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CHRONIC LOW BACK PAIN – New evidence, a new approach

Introduction

1. Back pain is enormously expensive in terms of individual suffering and economic loss. In 1982 the annual cost was $50 billion in the United States[1] and £1,000 million in the U.K. [2].

2. Leading medical specialists readily admit how little the medical profession knows about the diagnosis and treatment of low back pain.

• Charles Burton, prominent U.S. neurosurgeon and director of one of North America's most sophisticated low back treatment centres at the Sister Kenny Institute, Minneapolis, says "agreement is lacking within the scientific and medical communities regarding the etiology of low back pain and methods of treatment... In my experience in treating low back problems and salvaging, through rehabilitation, legions of patients with this syndrome, *I have found it unique to encounter a low back patient who is being treated according to a meaningful specific diagnosis rather than on empirical grounds*".

"Low back pain treatment has represented the least cost effective expenditure of health care dollars that the author is aware of."[3]

• Gordon Waddell, a well-published British specialist, says that "*with backache our understanding is so poor, our therapeutic armamentarium so weak... Clinicians completely disagree* about the recognition of discogenic pain, facet pain, and instability pain, the three commonly mentioned orthopaedic causes of backache without direct nerve root involvement."[2]

3. An unfortunate reaction by many MDs, who must every day face patients with chronic low back pain which they are unable to diagnose or help, is to say to the patient that the problem is psychological and without real physical basis. While a condition such as chronic low back pain obviously develops a psychological component, this explanation is usually most unfair to the patient and quite wrong. A chiropractor knows that it is a matter of MDs, in the absence of gross neurological findings, being untrained to find the other real spinal problems that are there.

• This point is summarized well by Karel Lewit, a Czech medical specialist from Prague who has 30 years' experience of spinal manual assessment and spinal manipulation. In his recently published English text Lewit complains that the high incidence of diagnosis of neurosis by his medical colleagues "must be put down mainly to mismanagement; in the vast majority of cases without gross neurological findings doctors not trained in the manual diagnosis of movement restriction, and segmental reflex change, come the disastrous conclusion that there are 'no organic findings' and hence dismiss the trouble as 'functional' i.e. psychological disturbance."

"The patient thus has insult added to injury, receives no adequate treatment and is forced into a neurotic reaction which is taken to confirm the mistaken original diagnosis."[4]

4. Eight years ago Dr. William Kirkaldy-Willis, a Canadian orthopaedic surgeon with a leading international reputation in the treatment and research of low back pain was in his early 60s. Looking at the problem summarized above, the high failure rates of back surgery, and his long experience with low back injury and pain, he decided to introduce a team of chiropractors to his research unit at the University Hospital, Saskatoon, and research the effectiveness of chiropractic treatment of chronic low back pain.

5. Results of the study, which remains ongoing, were first published in 1983 in 'Managing Low Back Pain'[5], part-authored and edited by Dr. Kirkaldy-Willis. This work also provides a new model for the understanding and management of low back pain, and has been received internationally as an important text.

• The results of chiropractic treatment were so impressive that they were republished in 1985 by the Canadian Family Physician[6] in an article jointly authored by Dr. Kirkaldy-Willis and Dr. David Cassidy, the study's leading chiropractic researcher. They have now been published for a third time, in their fullest form to date, in a chapter by Drs. Cassidy, Kirkaldy-Willis, and Marion McGregor DC in the multi-disciplinary text 'Empirical Approaches to the Validation of Spinal Manipulation'.[7]

6. I recently heard Dr. Kirkaldy-Willis lecture for the third time – to an audience of hospital consultants in connection with the commencement of chiropractic treatment and research at the Workers' Compensation Board Rehabilitation Hospital in Toronto.

Professional notes:

Chiropractic Evidence Preferred

Judgement in Behnke v. Barthorpe and Walker, dated September 30, 1986, District Court of Ontario No. 9879/1984 PN1

The law is conservative, and lawyers and judges generally continue to prefer the evidence of medical experts even where, on the issue in question, chiropractors or other health professionals are in fact the true experts. However change is taking place, and in this case the evidence of Dr. Gignac, a doctor of chiropractic, was expressly preferred to the evidence of three medical experts with the result that the plaintiff received a significant extra award of general damages and the cost of extended future chiropractic care. Points are:

1. The plaintiff, a middle-aged woman, had been thrown through the front window in a motor vehicle accident. She received a number of head and spinal injuries and, after brief hospitalization, sought medical care.

