

Lymphocyte profiles in patients with chronic low back pain enrolled in a clinical trial

Brennan PC, Graham MA, Triano JJ, Hondras MA, Anderson RJ.
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Objective: Our earlier findings suggest that patients with musculoskeletal complaints have lower numbers and percentages of natural killer (NK) cells than asymptomatic subjects. This study examines patient lymphocyte profiles, as a secondary outcome measure, in a trial of manipulative therapies to treat chronic low back pain (LBP) of mechanical origin.

Design: The patients were compared in a randomized controlled trial. Baseline measures were collected at the initial visit; all patients were scheduled for 11 treatments in 14 days. Treatment consisted of either a high-force, high-velocity, low-amplitude manipulation procedure; a low-force, high-velocity, low-amplitude procedure or a series of educational lectures on lower back pain. Posttreatment measures were collected at the final treatment session; follow-up measures were obtained 2 weeks later.

Setting: The study was conducted at a chiropractic teaching clinic in the suburban Chicago area.

Participants: Individuals over 18 were eligible if they were new patients or repeat patients with a 6 month's hiatus, if the chief complaint was LBP of greater than 50 days' duration, if pain was elicited with palpation over one or more of the facet joints from the spinal levels between L1 and S1 and including the sacroiliac joints, and if there was absence of pain referral or if pain referral was only scleratogenous in nature. Criteria for excluding patients included hard neurologic signs, systemic disease potentially affecting the musculoskeletal system, contraindication to spinal manipulation such as osteoporosis, fracture or other bony pathology, or treatment with medication intended to relieve symptoms associated with their LBP. Eligibility was determined by a staff diagnostic team independent of the attending physician. Three hundred sixty-seven of 1,275 consecutive new patients met the eligibility criteria. Of these, 209 participated. These results are for 201 patients from whom flow cytometric data were obtained.

Outcome Measures: Both absolute numbers and percentages of B-lymphocytes, T-lymphocytes, T-Helper (T_H) T-Suppressor (T_S) and NK lymphocytes were determined. Blood samples were collected at the same time that the primary outcome measures were obtained. Cells were stained with two-color monoclonal antibodies directed against specific cell surface antigens, and each lymphocyte subpopulation was quantified directly from lysed whole blood with a Coulter Epics Profile II flow cytometer.

Results: Thirty-five patients dropped out before the follow-up visit and technical problems resulted in the loss of data from 17 more and the exclusion of some subpopulation data. In all, 148 cases were analyzed for B cells, 146 for T_H , T_S and NK cells and 138 for cells that carried both the NK and T_S marker. A one-way analysis of variance revealed no significant differences in the lymphocyte profiles at baseline among the three groups. All subpopulation baseline values were within reported reference ranges for normal adult populations. However, the percentage of NK cells (9.1%) was below the published minimum critical value. A repeated measure analysis of variance was used to determine

whether treatment effects changed over time, that is, treatment-time interaction. The cell types for which the interaction tests were at or near statistical significance were T_H cells ($p = .0208$), total T cell percent ($p = .0928$) and absolute total T cells ($p = .0908$). Interaction tests for differences in either percent or absolute counts of B cells, T_S cells, or NK cells were not statistically significant.

Conclusions: This is the first report of lymphocyte profiles in patients with diagnosed chronic LBP. Our finding of a lower percentage of NK cells in these patients confirms our earlier finding that patients with musculoskeletal problems have a lower percentage of NK cells than do asymptomatic subjects. However, manipulative therapy was not shown to have a clinically significant effect on either the absolute number or percentage of any lymphocyte subpopulation studied. Because lymphocyte profiles were a secondary outcome in this trial, the eligibility established for the primary outcomes may not have been rigorous enough to avoid confounding these results or the treatment schedule or sampling times may not have been appropriate to detect changes at the cellular level.

Back pain distribution patterns: relationship to subjective measures of pain severity and disability

Bolton JE, Christensen MNK.
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Objective: To investigate the relationship between subjective pain measures and clinical subgroupings as determined by pain distribution patterns in back pain patients.

Design: A prospective study using a computer-interview system.

Setting: The Anglo-European College of Chiropractic outpatient clinic.

