A strategy for a limited search of the literature designed to meet most faculty, clinician and student needs

Jacobs G.E.
J Chiro Ed 1995; 9(1):3–15.

Often it is desirable to supplement or confirm information for class work, or to increase knowledge of what worked with similar cases before making a clinical decision, by identifying or citing several current articles. A strategy is proposed for a limited literature search to meet this purpose. The effectiveness of the search strategy was tested by using four online databases and a topic closely associated with chiropractic, "motion palpation" combined with the topic "reliability." The efficiency, effectiveness, and timeliness of the four searches were measured. A literature search, when using a database that covers the literature of interest and proper indexing terms, can be limited to the most recent 25 citations and still be sufficiently representative of the literature for some non-research purposes.

Monocular visual loss after closed head trauma: immediate resolution associated with spinal manipulation

Gorman RF.
J Manipulative Physiol Ther 1995; 18:308–314.

Objective: To discuss the case of a patient who demonstrated that spinal injuries may cause both cortical and ocular visual loss that was ameliorated by manipulative care.

Clinical features: The patient suffered separate incidents of binocular and monocular loss of vision. A female child, aged 9 yr, presented with bilateral concentric narrowing of the visual fields that returned to normal immediately after spinal treatment. Approximately 1 yr later, she returned with monocular loss of vision after she was struck on the head by a ball.

Intervention and Outcome: The child was treated by spinal manipulation under anesthesia; the vision was found to be normal on awakening from the anesthesia. Both visual recoveries were authenticated by an independent ophthalmic specialist.

Conclusions: This case history adds to the other recorded occasions in which vision is noted to improve when the spine is manipulated. Discussion is directed to the basic pathogenesis: is her condition a form of psychoneurosis, is it a variant of migraine, or could it be a combination of both conditions.

Effectiveness of treatment with a brace in girls who have adolescent idiopathic scoliosis

Nachemson AL, Peterson L-E.
J Bone Jt Surg 1995; 77A(6):815–822.

In a prospective study by the Scoliosis Research Society, 286 girls who had adolescent idiopathic scoliosis, a thoracic or thoracolumbar curve of 25 to 35 degrees, and a mean age of twelve years and seven months (range, ten to fifteen years) were followed to determine the effect of treatment with observation only (129 patients), an underarm plastic brace (111 patients), and nighttime surface electrical stimulation (forty-six patients). Thirty-nine patients were lost to follow-up, leaving 247 (86 per cent) who were followed until maturity or who were dropped from the study because of failure of the assigned treatment. The end point of failure of treatment was defined as an increase in the curve of at least 6 degrees, from the time of the first roentgenogram, on two consecutive roentgenograms.

As determined with use of this end point, treatment with a brace failed in seventeen of the 111 patients; observation only, in fifty-eight of the 129 patients; and electrical stimulation, in twenty-two of the forty-six patients. According to survivorship analysis, treatment with a brace was associated with a success rate of 74 per cent (95 per cent confidence interval, 52 to 84) at four years; observation only, with a success rate of 34 per cent (95 per cent confidence interval, 16 to 49); and electrical stimulation, with a success rate of 33 per cent (95 per cent confidence interval, 12 to 60). The thirty-nine patients who were lost to follow-up were included in the survivorship analysis for the time-period that they were in the study.

Treatment with a brace was successful ($p < 0.0001$) in preventing 6 degrees of increase or more until the patients were sixteen years old. Even a worst-case analysis, in which the twenty-three patients who were dropped from the study after management with a brace were considered to have had failed treatment, showed that the brace prevented progression and that this effect was significant ($p = 0.0005$). There was no difference in the degree of increase in the curve between the patients who were managed with observation only and those who were managed with electrical stimulation.

The appropriateness of chiropractic spinal manipulation for low back pain: a pilot study

Shekelle PG, Hurwitz EL, Coulter I, Adams AH, Genovese B, Brook RH. J Manipulative Physiol Ther 1995; 18:265–270.

Objective: Spinal manipulation is an efficacious therapy for some patients with low back pain (LBP). In this pilot study, we tested the feasibility of assessing the appropriateness of chiropractic spinal manipulation for patients with LBP.