2. Her family practitioner, who was also a qualified or[illegible]aedic surgeon, could find no physical basis for h[illegible]ntinuing headaches, back pain, and lethargy [illegible] period of months. She was referred to an internist who found nothing. She then proceeded to a psychologist then psychiatrist. All these medical advisors, except the internist, appeared in court to give evidence in support of the medical case that the plaintiff's problems were purely psychological – 'chronic anxiety depression'.

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This article deals with:

(a) The exciting new evidence from Saskatoon on chiropractic effectiveness in the treatment of chronic low back pain.

(b) The new model for management of low back pain, based on co-operation between chiropractic and medicine, now adopted by a leading senior medical specialist.

The Study

7. The study, still continuing, is taking place at the Department of Orthopaedics, University Hospital, Saskatoon, in Canada. The prinicpal researchers, Dr. Kirkaldy-Willis, an orthopaedic surgeon, and Dr. Cassidy, a chiropractor, are both internationally acknowledged leaders in their professions in the research and treatment of low back pain.

8. The aim of the study is to determine the effectiveness of chiropractic treatment for a population of patients who:

(a) Have experienced low back and leg pain for a period of years;

(b) Are totally disabled by this pain (scaled as Grade 4 on a scale where Grade 1 is symptom free, Grade 2 mild constant or intermittent pain but with no restrictions for work or other activities, Grade 3 pain-restricting activities, and Grade 4 disabled from work or other activities by constant severe pain).

(c) Have been referred to a specialized hospital clinic after not responding to conservative or operative treatment.

9. The results published in 1983 report on 6 years experience. During this period 283 patients were diagnosed, upon referral for a detailed chiropractic analysis, as having one or more named categories of subluxation or spinal dysfunction – the most common of which were "posterior joint syndrome", "sacroiliac joint syndrome" or a combination of these.

10. These patients received chiropractic treatment consisting of daily spinal adjustments by an experienced chiropractor for a period of 2 to 3 weeks.

11. The results appear in 7 tables in the Canadian Family Physician article[8], and show excellent success rates given the duration and severe degree of disability.

• Consider, for example, the 171 patients with posterior joint syndrome and/or sacroiliac joint syndrome (Tables 1-3):

i. Each had been disabled by pain, on average, for approximately 8 years.

ii. Following a 2-3 week regime of daily chiropractic adjustment *87% returned to full function with no restrictions for work or other activities* (Grades 1 and 2).

iii. No patient was made worse (This was also true for all patients treated.)

iv. The 87% success rate was maintained when the patients were reviewed after 12 months.[9]

• Patients diagnosed as having central spinal stenosis had the lowest success rate – 36%. However this is perhaps an equally remarkable result. Central stenosis is narrowing of the spinal canal through bone formation, which can cause compression and irritation of the spinal cord and the spinal nerve roots. The conventional medical view is that chiropractic adjustment, or any spinal manipulation, is of no value here.

Yet 36% of these patients, upon referral for chiropractic treatment, returned to full function within 2-3 weeks. This recovery was maintained at 7 months follow-up. For this particular group this followed *average disability from chronic back and leg pain for 16.9 years*.

What this result is suggesting is that while central spinal stenosis is present, as clearly evidenced by x-ray or CAT scan, this may have little or nothing to do with the patient's problem. This gives rise to the interesting question of what a medical specialist should do in this situation – Dr. Kirkaldy-Willis' most interesting views on this are discussed below (see para. 15).

Conclusion

12. The above results provide challenging and exciting evidence concerning both the effectiveness and cost-effectiveness of chiropractic treatment for chronic low back and leg pain. Those results speak of the 6 years to 1983. In recent presentations both Dr. Kirkaldy-Willis and Dr. Cassidy confirm continuing success rates of "approximately 90%" where spinal dysfunction is found upon chiropractic analysis.

• The Saskatoon work is an observational study of a series of patients which, in terms of science, is not as strong a methodology as the controlled trial where one treatment is compared with another and/or a placebo. However an observational study such as this, having a careful prospective design (i.e. established prior to seeing the patients), in a university hospital setting, and under the leadership of someone as respected as Dr. Kirkaldy-Willis, is highly persuasive evidence. That, of course, is why it has already lead to the presence of chiropractors in other hospitals.