Patients: Two hundred fourteen new patients with low back pain completed the computer back pain interview on their first or second visit to the clinic. No other inclusion criteria were applied.

Main Outcome Measures: Computer versions of the VAS, Oswestry and St. Thomas' disability questionnaires and the pain drawing.

Results: Back pain patients with pain radiating below the knee (Group 3 patients) reported significantly higher levels of disability than patients with back pain alone (Group 1 patients) ($p < .001$) and back pain with pain referred to the buttock/thigh region (Group 2 patients) ($p < .01$). Similarly, Group 3 patients reported significantly higher levels of pain severity than both Group 1 ($p < .01$) and Group 2 ($p < .05$) patients. The increased level of disability reported by Group 3 patients almost exactly matched the increase in self-assessed pain severity. No differences were observed in the report of either pain severity or disability between Group 1 and Group 2 patients.

Conclusion: Subjective pain measure scores were shown to be related to recognizable clinical subgroupings of back pain based on the distribution, but not the extent, of the patient's pain. Back pain patients with radicular pain below the knee were found to be a high disability/pain severity group compared with other groups of back pain patients. More work is needed to investigate the potential of subjective pain measures in the differential diagnosis of back pain syndromes.

Angiography and colour flow duplex ultrasonography in the evaluation of peripheral ischaemic occlusive arterial disease

Zeuchner J, Geitung JT, Lukes P, Göthlin.
Acta Radiologica 35 (1994) Fase. 3

Colour flow duplex ultrasonography (CFDUS) was performed in 50 patients with advanced peripheral ischaemic disease scheduled for conventional angiography. Atherosclerosis was diagnosed by the appearance of plaque and spectral broadening. Haemodynamically significant stenosis was represented as a doubling of peak systolic velocity expressed as peak velocity ratio. Occlusion was diagnosed by the lack of colour saturation and absence of Doppler wave form. In the pelvis and thigh/knee region the sensitivity and specificity exceeded 90% except for stenoses, where the sensitivity was lower. The run-off was evaluated by examination of the tibial and peroneal arteries to at least midcalf. If 2 open arteries were identified, or, if only the posterior tibial artery was patent, the run-off was considered good. Compared to angiography the sensitivity and specificity exceeded 90%. We conclude that CFDUS is an accurate non-invasive method for preoperative screening of patients with peripheral ischaemic disease.

Pathophysiology of spinal deformities in neurofibromatosis

Funasaki H, Winter RB, Lonstein JB, Denis F.
J Bone Jt Surg 1994; 76A(5):692-700.

The findings in seventy-one patients who had previously untreated spinal deformities associated with dystrophic changes and who had neurofibromatosis were reviewed to identify the risk factors for progression of the curve as well as the natural history of the dystrophic changes and curve patterns. Four different types of curves were evaluated. Two of them had the most severe progression: (1) kyphoscoliosis with angular kyphosis (gibbus) and marked dystrophic changes and (2) so-called kyphosing scoliosis (a scoliosis that has so much rotation [90 degrees] that progression is evident only on the lateral roentgenogram) with a round kyphosis. Risk factors for substantial progression of the curve were an early age of onset, a high Cobb angle at the first examination, an abnormal kyphosis, vertebral scalloping, severe rotation at the apex of the curve, location of the apex of the curve in the middle to caudal thoracic area, penciling of one rib or more on the concave side or on both sides of the curve, and penciling of four ribs or more.

Evaluation of a computerized electrogoniometer

Hansmeier D, Wood J.
CHIROPRACTIC: The Journal of Chiropractic Research and Clinical Investigation 1994; 9(1):6-10.

The CA-6000 Spine Motion Analyzer (Orthopedic Systems, Inc.) measures movements around three orthogonal axes of rotation simultaneously. This capacity makes it a potentially valuable tool for evaluat-

ing coupled motion, asymmetry, range of motion (ROM), and velocity of motion. We evaluated the precision of the CA-6000 Spine Motion Analyzer to measure angular rotations and investigated the instrument's accuracy in measuring ROM of subjects, all in the sagittal plane. The CA-6000 can measure angular rotations with high precision and respectable accuracy. Corrected ROM measurement of actual subjects using the CA-6000 had high agreement with ROM calculations made from videofluoroscope images obtained simultaneously.