Methods: Criteria for the appropriate and inappropriate use of spinal manipulation for low back pain were developed using the RAND/UCLA appropriateness method. Two separate expert panels, one multidisciplinary and one all chiropractic, each rated a comprehensive array of clinical scenarios for appropriateness. A random sample of practicing chiropractors was selected, and data were collected from ten randomly selected office records from each participating clinician. Assessment of the appropriateness for the use of spinal manipulation was made by comparing the care delivered with the appropriateness criteria determined by each expert panel.

Results: Eight of thirteen (62%) eligible chiropractors agreed to participate. For the remainder, by the multidisciplinary panel's criteria, 38% of care was appropriate and 26% of care was inappropriate. By the

all-chiropractic panel's criteria, the same cases were judged 74% appropriate and 7% inappropriate. The two panel's appropriateness ratings were in agreement on 48% of all cases.

Conclusions: In this geographic area, the rate of appropriate care is between 38% and 74% and the rate of inappropriate care is between 7% and 19%, depending on the criteria used to assess appropriateness. Data from other geographic areas of the U.S. will be needed before inferences to a larger population may be drawn, and we have demonstrated that such a study is feasible.

Cerebellar border zone infarcts are often associated with presumed cardiac sources of ischaemic stroke

Mounier-Vehier F, Degaey I, Leclerc X, Leys D.
J Neurol Neurosurg Psychiatry 1995; 59:87–89.

It has been suggested that most border zone cerebellar infarcts are embolic infarcts or infarcts due to hypercoagulable states. The aim of this study was to test this hypothesis.

Risk factors for the presumed mechanism of stroke (TOAST criteria) were studied in 14 consecutive patients (nine men, five women; age range 29–84 years) with a total of 17 border zone cerebellar infarcts.

The presumed cause of stroke was "cardioembolism" in nine patients. Three patients had a dissection of the vertebral artery. Two patients had a negative diagnostic investigation, and one had a cardiac arrest.

These findings support the hypothesis that cardioembolism is a frequent mechanism of border zone cerebellar infarcts.

An electromyographic study of the intramuscular effects of the chiropractic adjustment: a pilot study

Hayek R, Austin S, Pollard H.
Comsig Review 1995; 4(1):3–9.

There have been many attempts to record changes in the activity of the superficial spinal musculature following manipulative therapy by means of Electromyography (EMG). However, the question asked in this study was "By utilising bipolar intramuscular electrodes (BIM) can an association between intrinsic muscle action potentials and the chiropractic subluxation be demonstrated?"

The rotatorae muscles are the deepest of the intrinsic muscle groups and are intimately associated with the intrinsic movements of the thoracic motion segment. The areas chosen for this study included segments from T1 to T4 as the rotatorae muscles at these levels are the most developed.

All EMG activity was monitored using a Medelec MS6 mainframe recording unit. The BIM electrodes were paired, 71µm diameter polyurethane coated copper wires, threaded through a 41 mm length of 27 gauge dental needle and bent back to achieve an interelectrode distance of 2mm. This was then inserted to the desired depth of 4cm and then withdrawn to leave the BIM electrodes imbedded in the rotatorae muscle. Control electrodes were placed 4 spinal segments lower than the experimental level on the homolateral side of experimental spinal segment.

It was found that the fixated segment's rotatorae muscles has an EMG background reading at rest. It was postulated that this facilitated state of the muscle was generated at the neuromere as a result of aberrant afferent input from the associated general somatic afferents directly innervating that spinal segment. A decrease in amplitude and frequency of the action potential was observed in the rotatorae muscles, after spinal adjustment. Control readings were taken to assess the change in EMG activity associated with habituation to the experimental procedure with time. It was found that there was no change in the action potential that could be attributable to habituation.

This pilot study suggests a potentially effective way of analysing the effects of spinal manipulative therapy on the intrinsic muscles of the spine. Preliminary data indicated an increase in action potential, of the rotatorae muscles associated with a national chiropractic subluxation, and de-facilitation of those muscles following a chiropractic adjustment.

Mechanism of the burst fracture in the thoracolumbar spine: the effect of loading rate

Tran NT, Watson NA, Tencer AF, Ching RP, Anderson PA.
Spine 1955; 20:1984–1988.

