spinal manipulation was administered to 84% of patients enrolled by DCs. Physical modalities, self-care education, exercise, and postural advice characterized low back pain management in both provider groups. Patients' care-seeking was not exclusive to one provider type. The majority of patients experienced recurrences (59.3% MD vs. 76.4% DC); 34.1% MD and 12.7% DC patients reported 12 months of continuous pain. Only 6.7% MD and 10.9% DC patients reported one resolved episode during the year.

Conclusions: Differences in sociodemographics, present pain intensity and functional disability may distinguish chronic low back pain patients seeking care from primary care physicians from those seeking care from chiropractors. While the primary treatment modality differs, MD and DC practice activities have much in common. Long-term evaluation suggests that chronic back pain is persistent and difficult to treat for both provider types.

Key Indexing Terms: low back pain; patient characteristics; medical physicians; chiropractic.

Missed lumbar transverse process fractures in a high school football player.

Rona Brynin, DC, and Laura Gardiner, DC

Objective: To discuss the case of a football player who had suffered a transverse process fracture of the lumbar spine that was overlooked upon initial chiropractic and medical examination.

Clinical Features: A 17-year-old male football player had been "speared" in the back by another player. He reported severe pain, which caused him to fall to the ground, and a moderate degree of pain at the time of his chiropractic examination one week post injury.

Intervention and Outcome: Initial chiropractic treatment consisted of spinal manipulation to the lumbar spine. Follow-up care consisted of lumbar spine x-rays that showed evidence of a lumbar transverse process fracture at two levels. He was referred to his medical doctor, who was not convinced of the presence of a fracture and returned him to play. A CT scan was subsequently performed which confirmed fractures of the transverse processes of L-2 and L-3. He was precluded from contact sports for four weeks. Chiropractic care three weeks post-injury included physiotherapy and drop table mobilization to the sacroiliac joints. The patient returned to play four weeks post-injury.

Conclusion: Transverse process fractures commonly occur secondary to blunt trauma in contact sports such as football. With high-force direct trauma, x-rays should be performed to rule out fracture before returning the athlete to play or commencing spinal manipulation.

Key Indexing Terms: fracture; chiropractic manipulation; lumbar spine; trauma.

Dialysis-related spondyloarthropathy.

Deborah D. Brahee, DC, Gary M.Guebert, DC, and Brad Virgin, DC

Objective: To discuss a case of dialysis-related spondyloarthropathy due to beta-2 microglobulin amyloid deposition. An emphasis is placed on the imaging findings.

Clinical Features: A 67-year-old male sought treatment for low back pain. History revealed coronary artery bypass surgery, diabetes with bilateral foot neuropathy, gout, and bilateral renal failure treated with dialysis for two years before a left renal transplant was performed. The renal transplant was performed six years prior. Radiography, computed tomography, and magnetic resonance imaging revealed characteristic changes of dialysis-related spondyloarthropathy.

Intervention and Outcome: The patient initially was treated with physiotherapy. He was then admitted to the hospital and treated for renal infection and medicated for low back pain. Two weeks later he returned to the chiropractor, who began a treatment plan including spinal manipulation, physiotherapy, manual distractive traction, and a gradual increase in activities of daily living. The patient was released from care after two months with significantly decreased pain.

Conclusion: Dialysis-related spondyloarthropathy is a relatively uncommon complication of renal dialysis. It should be suspected in those patients who present with a correlative medical history and characteristic radiographic appearance. Chiropractic treatment can be effective in adjunct to medical care in cases of chronic renal failure and associated complications.

Key Indexing Terms: dialysis; chronic renal failure; arthritis; amyloidosis; chiropractic.

Effect of direction of applied mobilization force on the posteroanterior response in the lumbar spine.

Britt Caling, BAppSc(Hons), and Michael Lee, MBiomedE

Objective: To investigate whether changing the direction of applied force affects measured posteroanterior (PA) stiffness and associated pelvic (sacral) and lower thoracic rotations.

Design: A repeated measures design was used.

Setting: University biomechanical laboratory.

Participants: 24 subjects (14 male, 10 female) with no history of recent low back pain or contraindications to mobilization volunteered for testing.

Main outcome measure: PA stiffness was assessed at vertebral levels L3 and L5 using three sagittal-plane directions of applied force, each direction differing by 10¿. The amount of sacral and lower thoracic rotation that occurred during loading between 30 and 100N was also recorded.

Results: A small but significant variation of stiffness with direction of applied force was found. At L3, mean stiffness was greatest when the PA force was applied in a base-direction, and 11% and 14% less when the force was applied 10¿ more caudal and 10¿ cephalad than the base direction, respectively. There was no significant effect of direction when the force was applied at L5. Sacral and thoracic rotations both displayed a significant variation with direction of force when load was applied at L5, with decreasing rotation as the force was applied in a more caudal direction.

Conclusion: PA stiffness in individuals without back pain is affected by the sagittal-plane direction in which the PA force is applied to the lumbar spine. Remote (thoracic and sacral) movements are also affected by the direction of PA force. Direction of applied force should therefore be controlled, particularly in the research setting.