A survey of referral habits of American Back Society Symposium attendees

Mootz RD, Meeker WC.
Chiropractic Technique 1994; 6(1):1-4.

To survey self-reported referral practices of a multidisciplinary group of health care providers attending a low back pain conference. A two-page survey was distributed to attendees of an American Back Society Symposium and collected for analysis. Responses to demographic information and referral practices were tabulated. 280 surveys were returned from nearly 500 seminar attendees at the Fall 1990 American Back Society Symposium on Low Back Pain (56% response). Respondents tended to be younger and practice in urban settings. The vast majority were male. Over half of the multidisciplinary group were in practice less than 10 years. All of the chiropractors reported making referrals to other providers; 62% of the multidisciplinary group stated they never referred patients to chiropractors. Other practice and referral characteristics are reported. Chiropractors appear more likely to refer patients to medical practitioners than medical practitioners are to utilize the services of chiropractors. Physical therapists rarely use services of chiropractors while the vast majority of chiropractors referred to allied medical practitioners. Most providers tend to make contact by phone or letter when referring a patient. Those practitioners who send letters when referring patients out are more likely to have that gesture reciprocated when patients are referred to them.

The relationship of changes in cervical curvature to visual analog scale, neck disability index scores and pressure algometry in patients with neck pain

Wallace HL, Jahner S, Buckle K, Desai N.
CHIROPRACTIC: The Journal of Chiropractic Research and Clinical Investigation 1994; 9(1):19-23.

The association between loss of cervical lordotic curvature and clinical symptoms is not well understood. This investigation evaluated symptoms observed with changes in cervical curvature as a step toward understanding these associations. Videofluoroscopic (VF) studies from thirty-eight subjects with neck pain were analyzed to measure the cervical curve, using the Pettibon Method. The total change in the curve was measured at the end of the twelve-week study period. Subjects rated their sensation of pain using a Neck Pain Disability Index questionnaire (NDI) and a Visual Analog Scale (VAS). Midline vertebral algometer readings were taken from the occiput to the seventh cervical

to measure pressure pain thresholds of the cervical segments. All subjects received Pierce method chiropractic adjustments as clinically indicated. Improvements were noted in all measurements of clinical symptoms. Mean algometer readings showed a mean increase of 42.5% in pain threshold. Overall pain and discomfort, as indicated by the NDI, decreased markedly (-11.36 , a 58.8% decrease). The VAS readings also decreased by a significant percentage (56%). There was an average net increase of cervical curve of 6.0° . The patients' improvement as indicated by VAS, NDI and algometer was concurrent with an increase in the degree of curvature of the cervical spine.

Ethical principles and professional concerns contained in chiropractic oaths

Erlen JA, Erlen J, Dickstein E.

CHIROPRACTIC: The Journal of Chiropractic Research and Clinical Investigation 1994; 9(1):14-18.

Students upon their graduation from a school of chiropractic continue the tradition of taking an oath affirming the values of the discipline. However, are these pledges relevant for today's practitioners? This study examined the contents of the oaths taken by graduates in 1989 to determine what ethical principles and professional concerns were expressed in those pledges. Traditional principles of doing no harm, promoting the patient's welfare, and keeping confidences were present. While dignity of the patient was included, there was no clear evidence of respect for the patient's autonomy. Other professional concerns included in the oaths were competence, progress of the profession, and having positive regard for teachers and colleagues; however, these themes were not reflected in all the oaths. The investigators suggest that perhaps chiropractic oaths need to be revised to reflect more contemporary values and beliefs about patients, health, and the practice of chiropractic.

Sciatic tension signs and lumbar disc herniation

Supik LF, Broom MJ.

Spine 1994; 19(9):1066-1069.

Study Design: Sciatic stretch maneuvers designed to elicit signs of nerve root compressions secondary to lumbar disc herniation were evaluated in a prospective manner to correlate intraoperative evaluation of surgical pathology regarding level and anatomic location and proximity of the herniated disc to the nerve root.

Objectives: To study the correlation between specific diagnostic maneuvers of sciatic stretch and anatomic location or level of lumbar disc pathology.