Study Design: Calf lumbar spine motion segments were randomly assigned to two groups. After insertion of a transducer capable of measuring transient occlusion of the spinal canal during impact, a low rate axial impact was applied in one group and a high rate load in the other. Post-injury computed tomography scans and peak canal occlusions were measured to determine the effect of rate of load application on occlusion of the spinal canal.

Objectives: This study was designed to determine if for the same direction of impact and total energy delivered, occlusion of the spinal canal postvertebral fracture was related to the rate at which the impact was delivered (time from zero to peak load).

Summary of Background Data: Several reports based on clinical observations have hypothesized that axial burst fractures, which displace bone fragments into the canal, occur because of internal pressurization and explosion of the vertebral body. The extent of bursting of the vertebra may depend on the rate of pressurization of the body, which could be related to the rate at which the load is applied.

Method: Using calf lumbar spines, a transducer was placed within the spinal canal, after removal of the cord, to measure canal occlusion during impact. One group received axial compressive impacts at a mean loading rate of 400 msec (zero to peak load) using a materials-testing machine. The energy of failure was determined and used to select a drop weight and distance for the high loading rate tests, which would yield equivalent impact energy. The second group received impacts at a loading rate of 20 msec. The post-injury radiographs and canal occlusion measurements were compared.

Results: The same mean energy of impact was used in the fractures for both groups. Post-injury radiographs of the low loading rate group showed compressive fractures with a mean canal occlusion of 6.84%,

whereas the high loading rate group had burst fractures with mean canal encroachment of 47.6% ($P = 0.0007$)

Conclusions: For the same energy and direction of impact, a high impact loading rate produces fractures with significant canal encroachment, whereas minimal encroachment is seen for fractures produced at a low loading rate.

Prediction of progression of the curve in girls who have adolescent idiopathic scoliosis of moderate severity

Peterson L-E, Nachemson AL.
J Bone Jt Surg 1995; 77A(6):823–827.

In a study conducted by the Scoliosis Research Society, 159 girls with a mean age of thirteen years (range, ten to fifteen years) who had adolescent idopathic scoliosis were followed prospectively until skeletal maturity or until the curve had increased 6 degrees or more. All patients had had an initial curve of 25 to 35 degrees and an apical level between the eighth thoracic and first lumbar vertebrae, inclusive. Of the 159 patients, 120 were observed without treatment and thirty-nine were managed with lateral electrical surface stimulation. The curve progressed at least 6 degrees in eighty patients. There was no apparent difference in the outcome between the patients who were managed with observation only and those who were given electrical stimulation.

Logistic regression analysis was performed to determine which of eleven factors were predictive of progression of the scoliotic curve. A Risser sign of 0 or 1, an apical level cephalad to the twelfth thoracic vertebra, and an imbalance of ten millimeters or less were found to be independently prognostic of progression of more than 6 degrees.

A prognostic model that included these three factors and chronological age allowed correct classification of the curve as either progressive or non-progressive in 81 per cent of these patients who had a thoracic or thoracolumbar adolescent idiopathic scoliosis. The positive predictive value was 82 per cent, the negative predictive value was 80 percent, and the sensitivity and specificity were each 81 per cent.

Position of the cervical vertebrae during helmet removal and cervical collar application in football and hockey

Prinsen RKE, Syrotuik DG, Reid DC.
Clin J Sport Med 1995; 5(3):155–161

There is lack of consensus among prehospital personnel (athletic therapists, paramedics, sport physiotherapists) concerning specific aspects of initial care and assessment of injured athletes presenting signs and symptoms of a cervical spine injury (CSI). In instances of serious injury involving the head and/or spine, complicated by altered levels of consciousness, protective equipment such as helmets and shoulder pads may provide a hindrance to prompt, safe, and efficient management. Specifically, there is disagreement concerning the need or advisability of removing protective head gear, as in the case of football and hockey athletes. Using the technique of fluoroscopy, the cervical spine displacement of 21 male football and hockey athletes was determined while wearing protective shoulder pads and protective head equipment at the following times (a) during helmet removal, (b) during cervical collar application, and (c) as the helmetless head was allowed to rest. Subsequent frame-by-frame video arthokinematic analysis, using computer-assisted digitization, showed significant alterations in the position of adjacent cervical vertebrae during helmet removal, cervical collar application, and head rest. Results suggest that stabilization and transportation of football and hockey athletes with suspected CSI in their respective protective equipment is recommended in order to reduce the risk of further trauma by unnecessary cervical spine motion.

