Dynamic Chiropractic

BACK PAIN

Risk/Benefit Analysis of Spinal Manipulation Therapy for Relief of Lumbar or Cervical Pain -- A Closer Look

Gregg J. Carb, DC

An article was recently published in Neurosurgery[1] which contained several unfounded conclusions and misinformation regarding spinal manipulation therapy and chiropractic. Those chiropractors who enjoy professional relationships with neurosurgeons should consider sharing this review with their medical colleagues.

The article begins with a history of spinal manipulation and then proceeds to examine the cost and use of spinal manipulation therapy (SMT). It is said that low back pain costs $8 to $16 billion annually and that chiropractors treat two-thirds of the individuals with low back pain, which accounts for 90 percent of those reimbursed for treatment. These expenditures are called "astronomical costs" because low back pain is generally regarded as a self-limiting disease associated with spontaneous recovery.

This section may be interpreted to mean that chiropractors are over-paid for performing a useless service. In 1991, however, total chiropractic reimbursement was $2.4 billion,[2] or just 0.325 percent of the total health care dollars spent -- far less than is suggested in the article. Furthermore, even though most low back pain patients do recover within six weeks time, regardless of the therapy (or no therapy), a previous history of back pain is the greatest risk factor for future back pain.[3] Repeated episodes can lead to a chronic long-term problem that gets progressively more difficult to manage.[4] The 10 to 20 percent of low back cases that do not become chronic account for up to 85 percent of the total costs.[5] The long-term benefit of chiropractic SMT, which has been demonstrated in several well-designed randomized controlled trials, may logically prevent or delay an acute problem from becoming chronic. This one consideration alone makes chiropractic SMT invaluable (not to mention the studies that show acute pain patients under chiropractic care have less days of disability than those under medical care).[6-8]

Further into the article are two case presentations followed by a discussion on the risk of SMT. The specific risk factors of SMT identified in the article include misdiagnosis, progressive neurological deficit, improper technique, coagulation disorder, herniated nucleus pulposus, and manipulation of the cervical spine. Despite speculation in the article on the under-reported complications of SMT, the factual risks of serious injury from chiropractic SMT found in the literature are somewhere between 1:400,000 and 1:1,000,000 (0.00025 percent and 0.0001 percent) for cervical manipulation[9,10] and less than 1:1,000,000 (<0.0001 percent) for lumbar manipulation.[11,12] This compares favorably to the 34,000:1,000,000 (3.4 percent) rate of disabling injury caused by medical treatment,[13] and specifically with a 15,000:1,000,000 (1.5 percent) risk of paralysis from neurosurgery on the cervical spine[14] often performed for degenerative conditions similar to those treated by chiropractors.

The in-depth retrospective study that reported the result of disabling injury from medical care also stated: "Perfection can never be the standard of practice, since the vagaries of biology and human behavior make perfection unattainable, in either execution or outcome, for any form of treatment. Accordingly, standards of practice must always include an acceptance of some degree of error." It would seem reasonable to conclude that a 0.00025 percent to 0.0001 percent risk of serious injury following SMT of the cervical spine is an acceptable degree of error, especially in light of the superior therapeutic benefit shown in the clinical trial below.

As to herniated nucleus pulposus and SMT, in a review of the literature on side posture manipulation for lumbar intervertebral disk herniation, authors Cassidy, Thiel and Kirkaldy-Willis[15] found that normal disks withstood an average of 22.6 degrees of rotation before failure, while the degenerated disks withstood an average of 14.3 degrees. Therefore, torsional failure of the lumbar disk by rotational manipulation would first require fracture of the posterior joints -- a most unlikely event. The only published controlled study of manipulation for disc herniation by Nwuga[16] showed that lumbar side posture rotational manipulation was superior to conventional physiotherapy. After review of other uncontrolled studies and clinical experience, the authors concluded that the treatment of lumbar intervertebral disk herniation by side posture manipulation is both safe and effective, although further research is needed. This conclusion is shared by others.[17,18]

Certainly improper technique is a major risk factor, as "the greatest contraindication to manipulation is lack of training and skill, full-time practice is essential."[19] This brings up the fact that, of the serious complications reported in the literature on SMT, in several cases the "manipulator" was an allopathic physician. One example is a recent case brought by the patient of a medical doctor. The doctor, a board-certified pediatrician in general medical practice, had taken a weekend seminar in manipulation. Unfortunately, due to his grossly inadequate education in spinal manipulation, he failed to recognize a contraindication to cervical manipulation and seriously injured his patient. The jury awarded $1.3 million in damages.[20]

The remaining risk factors of SMT listed in the Neurosurgery article associated with co-morbidities to spinal lesions and misdiagnosis are factors which duly licensed chiropractors are trained to identify or avoid. Failure to recognize such factors and refer out for medical consultation would fall outside of practice guidelines.