Summary of Background Data: Maneuvers of sciatic tension, such as the straight leg lift, the well leg lift, Lasègue's sign, and the bowstring sign, have been used since the 1880s as a diagnostic maneuver to separate sciatica from hip pain.

Methods: Fifty consecutive candidates with clinical and radiographic evidence of disc herniation were examined. Initial physical examination included evaluation of sciatic tension signs using the straight leg lift,

cross leg lift, Lasègue's sign, and the bowstring sign. The presence of lumbar disc herniation was confirmed radiographically. Intraoperatively, the 50 patients were assessed for anatomic location of disc herniation and the presence of disc protrusion or extrusion.

Results: The straight leg lift was the most sensitive preoperative physical diagnostic sign for correlating intraoperative pathology of lumbar disc herniation.

Conclusions: Physical diagnostic maneuvers for evaluating sciatic tension in patients with documented lumbar disc herniation have a high correlation with surgical pathology. These diagnostic signs of sciatic stretch can be reliable guides that lead to more aggressive modes of evaluation. No correlation was found between specific sciatic stretch maneuvers regarding location of disc herniation relative to the nerve root.

Successful treatment of low back pain and neck pain after a motor vehicle accident despite litigation

Schofferman J, Wasserman S.

Spine 1994; 19:1007-1010.

Objective: This prospective study evaluated 39 consecutive patients with low back pain (LBP) or neck pain that resulted from a motor vehicle accident who had litigation pending.

Methods: Patients completed a McGill Pain Questionnaire (MPQ) to quantify pain and an Oswestry Low Back Disability Questionnaire (OSW) to quantify function and were interviewed regarding medications and work status at initial and final visits.

Results: Thirty-three patients completed an MPQ at initial and final visits. Pain decreased in 29 (88%) and increased in four (12%). Thirty-eight patients completed an OSW at initial and final visits. Function improved in 34 and worsened in four. The authors observed statistically significant improvements in pain, function, and medication use.

Conclusion: Patients with low back pain or neck pain resulting from a motor vehicle accident showed a statistically significant improvement with treatment despite ongoing litigation.

Spinal stenosis and health status

Porter RW, Oakshot G.

Spine 1994; 19(8):901-903.

Study Design: This study examined the hypothesis that a small adult vertebral canal is a marker of early impairment of growth, and that other sensitive systems may be impaired similarly, producing an adult relationship among a small canal, poor health, and academic ability.

Objectives: Comparisons of health and some aspects of academic ability were made between patients whose canals were above and those below the mean at L5.

Methods: Seventy-five patients were examined, 42 men and 33 women. They had comprehensive cardiovascular, respiratory, and digestive system health assessments. Their post-school qualifications were recorded, and they were assessed by the Mill Hill vocabulary test and the progressive matrices test.

Results: Twenty-two men and 21 women had canals above the mean, and 20 men and 12 women had canals below the mean. A significant difference did not exist in the age of those with wider and narrower canals. Cardiovascular symptoms and gastrointestinal symptoms were more common in men and women with narrower canals ($P = 0.04$ and 0.048), but there was no significant difference in respiratory symptoms. Those with wider canals had more post-school qualifications than those with smaller canals ($P = 0.04$), and in men, their performance in the Mill Hill vocabulary test and the progressive matrices test approached significance ($P = 0.08$ and 0.06).

Conclusions: The association between a smaller vertebral canal and impairment of health and certain intellectual abilities may result from an adverse environment that affects several growing systems early in life. If the small canal is a marker of a generalized developmental disturbance, it is, to some degree, preventable.

Lumbar disc degeneration and atherosclerosis of the abdominal aorta

Kaupila LI, Penttilä A, Karhunen PJ, Lulu K, Hannikainen P. *Spine* 1994; 19(8):923-929.

Study Design: This study analyzed the relationship of disc degeneration to atherosclerotic changes in the abdominal aorta and stenosis of the ostia of the lumbar and middle sacral arteries. 86 plain radiographs of lumbosacral spines, and the corresponding abdominal aortas were evaluated in connection with routine autopsy.