Key Indexing Terms: Spine; Mobilization; lumbar vertebrae; bomechanics.

Significant changes in systolic blood pressure post-vectored upper cervical adjustment vs. resting control groups: A possible effect of the cervicosympathetic and/or pressor reflex.

Gary A. Knutson, DC

Purpose: To determine whether a vectored adjustment of the atlas in patients identified as demonstrating signs of upper cervical joint dysfunction would cause lowering of blood pressure comnpared to resting controls.

Design: Test 1: controlled clinical trial with a treatment (adjustment) group and a control (resting) group. Test 2: controlled clinical trial with subjects serving as their own controls.

Setting: Private chiropractic practice.

Participants: Test 1: 40 established patients demonstrating signs of upper cervical subluxation/joint dysfunction, and 40 without such signs. Test 2: 30 established patients demonstrating signs of upper cervical subluxation/joint dysfunction.

Intervention: Specific, vectored upper cervical (atlas) adjustment or similarly positioned resting.

Main Outcome Measures: Pre-, resting and post-adjustment systolic, diastolic and pulse rate recorded using a digital oscillometric sphygmomanometer.

Results: In Test 1, subjects receiving adjustment had a significant ($p<.001$) decrease in systolic blood pressure while control (resting) subjects did not. Inter- group comparison of the adjustment and control (resting) groups demonstrated a significant difference ($p<.001$). A greater pre/post drop in systolic pressure was associated with age and higher initial systolic pressure. In Test 2, the pre-to postresting change in systolic blood pressure was not significant. The post-resting to post-adjustment systolic blood pressure changed significantly ($p<.001$).

Conclusion: The results indicate that palpation and vectored atlas adjustment of patients with putative upper cervical subluxation/joint dysfunction causes a significant decrease in systolic blood pressure over resting controls. Similar results were also demonstrated when subjects acted as their own controls. The lack of randomization, blinding and a manipulated control group are factors that weaken these findings. The sudden drop in systolic pressure is proposed to be due to stimulation of the cervicosympathetic reflex or moderation of muscle tone and elimination of the effects of the pressor reflex.

Key Indexing Terms: chiropractic manipulation; occiput; cervical spine; blood pressure.

Recruitment and accrual of women in a randomized controlled trial of spinal manipulation.

Jerrilyn A. Cambron, DC, MPH

Objective: To report on the recruitment efforts and accrual rates for a nonmusculoskeletal chiropractic clinical trial.

Design: The method of recruitment was collected for each individual who responded to an advertisement and completed an interviewer-administered telephone screen.

Setting: A suburban chiropractic teaching clinic with recruitment efforts extending throughout the larger metropolitan area.

Patients: A total of 2,312 women were screened for participation and the advertisement source was collected for each. Of these, 138 women were recruited and fulfilled all study requirements.

Main Outcome Measures: The number of responses and accrual rates were determined for eight different recruitment methods: newspaper advertisements, community referrals, radio advertisements, community colleges, press releases, a community electronic sign, public television, and local posters.

Main Results: The most effective recruitment methods were newspapers, community referrals, and radio advertisements, and the least effective methods were public television and local posters.

Conclusions: The effort to recruit subjects was underestimated in this study. Based on the information gained, future recruitment methods for study participants will primarily focus on low-effort, high-yield methods, such as newspaper and radio advertising, followed by press releases, campus electronic sign, and public television.

Key Indexing Terms: Chiropractic: patient selection; dysmenorrhea; randomized controlled trials; manipulation; recruitment.

Isometric back extension endurance tests: A review of the literature.

Chad E. Moreau, DC, Bart N. Green, DC, Claire D. Johnson, DC, and Susan Moreau, DC

Objective: To review the literature that describes and evaluates the use of isometric back extension endurance tests.

Data Collection: English articles were retrieved by searching MEDLINE and the *Index to Chiropractic Literature.* Key search words were: back muscle endurance, isometric back endurance, trunk extensors, back muscle performance, and Sorensen test.

Data Synthesis: The criteria for inclusion were any study that discussed or tested an isometric type of back endurance extension test; studies that were excluded did not use an isometric testing protocol. Thirty-seven of the initial studies are included in this review.

Results: Six different types of isometric back extension endurance testing methods were found. Three of these procedures require special testing devices. Much of the research on this topic has centered on a procedure known as the Sorensen test. Normative databases have been established for the Sorensen test and two other test types. Validity and reliability have been assessed for some of the procedures.

Conclusions: The influence of motivation and effort exerted by the patient are limiting factors in all of the tests reviewed. These psychological factors warrant further research. Based upon the literature reviewed, the Sorensen method is probably the most clinically useful as it is easy to perform, requires no special equipment, and enjoys the most support from the literature.

Key Indexing Terms: low back pain; muscle; physical endurance; isometric back endurance; diagnosis; sorensen test; back extension.

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