The conclusion of the article stated that SMT has not been shown to be superior to other conservative methods, nor to offer long-term benefits, and is unsafe for patients with herniated nucleus pulposus and neck pain, and should therefore be discouraged as treatment. The risk/benefit ratio was found to be acceptable low for SMT as therapy for adults with acute low back pain only.

Upon analysis, the references cited to support the article's conclusions did not prove nor disprove the effectiveness of SMT for nonacute pain, neck pain, radicular pain, herniated nucleus pulposus, or long-term benefit. Furthermore, much of the research on manipulation used was based on medical studies where the spinal manipulator was an MD, DO or RPT. Chiropractic manipulation differs significantly to medical manipulation in that the former makes use of short lever/high velocity segmental manipulation while the latter utilizes less specific long lever techniques. The British Trial[21] was an important comparison of the different spinal manipulation techniques. Both treated groups received some form of manipulation by either hospital-based physiotherapists (72 percent Maitland, 12 percent Cyriax manipulations) or chiropractors. The trial clearly demonstrated the superiority of the chiropractic techniques.

On the issue of SMT for neck pain, nonacute (chronic) pain, long- term benefit, and superiority to other conservative methods, a randomized controlled trial (N=256) of manual therapy (SMT) and physiotherapy for persistent back and neck complaints, by Koes et al.,[22] compared the efficacy of manual therapy, physiotherapy, MD and placebo for patients with persistent back and neck complaints. The results of the trial indicated that both manual therapy and physiotherapy had clearly better results than continued care by the general practitioner and placebo therapy. Overall, physiotherapy did as well as manual therapy up to a 12-week follow-up, however the number of treatments during the intervention period was much lower for manual therapy, and manual therapy also showed better results in improvement in physical functioning after a six-week follow-up. For chronic patients, there was a significantly better long-term (12 month follow-up) result for manual therapy compared to physiotherapy.

Koes was used as a reference in the Neurosurgery article on SMT as a source who determined the methodological deficiencies of other studies. This would seem to make Koes' above findings on SMT that much more credible against the conclusions drawn in the article.

Another randomized controlled trial (N=741), by Meade et al.,[21] compared chiropractic and hospital outpatient treatment of low back pain. The results of the trial indicated that chiropractic treatment was more effective than hospital outpatient management, mainly for patients with chronic or sever back pain. The benefit of chiropractic treatment became more evident throughout the two year follow-up period.

An argument was brought forth against a purported nonspecific (laying on of hands/making a referral) or placebo effect for the trial results on the basis of the apparently increasing benefit of chiropractic over hospital treatment long after contact with chiropractors or hospital therapists had ended. Also, the effectiveness of chiropractic in some groups (chronic and severe) but not others (acute and mild), argues against nonspecific effects since these would probably have affected all groups.

Chiropractic SMT for back and neck pain will continue to play an expanding role, particularly in the more prevalent low back pain, based on its own merits and because of the failure of conventional medical treatment.[23] Recent trials report that various standard medical approaches, such as prolonged bed rest,[24] passive therapy modalities,[25] corticosteroid facet injections[26,27], and surgery are ineffective.[28] It had been said that disc surgery is responsible for leaving more tragic human wreckage in its wake than any other operation in history.[29] We could reasonable conclude that the risk/benefit ratio for patients with uncomplicated back and neck pain is unacceptably high, and therefore medical therapy should be discouraged as treatment.

When so few medical interventions are supported by any solid scientific basis,[30] it seems incredible that some members of the medical community should hold the primary chiropractic therapy (SMT) to such standards, that if applied equally to medical therapy, would leave physicians with little to do. My personal observation is that a few medical physicians have mistook the Hippocratic oath for the hypocritical oath.

Finally, a conclusion from the most comprehensive and independent investigation of chiropractic ever undertaken -- by the government Commission in New Zealand,[31] -- comes to mind; "The commission has found it established beyond any reasonable degree of doubt that chiropractors have a more thorough training in spinal mechanics and spinal manual therapy than any other health profession. It would therefore be astonishing to contemplate that a chiropractor, in those

areas of expertise, should be subject to the directions of a medical practitioner who is largely ignorant of those matters simply because he has had not training in them."

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Gregg J. Carb, DC
San Francisco, California

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