Ratings of perceived exertion at maximal exercise in children performing different graded exercise test

Mahon AD, Ray ML.
J Sports Med Phys Fitness 1995; 35:38–42.

The purpose of this study was to examine the rating of perceived exertion (RPE) at maximal exercise in children performing three different graded exercise tests on a treadmill. Eighteen children with a mean ± SD age of 10.3 ± 1.4 years volunteered for this study. Each subject performed three different graded exercise test protocols on a treadmill. The protocols consisted of walking only, running only, and combination walk/run. Mean $\dot{V}O_{2max}$ ($ml \cdot kg^{-1} \cdot min^{-1}$) during the walking trial (47.3 ± 5.0) was significantly ($p < 0.05$) less than during the running (52.1 ± 4.9) and combination trials (51.9 ± 5.1). Mean HRmax (bpm) was significantly ($p < 0.05$) lower during the walking test (195.2 ± 7.9) compared to the running (202.2 ± 7.4) and combination tests (202.3 ± 6.6). Mean RPE at maximal exercise was 18.1 ± 2.1 in the walking trial, 16.8 ± 3.0 in the running trial, and 16.8 ± 2.6 in the combination trial, and was significantly ($p < 0.05$) greater in the walking trial compared to the other two testing protocols. These data indicate that although $\dot{V}O_{2max}$ during a walking test is lower, effort sensation is higher compared to protocols that use running as the mode of exercise. The factors involved with RPE selection in this age-group remain to be established.

The concept of lactate threshold

Antonutto G, Di Prampero PE.
J Sports Med Phys Fitness 1995; 35:6–12.

The anaerobic threshold (AT) is a widely used tool for investigating aerobic performance characteristics in physiological of pathological conditions. The aim of the present paper is to show that, when the lactate concentration in blood [La_b] is constant in time, regardless of its absolute level, the whole body energy sources for muscular work are entirely aerobic. In fact, [La_b] can remain constant if, and only if, La production is equal to La removal. Since this last is an entirely aerobic process, it can be shown that the net anaerobic energy yield from La production is nil, even if some muscle fibres are indeed producing La at a non trivial rate. These conditions will be defined as "unevenly aerobic" to distinguish them from: (1) the traditional "evenly aerobic" ones, in which the net La

production is also zero, but because neither La production nor La removal are significantly increased, and (2) "true anaerobic" conditions wherein La production exceeds La removal and therefore [La_b] increases continuously in time. Comparison of unevenly versus evenly aerobic conditions shows that in the former case the depletion of the glycogen stores is faster in the muscles (or muscle fibres) that are producing La than in those which remove it. Hence the La producing fibres may become crucial in setting the duration (or intensity) of performance. AT, irrespective of its precise mode of assessment, is presumably a measure of the exercise intensity corresponding (or close) to the transition between evenly and unevenly aerobic conditions, thus explaining why AT is a good estimate of the subjects' training status and/or performance capacity.

Cardiovascular tests of autonomic function and sympathetic skin responses in patients with major depression

Guinjoan SM, Bernabó JL, Cardinali DP.
J Neurol Neurosurg Psychiatry 1995; 58:299–302.

To assess the function of the autonomic nervous system in major depression, a series of cardiovascular tests, together with the recording of sympathetic skin response, were performed in 18 depressed patients (melancholic type, DSM-III-R criteria) and in 18 healthy control subjects. Depressed patients showed significantly poorer performance in Valsalva's, deep breathing, and lying to standing manoeuvres than controls, indicating an impairment of parasympathetic function. Depressed patients developed a significantly larger sympathetic skin response than controls during the lying to standing and hand grip manoeuvres, whereas cardiovascular sympathetic performance (as assessed by the responses to hand grip, cold, mental arithmetic, explosive sound, or hyperventilation) was similar in both groups. The results are compatible with the view that a diminished parasympathetic reactivity, and presumably an increased sympathetic reactivity, occur in patients with major depression.

Chemonucleolysis versus laminectomy: a cohort comparison of effectiveness and charges

Javid MJ.
Spine 1995; 20:2016–2022.

Study Design: A prospective cohort study was done comparing 100 consecutive chemonucleolysis patients with 100 consecutive laminectomy patients.