Results: Disc degeneration, advanced atherosclerotic manifestations, and stenosis of the ostia of the lumbar and middle sacral arteries all increased with age ($P < 0.001$). After partial rank correlation analysis, keeping the effect of age constant, there was still a statistically significant association between the grade of disc degeneration and stenosis of the ostia of the arteries supplying the disc. The association was stronger at upper lumbar levels ($0.001 < P < 0.01$) than at lower ones ($0.01 < P < 0.05$). Furthermore, with complicated lesions in the abdominal aorta, disc degeneration at all lumbar levels increased.

Conclusions: Atherosclerosis in the abdominal aorta and especially stenosis of the ostia of segmental arteries may play a part in lumbar disc degeneration.

Pulmonary functions in congenital scoliosis

Day GA, Upadhyay SS, Ho EKW, Leong JCY, Ip M. *Spine* 1994; 19(9):1027-1031.

Study Design: Thirty-six patients with congenital scoliosis underwent full clinical and radiologic evaluation of their deformity and their full pulmonary functions.

Objectives: This study observed pulmonary functions in congenital scoliosis in detail, evaluated pulmonary functions in nonsurgically treated patients, and established whether, in surgically treated patients, there are any differences between those with multiple thoracic anomalies and those with lumbar or one or two thoracic anomalies.

Summary of Background Data: Eighty-six of our patients in both

groups (surgically and nonsurgically treated) showed abnormal increases in residual volumes, indicating a restrictive pattern of lung function. The results of their pulmonary functions were analyzed using predicted values to eliminate age effect.

Methods: Pulmonary functions were assessed using the Gould 5000IV Computerized Pulmonary Function System.

Results: Overall, mean total lung capacity was 89% of predicted value, and mean vital capacity and forced vital capacity were 74% of predicted value. The mean residual volume was significantly increased, being 154% of predicted value. Nonsurgically treated patients showed normal total lung capacity (mean 99.8% of predicted value); this mean value was 82% of predicted value in surgically treated patients.

Conclusion: Vital capacity was found to be significantly reduced in surgically treated patients (68% of predicted value), especially in those patients who had multiple thoracic anomalies. We believe that children with congenital scoliosis due to multiple anomalies should be operated on at an early age before deformity is too severe.

Pathogenesis of uncus deformation and vertebral artery compression: histologic investigation of the uncus and dynamic angiography of the vertebral artery in the cadaveric cervical spine

Benazzo F, Alvarez AA, Nalli D, Pio A, Filho JL. *J Spinal Disorders* 1994; 7(2):111-119.

Twenty-one cervical spines were collected from fresh cadavers (12 male, nine female), their ages ranging from 10 to 90 years (mean 49.47). After removing muscle debris from the spines, they were mounted and tested on a device to passively reproduce the main movements of the spine. The degree of motion in flexion-extension and lateral bending significantly decreased from group A (ages 10-49 years) to group B (51-90 years) ($p < 0.005$) and was directly correlated with the amount of cervical spine degenerative alterations. The incidence of these alterations, classified according to Lysell (1969), was highest at C5-6. On the testing machine, dynamic angiography of the vertebral artery showed an impingement with extrinsic compression of the vessels in four of 28 successful injections. The histologic serial sections of the uncus showed a characteristic pattern of ossification-deformation: a newly formed cartilaginous tissue tipping the apex of the uncus, forming a double protruding contour of the apex, rapidly ossifying, and appearing to deform outward together with the disk degeneration and consequently decreasing in height.

Magnetic resonance imaging of dorsolateral medullary infarction in Wallenberg's syndrome

Lang E, Lang C, Huk W, Neundörfer. *Neuroradiology* 1994; 36:269-270.

In a case of Wallenberg's syndrome, infarction of the dorsolateral medulla was shown to be caused by thrombosis of the left vertebral artery, as demonstrated by T1-weighted magnetic resonance imaging, magnetic resonance angiography and conventional angiography.

Sanctions and remediation for research misconduct: differential diagnosis, treatment, and prevention

Shore EG.

Acad Med 1993; 68(Supplement 3):S44-S48.