13. The Saskatoon study is particularly persuasive and valuable because of the absence of good controlled clinical trial evidence in the whole field of spinal manipulation for the treatment of back pain. All researchers, whether chiropractic, medical, or osteopathic, have been frustrated by the major difficulties of trial design in this area of health care. There has been much telling criticism of the validity of the trials that have been done.[10 11 12]

14. A final point is that the success rates obtained at Saskatoon should apply to normal chiropractic practice. Many patients seen in the average chiropractic office have chronic low back and leg pain, and have had various prior forms of unsuccessful treatment. However they are not as fully disabled as all patients in the study, and neither is their average duration of pain between 5 and 10 years.

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15. Dr. Kirkaldy-Willis' views, after 40 years of distinguished practice and research, are found in 'Managing Low Back Pain'[5] which has now been widely read in chiropractic and medicine. There are many other sources for his views as he has been a prolific author of texts and articles[13 14] and lectures widely on an international basis. A good brief summary of his current thinking is found in a paper published in 'Spine' in 1984[15]. His ACA Journal interview is excellent[13].

16. What follows is the essence of Dr. Kirkaldy-Willis' model for the management of low back pain. It is based upon co-operation between the chiropractic and medical professions, and requires combined use of their separate skills and resources.

17. Kirkaldy-Willis places patients with low back pain in one of three phases:

i. Dysfunction. Here there is minor pathology resulting in abnormal function of the posterior joints and disc (called by him the 'three joint complex'). As the pathological changes are small they are frequently missed on medical examination.

ii. Instability. The next stage in the disease process, where progressive degeneration due to repeated trauma produces laxity in the joint.

iii. Stabilization. The third and final stage, where fibrosis, formation of osteophytes, etc. greatly restricts movement.

18. Dysfunction, the first stage of disability, *includes 90% of low back pain patients received at his hospital.*[16] (The percent is even higher of course for all those seeking health care.) Of this 90%:

i. The commonest types of dysfunction are posterior joint dysfunction and sacroiliac dysfunction.

ii. 75% of the former, 90% of the latter, "are greatly benefitted" by chiropractic adjustment[17]. *In his hospital unit this 90% of patients is diagnosed then treated by chiropractors.*

19. However the indications for chiropractic analysis and/or treatment are even wider than that. Kirkaldy-Willis' overall approach is:

i. Firstly, decide which of the 3 phases the patient is in.

ii. Secondly, pinpoint a syndrome. This involves both chiropractic and medical diagnosis. If, as in most cases, the patient is in the dysfunction phase and chiropractic analysis reveals, for example, posterior joint and/or sacroiliac dysfunction, the initial treatment of choice is chiropractic adjustment.

If there is no spinal dysfunction, but a CAT scan shows marked stenosis or disc herniation with major nerve involvement, which is much less common, medical management is indicated.

What is of real interest is the step taken by Kirkaldy-Willis where there is both dysfunction *and* stenosis or disc herniation. Here most medical specialists would avoid any form of manipulation and many would proceed to operation or chemonucleolysis. Kirkaldy-Willis does not – he goes to his 'third factor'.

iii. Thirdly, he asks whether the symptoms and real problem arise from the stenosis/herniation or the posterior joint/ sacroiliac dysfunction. If some pain derives from each, which is more significant?

To answer, and as an integral part of establishing a precise diagnosis, Kirkaldy-Willis starts nearly all of his patients on a trial of chiropractic adjustment. This frequently works. Other more invasive interventions are only considered 3 weeks later if there has been no success.

20. This is in substance the chiropractic approach – placing outside the scope of chiropractic those patients with major neurological deficit, then accepting all other patients where subluxation (abnormal spinal function and its effects) is found. Clinically there is a high success rate with these patients and no significant risk of harm. In cases where correcting the subluxation(s) does not produce relief from pain it was still rational and cost effective to provide a therapeutic trial of chiropractic over a period of some weeks before considering more invasive and drastic alternatives.

21. The above teachings, from a senior medical researcher, open a window on the huge role that can be played by the chiropractic profession in comprehensive and hospital-based treatment of chronic low back pain patients as co-operation and trust continues to build between the chiropractic and medical professions.

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9. ibid, 538 Tables 1-3.

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13. See, for example, 'Team Effort Between MD and DC Produces Results at Canadian University', an interview, (1984) ACA J Chiro 21(7):36-48. And also:

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15. Kirkaldy-Willis W H (1984) 'The Relationship of Structural Pathology to the Nerve Root' Spine 9(1):49-52.

16. ibid 50.

17. Ref 13 supra, 39 & 43.

Professional notes... *continued from page 1*

3. The chiropractor, Dr. Gignac, had a different story – when he was consulted over two years after the accident he found gross restriction of cervical motion, and major physical problems. In his written report and evidence in court he drew attention not only to the direct spinal problems but the symptoms such as headache, distress, and excessive perspiration that indicated injury to the sympathetic nervous system. He then spoke of his 18 months of treatment, based upon adjustment and TENS, during which the plaintiff had experienced major improvement.

