Chiropractic Neurology Research Brief

A Quarterly Newsletter for Health Care Professionals by Mark Saracino, DC, DACAN

Volume One *Issue Three*

Spontaneous Resolution of Low Back Pain- A Misnomer

Introduction

Eighty percent of Americans will experience low back pain (LBP) at some time in their lives[1] with one-month prevalence between 35 and 37 percent.[2] This makes LBP the second leading reason for visiting medical physicians and the leading reason for visiting chiropractors[3,4], including chiropractic neurologists, in the U.S.

Unfortunately, it is generally believed that most incidences of LBP are short-term with 80 to 90 percent of cases resolving within six weeks, irrespective of the administration of treatment.[5] The implication of this often-quoted study is that the LBP resolves when, in fact, patients without medical or chiropractic discharge simply terminate their own care.

Research

Reis et al.[8] followed 219 subjects from 28 primary care family practices in Israel for two months. Similarly, 71 percent of the subjects showed improvement in functional status after two months, and only 37 percent reported complete pain relief after two months.

Coste et al.[6] reported that 90 percent of LBP patients were without pain and disability two weeks after their first consultation with their MD or DO, however, the participants were limited to those who possessed LBP of only three days or less prior to presentation and who had been free of pain for at least three months prior to the onset of LBP. This exclusive criterion is rarely seen in clinical practice. In fact, recent studies have concluded that the majority of patients with LBP do not completely recover.

Croft[7] sought to investigate the claim that 90 percent of episodes of LBP that present to general practice resolve within one month. In this prospective study of 490 subjects (203 men, 287 women) aged 18-75 years from two general practices, the authors sought to determine the difference in patients who stopped consulting for their LBP after three months to the patients who were free of pain and disability at, a more reasonable length of time to determine resolution, three and 12 months.

Results

Ninety-one percent of patients stopped consulting their GP's within three months of the initial consultation, but at the three and 12 month follow-ups only 21 percent and 25

percent, respectively, had completely recovered from pain and disability. Additionally, **75 percent of patients continued to suffer some degree of pain and disability one year after initial consultation.** The authors state: *"The findings of our interview study are in sharp contrast to the frequently repeated assumption that 90 percent of episodes of low back pain seen in primary care will have resolved within a month. However, the results of our consultation figures are consistent with the interpretation that 90 percent of patients presenting in primary care with an episode of low back pain will have stopped consulting about this problem within three months of their initial visit. The original article to which this statement of "90 percent recovery" can be traced drew on a record review in one general practice. If no further consultation within an episode is taken as the measure of the "recovery" then record review is a valid measure of this. However, the inference that the patients have completely recovered is clearly not supported by our data."*

Discussion

Essentially, there are few spontaneous resolutions to substantial LBP.

There are a number of biomechanical conditions that explain how acute LBP becomes chronic. Adverse mechanical loading of the musculoskeletal system, especially the lumbar spine, is one of many predisposing factors to the onset.[9] Another condition that creates adverse mechanical loading of the lumbar spine is a loss of the normal lumbar (anterior, i.e. forward) lordosis (sagittal balance). Two studies showed that patients with chronic LBP tend to have a reduced lumbar lordosis compared to controls.[10,11] Another study found that reduced lumbar lordosis as a consistent predictor of serious back pain.[12]

Scoliosis creates asymmetrical loads on musculoskeletal tissues because of the "S-shaped" lateral deviation of the spine. Mayo et al.[13] found that adolescents with idiopathic scoliosis tend to have more intense, continuous back pain and are more restricted in performing activities of daily living versus controls.

Numerous studies have documented the association between leg length differences and LBP.[14-20]

Two studies in *Spine*, found that abnormal vertebral motion caused LBP. Adams et al.[12] demonstrated that reduced range of motion in the lumbar spine with lateral bending was a predictor of low back pain, as well as Lund et al.[21] whom found that chronic LBP

patients exhibited altered vertebral motion patterns compared to a normal population.

These are just a few of the many studies indicating that altered alignment of the spine is known to cause LBP and premature degeneration of vertebrae, disks, ligaments, muscles and myofascias[22-38]. These findings qualify, as primary therapy, physical and manipulative therapies for LBP.

Clinical Recommendations

Usually, three classes of LBP patients seek care:

1) Sudden onset of LBP due to trauma (i.e. sprains, strains from slips, falls and lifting, etc)
2) Exacerbations of chronic LBP due to aforementioned abnormal mechanical stresses.
3) Chronic LBP
4) Visceral affectations (not discussed here) from acute or chronic LBP. These changes are caused by nociceptive fiber potentiation of the autonomics.