Objectives: The effectiveness and cost of chymopapain chemonucleolysis was compared with that of laminectomy to manage herniated lumbar discs.

Summary of Background Data: Although the efficacy of chemonucleolysis has been established, controversy regarding the relative benefits of chemonucleolysis and laminectomy continues to arise. The relative cost-effectiveness of the two procedures has not been evaluated previously in a cohort study.

Methods: Patients in both treatment groups were of comparable age, height and weight, and worker's compensation status. Patients with migrated disc were not considered for chemonucleolysis. Improvement in pain, paresthesia, straight-leg raising, reflexes, motor loss, and sensory function, self-reported overall improvement, ability to maintain employment, and charge of treatment were used to measure treatment success.

Results: Clinical assessment after 6 weeks showed 92% of laminectomy patients compared with 82% of chemonucleolysis patients had successful results ($P = 0.058$). Chemonucleolysis patients had greater improvement in numbness ($P = 0.014$) and sensory and motor functions ($P = 0.002$). After 6 months, 88% of chemonucleolysis patients and 85% of laminectomy patients had successful results, with a greater improvement in sensory status of chemonucleolysis patients ($P < 0.001$). After 1 year, 87% of chemonucleolysis patients and 82% of laminectomy patients had successful results, and more chemonucleolysis patients than laminectomy patients were employed. Based on similar therapeutic results, the average charge savings for chemonucleolysis patients was $5365 when chemonuleolysis was performed instead of laminectomy.

Conclusion: This study shows that chemonucleolysis is as effective as laminectomy in appropriately selected patients but at lower charge and can contribute substantially to reducing short- and long-term health costs.

Lumbar spondylolysis in children and adolescents

Morita T, Ikata T, Katoh S, Miyake R.
J Bone Joint Surg [Br] 1995; 77-B:620–625.

We investigated 185 adolescents under the age of 19 years with spondylolysis. All but five were active in sport. The pars defect was classified into early, progressive and terminal stages.

Of the 346 pars defects in 185 patients, 39.6% were early, 29.5% progressive and 30.9% in the terminal stages. Conservative management produced healing in 73.0% of the early, 38.5% of the progressive and none of the terminal defects.

These results suggest that spondylolysis is caused by repetitive microtrauma during growth and can be successfully treated conservatively if treatment is started in the early stage. There was elongation of the pars interarticularis as the pars defect progressed, and this is likely to be a consequence of the defect rather than a contributing cause.

Cluster headache: cardiovascular responses to head-up tilt

Kruszewski P, Bordini C, Brubakk AO, Sjaastad O.
Headache 1995; 35:465–469.

Head-up tilt tests were performed in six cluster headache patients in a bout of attacks, but in a pain-free interval at the time of investigation; and in eleven controls matched for age, basal blood pressure, and heart rate. A Doppler servomethod was used for a noninvasive, beat-to-beat blood

pressure determination. There were no significant differences between the cluster headache and control groups for heart rate and systolic blood pressure response to the head-up tilt. However, the average diastolic blood pressure seemed to drop more after the tilt in the cluster headache group than in the control group; in particular, in the later part of the test. This might suggest a dysfunction of the baroreflex in cluster headache patients in a bout, also outside of attacks, and more probably of the sympathetically-mediated vasomotor response.

Possible identification of cervicogenic headache among patients with migraine: an analysis of 374 headaches

Leone M, D'Amico D, Moschiano F, Farinotti M, Filippini G, Bussone G. Headache 1995; 35:461–464.

According to Sjaastad, the pain in cervicogenic headache, a form not recognized by the IHS, is long lasting and always side-locked unilateral. The frequency of side-locked unilateral pain (defined here as no change in side from onset) and other characteristics of cervicogenic headache were investigated in 300 outpatients using information collected on standard forms in structured interviews. Three hundred seventy-four headaches diagnosed according to IHS criteria were identified. Three hundred forty-eight of these headaches were long-lasting (duration of more than 4 hours); migraine (65%) followed by tension-type headache (25%) were the commonest forms. Side-locked unilaterality was present in 29% (101 of 348), and occurred most frequently in migrainous disorders not fulfilling the criteria (25 of 56, 44.6%). This group differed significantly from the other migraine conditions for longer pain duration ($P < 0.02$) and less frequent nausea, vomiting, photophobia, phonophobia ($P < 0.0001$), and aggravation by physical activity ($P < 0.02$). With these characteristics, this group resembled cervicogenic headache. However, in none of these patients was pain triggered by head or neck movements, and the frequency of head or neck trauma did not differ from other headaches. A more precise definition of clinical criteria for cervicogenic headache vs migraine is, therefore, required.