The last decade of experience indicates that the number of confirmed instances of research misconduct remains extremely small. Yet, each institution that has had an investigation recognizes how damaging even one case is to the scientific enterprise in terms of the morale of scientists working with or near the one found guilty, in terms of public trust in the research enterprise, and in terms of the consumption of extraordinary amounts of faculty effort to conduct a fair and thorough investigation of the allegation. Every research institution has a strong interest in developing its diagnostic, treatment, and preventive capacities to the point where this scientific illness is as nearly eradicated as possible. The author suggests a spectrum of responses to match the spectrum of offenses in order to protect the scientist, the scientific community, the institution, and the public. In some instances remediation as well as sanctions may be indicated. Remediation in this context applies both to the scientist and to the research institution because both may have problems that need correction or modification to ensure the integrity of science. Institutional improvement in developing and applying sanctions and remediation should contribute both to more effective treatment and to better prevention strategies.

Role of the journal editor in sustaining integrity in research

Caellegh AS.

Acad Med 1993; 68(Supplement 3):S23-S29.

Editors have important but indirect roles in sustaining integrity in research, and they have major and highly visible roles in maintaining the integrity of science literature. They must publish the policies and the standards to which they will hold authors and reviewers, and then must enforce those policies. Editors cannot be responsible for the accuracy of what they publish, but they must respond thoroughly and consistently to allegations of misconduct concerning papers under consideration or already published. They must conduct appropriate inquiries and notify authors' or reviewers' institutions about possible misconduct found by those inquiries. Further, to maintain the integrity of the literature, editors must publish corrections, retractions, and notices of duplicate publication according to the standards set down by the National Library of Medicine.

Plagiarism: what is it, whom does it offend, and how does one deal with it?

Armstrong JD.

AJR 1993; 161:479-484.

Academic plagiarism is a thorny ethical and practical problem. Perhaps readers never personally encountered or recognized a case of plagiarism so its immediate interest and relevance may be obscure. A short case

history may provide evidence that the issue of plagiarism is germane to the contemporary academic endeavor. A young university radiologist recognized his own writing in a professional journal under another's authorship, without attribution to himself, and had no idea what to do about it. He finally wrote to the author of the article who answered something to the effect that it was indeed a "remarkable coincidence" and that "great minds think alike." Unsatisfied with the response, he considered reporting the matter to the journal editor, but he was a junior faculty member while the plagiarist was a revered figure in his subspecialty. He chose not to pursue the issue further because he was afraid that the plagiarist would harm him professionally.

Ownership of research data

Fishbein EA.

Acad Med 1991; 66:129-133.

The author reviews the conventional "works for hire" principle that an institution, not its employees, owns the rights to its employees' written products or other forms of expression, including primary research data. This principle is not open to debate as a legal matter. The tough problems giving rise to debates regarding data ownership and access are ethical problems rather than legal ones; these will remain unsettled for some time because at present there is no consensus concerning what constitutes ethical conduct among scholars and scientists and how seriously and in what manner to penalize breaches of that conduct. Access to data is a thorny issue; case histories illustrate the legal and ethical difficulties involved in questions of who has access to information compiled in the course of academic inquiry, and for what purpose. Much depends on the ethics and established procedures of the employing institution, but current case law suggests that a faculty member or institutional researcher does not have any legal right to review the data developed by a colleague. The author recommends that institutions clearly state their policies regarding ownership of data, and presents guidelines for such a policy.

Methodologic quality and relevance of references in pharmaceutical advertisements in a Canadian medical journal

Lexchin J, Holbrook A.

Can Med Assoc J 1994; 151(1):47-54

Objective: To evaluate the methodologic quality and relevance of references in pharmaceutical advertisements in the Canadian Medical Association Journal (CMAJ).

Design: Analytic study.

Data source: All 114 references cited in the first 22 distinct pharmaceutical advertisements in volume 146 of CMAJ.

Main outcome measures: Mean methodologic quality score (modified from the 6-point scale used to assess articles in the American College of Physicians' Journal Club) and mean relevance score (based on a new 5-point scale) for all references in each advertisement.

