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# Chiropractic treatment of chronic 'whiplash' injuries

M. N. Woodward, J. C. H. Cook, M. F. Gargan and G. C. Bannister

University Department of Orthopaedic Surgery, Bristol, UK

*Forty-three per cent of patients will suffer long-term symptoms following 'whiplash' injury, for which no conventional treatment has proven to be effective. A retrospective study was undertaken to determine the effects of chiropractic in a group of 28 patients who had been referred with chronic 'whiplash' syndrome. The severity of patients' symptoms was assessed before and after treatment using the Gargan and Bannister (1990) classification. Twenty-six (93 per cent) patients improved following chiropractic treatment ( $U=34$ ,  $P<0.001$ ). The encouraging results from this retrospective study merit the instigation of a prospective randomized controlled trial to compare conventional with chiropractic treatment in chronic 'whiplash' injury. Copyright © 1996 Elsevier Science Ltd.*

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## Introduction

The 'whiplash' syndrome is a collection of symptoms produced as a result of soft-tissue injury of the cervical spine. The accumulated literature suggests that 43 per cent of patients will suffer long-term symptoms following 'whiplash' injury<sup>1</sup>. If patients are still symptomatic after 3 months then there is almost a 90 per cent chance that they will remain so<sup>2</sup>. No conventional treatment has proven to be effective in these established chronic cases<sup>3,4</sup>. The aim of this retrospective study was to determine the effects of chiropractic in a group of patients who had been referred with chronic 'whiplash' syndrome.

## Patients and methods

Twenty-eight patients were selected at random from chiropractic referrals for chronic 'whiplash' syndrome over the 2 year period May 1993 to April 1995. The severity of the patients' symptoms<sup>5</sup> before and after treatment was assessed blind by an independent chiropractor not involved with the treatment and an orthopaedic surgeon (M.N.W.) in a structured telephone interview (Table I).

Patients in group A were symptom free. Patients in group B were left with mild nuisance symptoms that did not require pain-killers nor did they

Table I. Classification of 'whiplash' symptoms<sup>5</sup>

Group	Symptoms
A	Nil
B	Nuisance
C	Intrusive
D	Disabling

interfere with work or leisure activities. Patients in group C experienced intrusive symptoms that handicapped their work and leisure activities and caused them to seek relief with frequent use of analgesics. Patients in group D were severely disabled, had lost jobs, had repeatedly sought medical advice and relied continually on analgesics.

The chiropractic treatment was administered in each case by J.C.H.C. Techniques used included specific spinal manipulation, proprioceptive neuromuscular facilitation (PNF) and cryotherapy. Spinal manipulation is a high-velocity low-amplitude thrust to a specific vertebral segment aimed at increasing the range of movement in the individual facet joint, breaking down adhesions and stimulating production of synovial fluid<sup>6</sup>. PNF uses controlled resistance to muscle contraction to induce muscle relaxation and improve stability and co-ordination<sup>7</sup>. Cryotherapy was used at specific segments to reduce pain, muscle spasm and swelling<sup>8</sup>. Data were analysed using a Mann-Whitney *U*-test for changes in symptom severity following treatment and weighted kappa-analysis to assess the level of interobserver agreement.

## Results

The group of patients studied comprised 20 women and eight men, with a mean age of 39 years (range, 19–66). All patients had sustained 'whiplash' injuries as a result of road traffic accidents between January 1991 and October 1994. Car drivers accounted for 21 of the group, six were passengers and the final patient was the driver of a motorcycle. Rear-end collision was the mechanism in 19 of the cases. The remainder were side- or front-impact collisions. All but one of the patients had sought treatment

**Table II.** Symptom group before and after treatment (figures represent total patient numbers: modified grid after Frankel et al. <sup>9</sup>)

		After treatment			
		D	C	B	A
Orthopaedic assessment					
Before treatment	D	2	6	6	0
	C	0	0	9	4
	B	0	0	0	1
	A	0	0	0	0
Chiropractic assessment					
Before treatment	D	1	11	7	0
	C	0	1	4	3
	B	0	0	0	1
	A	0	0	0	0

immediately following their accidents. Approximately half (52 per cent) had seen their general practitioners and the others had attended the local Accident department. A range of treatments had been used initially including anti-inflammatories, soft collars and physiotherapy.

Patients were referred for chiropractic treatment at an average of 15.5 months (range, 3–44) after their initial injury. Twenty-two patients (79 per cent) were referred by their solicitors and the remainder were either as a result of recommendation by friends and relatives or self-referrals. No one was referred by a medical practitioner. At presentation to the chiropractor the most common symptoms were neck pain (82 per cent) and stiffness (36 per cent). Other symptoms included headache, shoulder, arm and back pain.

At the time of referral 27 of the patients had group C or D symptoms (see *Table II*). Following treatment, 26 (93 per cent) of the patients had improved: 16 by one symptom group and 10 by two symptom groups ( $U=34$ ,  $P<0.001$ ). This improvement was independent of whether it was assessed by an orthopaedic surgeon or a chiropractor. In the group who had improved, 17 had stopped their treatment at the time of assessment; symptoms had recurred to a minor degree in four (24 per cent) of these patients and they were considering further treatment.

Interobserver agreement for the improvement in symptom grade was rated as moderate (weighted kappa=0.51). Compared with the chiropractic assessment, there was a tendency for pretreatment symptoms to appear less severe and improvement to be greater when assessed by the orthopaedic surgeon.

All of the patients had undertaken personal injury litigation as a result of their injuries. Twenty cases were still continuing and eight had been settled.

## Discussion

The 'whiplash' syndrome is a cause of long-term symptoms for which conventional medicine has failed to discover an effective treatment<sup>3,4</sup>. Recently chiropractic treatment has been shown to be advantageous compared with conventional medicine in the treatment of low back pain<sup>10</sup>. The results of this

retrospective study would suggest that benefits can also occur in over 90 per cent of patients undergoing chiropractic treatment for chronic 'whiplash' injury.

The practice of cervical manipulation has been discouraged by many authors who consider that the potential benefits do not outweigh the risks<sup>11</sup>. Indeed the literature contains numerous case reports of vertebrasilar ischaemic events following spinal-manipulation therapy, usually occurring as a result of vertebral artery dissection at the atlantoaxial joint<sup>12-14</sup>. Dvorak and Orelli<sup>15</sup> suggest however that the actual incidence of adverse events following cervical spinal manipulation is uncommon – (one major complication occurring in 400 000 manipulations. In a critical review, Terrett<sup>16</sup> found reports of 494 cases of vertebrasilar events (death, tetraplegia or residual neurological deficit) following spinal manipulation in the literature between 1934 and 1994. Only 78 of these were based on convincing, non-anecdotal evidence. In addition, 20 of these complications arose as a result of spinal manipulations performed by non-chiropractors, who had been misrepresented in the literature as being trained chiropractors.

The encouraging results from this retrospective study merit the instigation of a prospective randomized controlled trial to compare conventional with chiropractic treatments in chronic 'whiplash' injury.

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Requests for reprints should be addressed to: Dr M. N. Woodward, Long Acre, Alveston, Stratford-upon-Avon, Warwickshire CV37 7QN, UK.