Randomised comparison of chiropractic and hospital outpatient management for low back pain: results from extended follow up

Meade TW, Dyer S, Browne W, Frank AO.
Br Med J 1995; 311:349–351.

Objective: To compare the effectiveness over three years of chiropractic and hospital outpatient management for low back pain.

Design: Randomised allocation of patients to chiropractic or hospital outpatient management.

Setting: Chiropractic clinics and hospital outpatient departments within reasonable travelling distance of each other in 11 centres.

Subjects: 741 men and women aged 18-64 years with low back pain in whom manipulation was not contraindicated.

Outcome measures: Change in total Oswestry questionnaire score and in score for pain and patient satisfaction with allocated treatment.

Results: According to total Oswestry scores improvement in all patients at three years was about 29% more in those treated by chiropractors than in those treated by the hospitals. The beneficial effect of chiropractic on pain was particularly clear. Those treated by chiropractors had more further treatments for back pain after the completion of trial treatment. Among both those initially referred from chiropractors and from hospitals more rated chiropractic helpful at three years than hospital management.

Conclusions: At three years the results confirm the findings of an earlier report that when chiropractic or hospital therapists treat patients with low back pain as they would in day to day practice those treated by chiropractic derive more benefit and long term satisfaction than those treated by hospitals.

C1–2 arthrography

Chevrot A, Cermakova E, Vallée C, Chancelier MD, Chemla N, Rousselin B, Langer-Cherbit A.
Skeletal Radiol 1995; 24:425–429.

Objective: To describe the technique of C1–2 arthrography and recommend it as a suitable treatment for pain due to C1–2 abnormalities.

Materials and methods: One hundred patients with the following conditions were studied: cervical pain or neuralgia without radiographic changes (group 1, $n = 23$), osteoarthritis (group 2, $n = 37$), rheumatoid arthritis (group 3, $n = 23$), ankylosing spondylarthritis (group 4, $n = 5$) and inverse conditions (group 5, $n = 12$). The technique consists of lateral puncture of the posterior aspect of the C1–2 joint with a 20-gauge needle under fluoroscopic control, arthrography using 1 ml contrast medium, and a 1-ml long-acting steroid injection subsequently.

Results: The articular cavity has an anterior and a posterior recess. Sometimes the posterior recess is large. In 18% of cases the contralateral joint also opacifies.

Conclusion: C1–2 arthrography appears to be an efficient and safe technique for the treatment of upper cervical pain due to C1–2 articular disorders.

The outcomes and costs of care for actue low back pain among patients seen by primary care practitioners, chiropractors, and orthopedic surgeons

Carey TS, Garrett J, Jackman A, McLaughlin C, Fryer J, Smucker DR. N Engl J Med 1995; 333:913–917.

Background: Patients with back pain receive quite different care from different types of health care practitioners. We performed a prospective observational study to determine whether the outcomes of and charges for care differ among primary care practitioners, chiropractors, and orthopedic surgeons.

Methods: Two hundred eight practitioners in North Carolina were randomly selected from six strata: urban primary care physicians ($n = 39$), rural primary care physicians ($n = 48$), urban chiropractors ($n = 32$), rural chiropractors ($n = 32$), orthopedic surgeons ($n = 29$), and

primary care providers at a group-model health maintenance organization (HMO) (n = 28). The practitioners enrolled consecutive patients with acute low back pain. The patients were contacted by telephone periodically for up to 24 weeks to assess functional status, work status, use of health care services, and satisfaction with the care received.

Results: The status at six months was ascertained for 1555 of the 1633 patients enrolled in the study (95 percent). The times to functional recovery, return to work, and complete recovery from low back pain were similar among patients seen by all six groups of practitioners, but there were marked differences in the use of health care services. The mean total estimated outpatient charges were highest for the patients seen by orthopedic surgeons and chiropractors and were lowest for the patients seen by HMO and primary care providers. Satisfaction was greatest among the patients who went to the chiropractors.