4. In his judgement Judge Warren held "I was impressed with Dr. Gignac who, in my view, using his professional training has accomplished more in a year and a half to bring (the plaintiff) back to reasonable health than the other doctors she has consulted since this accident." He expressly preferred the evidence of Dr. Gignac to that of the other doctors and rejected the suggestion that the basis of the patient's suffering was psychological.

5. With respect to general damages, the judge found that the plaintiff's problems had "improved immeasurably to the point she can live her former lifestyle" under chiropractic care, and awarded $20,000. With respect to the cost of future chiropractic care, concerning which there was no specific prognosis, the judge gave damages allowing for 104 weekly treatments over the next 2 years.

Sacroiliac Difficulties

'Spinal Manipulation' (1982) Bourdillon J.F. Heinemann Medical Books, London, Appleton-Century-Crofts, New York, 3rd Edn, 13. **PN2**

Sacroiliac subluxation, or strain, is such an evident reality to chiropractors, and is now so well documented in the literature, that it is easy to forget that many medical specialists still deny its existence. In your interprofessional dealings with family physicians and others you will be aware of the need for discussion in this area.

An excellent quote, because it sets forth both sides of the problem, comes from Dr. John Bourdillon, trained in orthopaedic surgery and manipulation at St. Thomas' Hospital in London, England, and a past president of the North American Academy of Manipulative Medicine:

"My interest in the other schools of manipulative therapy was stimulated by a number of patients whose backs I had manipulated without success, who were kind enough to let me know that subsequent visits to non-medically qualified manipulators had given satisfactory relief... One of the patients was a woman whose low lumbar spine I had explored on two occasions and from whom I had removed disc protrusions at both the lumbosacral joint and the L4-5 joint. In spite of this she was still crippled by severe symptoms. (Dr. Turner) succeeded in relieving her and I continued to treat her for many years afterwards when she had recurrences.

The main trouble in her case was *a sciatic radiation of pain caused by a sacro-iliac strain* and I well remember *my blank feeling of disbelief* when Dr. Turner suggested this possiblity. "How", I said to myself, "can the sacroiliac joint possibly cause a sciatica when there is no conceivable means by which any of the nerves of the sacral plexus can be pressed on by such a joint strain?" Dr. Turner's results and my subsequent experience have, for me, *completely proved* that a sacro-iliac strain can be the cause of a sciatica, but the precise means by which this pain reference is produced remains a matter of theory for which adequate experimental proof is still lacking."

The Drug Industry – Observations

'Doctors and the Drug Industry: Too Close for Comfort', editorial Brit Med J (October 11, 1986) 293:905-906. 'Scientific Misconduct in Investigational Drug Trials' Shapiro & Charrow, N Eng J Med (1985) 312:731-735. **PN3**

A recent editoral in the British Medical Journal looks again at the uncomfortably close relationship between MDs and the drug industry and presents the startling fact that the drug industry spent over £5,000 in promotion for each general practitioner in England during 1985. The point has been reached where many MDs planning foreign trips simply write to drug companies asking for funds. "One doctor even stated that unless his request was granted he would stop prescribing the company's products." Another group of doctors refused to attend a film "unless it was shown with a meal organized at a restaurant of their choice."

This type of relationship between MDs and the drug industry paves the way for larger problems, such as the scientific misconduct and fraud in trials of new drugs reported by Shapiro and Charrow in the New England Journal of Medicine in 1985. They produce continuing evidence of widespread misconduct going right to the top of the system.

They report "serious deficiencies" in 11.5% of all trials audited by the U.S. Food & Drug Administration. In one case there were admissions of "falsified records and fudged data" for an unnamed M.D. who was not only a dishonest researcher but also a physician of highest authority – chief of cardiology at an academic hospital, extensively published in leading journals, on the editorial board of a leading cardiology journal, and an advisor to the FDA.

To support his early report of a new drug's efficacy in treatment of congestive heart failure, he claimed that a number of patients had signs of congestive heart failure at the beginning of the trial when there was plain radiological evidence that they did not. In research concerning angina therapy, where "frequency of angina is critical", he reported that a number of patients had "14 episodes of angina per week" before treatment with the beta-blocker under study "whereas they really had none or 1."

Other cases involved fraudulent payment of large sums of money.

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