Main results: Twenty of the 22 companies responded, sending 78

(90%) of the 87 references requested. The mean methodologic quality score was 58% (95% confidence limits [CL] 51% and 65%) and the mean relevance score 76% (95% CL 72% and 80%). The two mean scores were statistically lower than the acceptable score of 80% ($p < 0.05$), and the methodologic quality score was outside the preset clinically significant difference of 15%. The poor rating for methodologic quality was primarily because of the citation of references to low-quality review articles and "other" sources (i.e., other than reports of clinical trials). Half of the advertisements had a methodologic quality score of less than 65%, but only five had a relevance score of less than 65%.

Conclusions: Although the relevance of most of the references was within minimal acceptable limits, the methodologic quality was often unacceptable. Because advertisement are an important part of pharmaceutical marketing and education, we suggest that companies develop written standards for their advertisements and monitor their advertisements for adherence to these standards. We also suggest that the Pharmaceutical Advertising Advisory Board develop more stringent guidelines for advertising and that it enforce these guidelines in a consistent, rigorous fashion.

Headache and neck pain: the warning symptoms of vertebral artery dissection

Sturzenegger M.
Headache 1994; 34:187-193.

The clinical features of headache and neck pain in 14 patients with extracranial vertebral artery dissection proven by angiography or magnetic resonance imaging are reported. Pain was always located on the side of the dissected vertebral artery. Whereas eleven patients had head and posterior neck pain, the others had either only posterior neck pain, no change of a chronic pre-existing headache or no pain at all. Pain started suddenly, was of sharp quality and severe intensity, different from any previously experienced headache. Following acute onset, the time course of pain was monophasic with gradual remission of a persistent headache lasting one to three weeks. A delay between onset of head or posterior neck pain and onset of neurologic dysfunction was noted in 12 patients and was less than one day and between one day and three weeks in six each. Report of this distinct type of pain, although nonspecific as an isolated symptom, should raise suspicion of an underlying vertebral artery dissection. Early confirmation of this diagnosis and subsequent anticoagulation if dissection does not extend intracranially may help prevent vertebrobasilar ischemic deficits.

Idiopathic coccydynia Lateral roentgenograms in the sitting position and coccygeal discography

Maigne J-Y, Guedj S, Straus C.
Spine 1994; 19(8):930-934.

Study Design: The authors hypothesized that the source of coccydynia was a lesion of the coccygeal disc.

Objectives: This study analyzed the motion of the painful coccyx in the sitting position as compared with the lateral decubitus in a patient and a control group and reported the first results of coccygeal discography (dynamic study).

Summary of Background Data: Coccydynia are usually attributed to soft tissue injuries or psychologic disturbances. No previous study has assessed the coccygeal discs as a source of pain.

Methods: Fifty-one patients with coccydynia and 51 controls sustained a dynamic study. Coccygeal mobility was documented by superimposing graph paper with a double reading. The accuracy of the measurement was $\pm 2.6^\circ$ intra- and interobserver variation 15.3 and 12.5%. This dynamic study was followed by coccygeal discography in the patient group.

Results: An abnormal motion (luxation or hypermobility) of the coccyx that occurred in the sitting position and spontaneously was reducible when placed in the lateral decubitus position was found in 25 patients. Such lesions could be responsible for the pain because no similar findings were seen in the controls and coccygeal discography was positive in these cases. Of the 26 patients with a normal dynamic study, coccygeal discography, using a combination of provocation and anesthetization, was positive in 15 of 21.

Conclusions: Common coccygeal pain could come from the coccygeal disc in approximately 70% of cases.

Rotational occlusion of the vertebral artery at the atlantoaxial joint: is it truly physiological?

Takahashi I, Kaneko S, Asaoka K, Harada T.
Neuroradiology 1994; 36:273-275.

We present a patient with vertebrobasilar insufficiency, with vertigo and horizontal nystagmus, induced by turning the head to the right. Angiography demonstrated transient occlusion of the left vertebral artery at the atlantoaxial joint during rotation of the head. The pathogenesis and angiographic findings are discussed.

Imaging of cerebral infarction caused by atrial myxoma

Gee GT, Bazan III, C, Jenkins JR.
Neuroradiology 1994; 36:271-272.

We describe the radiologic investigation of two patients with primary left atrial myxoma who presented with embolic manifestations in the brain. MRI and CT showed multiple infarcts, while the cardiac atrial mass was demonstrated in one of the patients by MRI and in both by echocardiography.