Conclusions: Among patients with acute low back pain, the outcomes are similar whether they receive care from primary care practitioners, chiropractors, or orthopedic surgeons. Primary care practitioners provide the least expensive care for acute low back pain.

Construction and validation of a specific quality of life instrument for adolescents with spine deformities

Climent JM, Reig A, Sánchez J, Roda C.
Spine 1995; 20:2006–2011.

Study Design: The development and construction of a specific instrument for measuring quality of life in adolescents with spine deformities was investigated.

Objectives: To assess the validity and reliability of the Quality of Life Profile for Spine Deformities.

Summary of Background Data: An 88-item questionnaire was self-administered to 174 patients ranging in age from 10 to 20 years with spine deformities. Items were rated on a five-point Likert scale. Higher scores means high level of impairment in quality of life. Age, gender, menarche or voice change, salient symptoms in the medical record, ordinary parameters on physical examination, and measurements on standard anteroposterior and lateral radiographs were recorded. The retest was done 10 days after the initial administration in a subsample of 35 patients.

Methods: The test–retest reliability was analyzed calculating the intraclass correlation coefficient. Internal consistency was measured with the Cronbach's α method. Factor analysis was used to obtain a reduced number of variables. Construct validity was assessed using the principal components model of factor analysis based on the correlation matrix and using the varimax computer algorithm for orthogonal rotation. Discriminant validity was assessed using the Kruskal-Wallis test.

Results: The Quality of Life Profile for Spine Deformities contained 21 items and five factors in conceptual terms labeled psychosocial functioning, sleep disturbances, back pain, body image, and back flexibility. The overall questionnaire score showed an internal consistency of 0.88 and a test–retest correlation of 0.91. Patients with structural curves showed significantly higher scores in all dimensions of the Quality of Life Profile for Spine Deformities except for the subscale of body image than patients with postural curves. When patients were grouped according to the symptom of back pain, those with backache had a significantly higher quality of life overall score and scores in the dimensions of sleep disturbances and pain. Brace-treated patients showed statistically significant differences in the quality of life overall score and scores in the dimensions of psychosocial functioning and back flexibility.

Conclusions: The instrument developed for measuring quality of life in patients with spine deformities during the period of bone growth has validity, internal consistency, and high test–retest reliability. The conceptualization of quality of life of the Quality of Life Profile for Spine Deformity includes psychosocial dimensions and pain and function.

The value of brain imaging in children with headaches

Maytal J, Bienkowski RS, Patel M, Eviatar L.
Pediatrics 1995; 96:413–416.

Objective: To determine the value of performing computed tomography (CT) or magnetic resonance imaging (MRI) studies in children with chronic headaches.

Background: Headache is a common complaint in children. With the proliferation of brain imaging centers and the increasing patient demand for CT or MRI studies, brain imaging has become widely used to evaluate headaches.

Methods: A retrospective chart review was conducted of all children referred to the pediatric neurology clinic for evaluation of headaches over a 2-year period. Charts were reviewed for headache characteristics, clinical indications for performing CT and MRI studies, and imaging results. Particular attention was paid to evidence of brain tumors, vascular anomalies, or hydrocephalus.

Results: A total of 133 records were studied. Subjects ranged in age from 3 to 18 years. Most patients were diagnosed as having either vascular migrainous headaches (52%) or chronic tension headaches (21%). Other headache diagnoses were mixed tension-migraine, psychogenic, and post-traumatic. Headaches were unclassified in 25 patients (19%). Seventy-eight patients (59%) had brain imaging: 45 had MRI, 27 had CT, and 6 patients had both. In most cases, brain imaging studies were performed in patients with atypical headache pattern, presence of neurologic abnormalities during the headache, general symptoms (i.e., weight loss or fatigue), or because of parents' or doctors' concerns about brain tumors. Cerebral abnormalities were found on brain imaging in four patients, but none indicated the presence of a treatable disease and all were deemed unrelated to the presenting complaint. Our findings of no relevant abnormalities in a series of 78 brain imaging studies indicate that the maximal rate at which such abnormalities might appear in this population is 3.8%.

Conclusions: These results indicate that brain imaging studies have very limited value in evaluating headaches in pediatric patients without clinical evidence of an underlying structural lesion.