REFERENCES

1. Frymoyer JW, et al. An overview of the incidences and costs of low back pain. Orthopedic Clinics of North America 1991; 22:263-71.
2. Papageorgiou AC, et al. Estimating the prevalence of low back pain in the general population. Spine 1995; 20: 1889-94.
3. Cypress BK. Characteristics of physician visits for back symptoms: a national perspective. American Journal Public Health 1983; 73:
389-95.
4. Coulter ID, et al. Patients using chiropractors in North America: Who are they, and why are they in

chiropractic care? Spine 2002; 27 (3): 291-98.
5. Waddell G. A new clinical model for the treatment of low back pain. Spine 1987; 12: 632-44.
6. Coste J, et al. Clinical course and prognostic factors in acute low back pain: an inception cohort study in primary care practice. British Medical Journal 1991; 308: 577-80.
7. Croft PR, et al. Outcome of low back pain in general practice: a prospective study. British Medical Journal 1998; 316: 1356-59.
8. Reis S et al. A new look at low back pain complaints in primary care: a RAMBAM Israeli family practice research network study. Journal Family Practice 1999; 48 (4): 299-303.
9. Troyanovich SJ, et al. Low back pain and the lumbar intervertebral disk: Clinical considerations for the doctor of chiropractic. Journal Manipulative Physiological Therapeutics 1999; 22 (2): 96-104.
10. Jackson RP, McManis AC. Radiographic analysis of sagittal plane alignment and balance in standing volunteers and patients with low back pain matched for age, sex, and size. Spine 1994; 19:1611-8.
11. Harrison DD et al. Elliptical modeling of the sagittal lumbar lordosis and segmental rotation angles as a method to discriminate between normal and low back pain subjects.
12. Adams MA, Mannion AF, Dolan P. Personal risk factors for first-time low back pain. Spine 1999; 24 (23): 2497-505.
13. Mayo NE, et al. The Ste-Justine adolescent idiopathic scoliosis cohort study, Part III: back pain. Spine 1994; 19: 1573-81.
14. Giles L. Low Back Pain Associated with Leg Length Inequality. Spine 1981. 6:5:
510-521.
15. Giles L. Leg Length Inequalities Associated with Low Back Pain. JCCA 1976.20:25 – 32.
16. Nichols P. Short Leg Syndrome. British Medical Journal 1960. 1863 – 1865.
17. Rush W. A Study of Lower Extremity Length Inequality. Am J Roentgen. 1946. 56:616-623.
18. Stoddard A. Manual of Osteopathic Technique. London, Hutchinson Medical Publications 1959. 212.
19. Yates A. The Lumbar Spine and Back Pain, Treatment of Back Pain. Edited by M. Jayson. London, Sector Publishing Ltd 1976. 341-353.
20. D'Amico J. Limb Length Discrepancy. An Electrodynographic Analysis. Journal American Podiatry Medical Association 1985. 75:
639-643.
21. Lund T et al. Three-dimensional motion patterns during active bending in patients with chronic low back pain. Spine 2002; 27 (17):1865-74.
22. Stillwell D. Structural deformities of vertebrae: Bone adaptation and modeling and experimental scoliosis and kyphosis. Journal Bone Joint Surgery 1962; 44:6 11-33.
23. Adams MA, et al. Sustained loading generates stress concentrations in lumbar intervertebral discs. Spine 1996; 21: 434-8.
24. Schweitzer M, White L. Does altered biomechanics cause marrow edema? Radiology 1996; 198: 851-3.
25. Fukuyama S et al. The effect of mechanical stress on hypertrophy of the lumbar ligamentum flavum. Journal Spinal Disorders 1995; 8: 126-30.
26. Fukuyama S et al. The effects of mechanical stress on the ligamentumum flavum: an experimental study in the rabbit. Neuro-Orthopedics 1995; 19: 61-7.
27. Zagra A, et al. Posterior spinal fusion in scoliosis: computer-assisted tomography and biomechanics of the fusion mass. Spine 1988; 13: 155-9.
28. Penning L. Kinematics of cervical spine injury. A functional radiological hypotheses. European Spine Journal 1995; 4: 26-32.
29. Mimura M, et al. Three-dimensional motion analysis of the cervical spine with special reference to the axial rotation. Spine 1989; 14:1135-9.
30. Jones M, et al. Bony overgrowths and abnormal calcifications about the spine. Radiological Clinics North America 1988; 26: 1213-34.
31. Stokes IA, et al. Mechanical modulation of vertebral body growth: implications for scoliosis progression. Spine 1996; 21: 1162-7.
32. Johnston C, et al. Cervical kyphosis in patients who have Larsen syndrome. Journal Bone Joint Surgery 1996; 78: 538-45.
33. Adams MA, Hutton WC. Mechanics of the intervertebral disk. In: Ghosh P, editor. The biology of the intravertebral disk. Vol 2. Boca Raton, FL. CRC Press; 1988.
34. Horst M, Brinckman P. Measurement of the distribution of axial stress on the end plate of the vertebral

body. Spine 1981; 6: 217-31.
35. Parsons D, Glimcher M. Is the chemistry of collagen in intravertebral disks an expression of Wolff's Law. Spine 1984; 9:148-60.
36. Matsunaga S, et al. Effects of strain distribution in the intervertebral discs on the progression of ossification of the posterior longitudinal ligaments. Spine 1996; 21: 184-9.
37. Okada K,et al. Thoracic myelopathy caused by ossification of the ligamentum flavum: clinicopathologic study and surgical treatment. Spine 1991; 16: 287.
38. Neumann P, et al. Effect of strain rate and bone mineral on the structural properties of the human anterior longitudinal ligament. Spine 1994; 19: 205-11.

Mark Saracino, Board Certified Chiropractic Neurologist
Diplomat American Chiropractic Academy of Neurology
(adjacent to the Valley Forge Convention Center and Radisson Hotel)
1150 First Avenue, suite 120
King of Prussia, Pennsylvania 19406 1341

voice 610 337 3335
www.ACNB.org
fax 610 337 4858
Mark.Saracino1@juno.com
www.DrSaracino.com