

Case Study

Resolution of Hypertension in a 72-Year-Old Male Following Subluxation Based Chiropractic Care: A Case Report & Selective Review of the Literature

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Abstract

Objective: To report on the outcomes of a male patient who presented for chiropractic care with hypertension.

Clinical Features: 72-year-old male presented with a history of hypertension, arthritis, ringing/buzzing in the ears and numbness/burning in his shoulder. He was on blood pressure medication for one year prior to beginning chiropractic care.

Intervention and Outcome: A specific technique protocol was adopted over a period of three months for the detection and correction of vertebral subluxation. Blood pressure was measured and decreased over the course of care. The four domains of health (physical state, emotional/mental state, stress and life enjoyment) were assessed using self-rated health/wellness (SRHW) surveys prior to care and a questionnaire regarding changes experienced since care was completed after three months. Static EMG and Thermal scanning were performed using the Insight™ surface EMG and thermal scanning technology with improvements noted. A decrease in blood pressure following the commencement of chiropractic care was reported.

Conclusion: Decreased blood pressure and increased ease of physical activity were documented following chiropractic care in a patient with a history of medically treated hypertension.

Keywords: Chiropractic, subluxation, adjustment, manipulation, hypertension, surface electromyography, thermal scanning, Torque Release Technique (TRT)

Introduction

Hypertension is a condition that affects up to one in five New Zealanders and annually causes close to nine million deaths worldwide.¹ Maintaining a healthy bodyweight and exercise regime are the focus of hypertension treatment, however, if a lack of change occurs in 3-6 months the next course of action is the prescription of antihypertensive medication.¹⁻²

In modern times, characterization of patients who use chiropractic services has found that these patients attend chiropractic care for mainly back and neck problems.⁵⁻⁶ This is consistent with the findings of others on the use of complementary and alternative medicine (CAM) to address back pain or back problems, neck pain or neck problems, and

joint pain or stiffness.⁵ Not surprisingly; of the practitioner-based CAM therapies, chiropractic continues to be highly utilized by the general population.⁶⁻⁷

Historically, the use of chiropractic services was not mainly to address patient complaints that were musculoskeletal in nature. As Peters and Chance documented, early chiropractors cared for patients with a variety of ailments from both a musculoskeletal (MSK) and non-MSK origin.⁸ Today, there is a renewed interest in the chiropractic care of patients with Type O (organic) conditions.⁹⁻¹⁰ In the interest of evidence-informed practice, we describe the chiropractic care of a patient medically diagnosed with hypertension.

Case Report

A 72-year-old male presented to a private practice in Auckland, New Zealand for a consultation and possible care. According to the patient, his health was affected by hypertension and an inability to exercise properly for the past three years. His medical doctor prescribed hypertension medication and at the time of presentation to the chiropractic clinic, he had been on hypertensive medication for a year. During this time his blood pressure had decreased from a baseline of 174/94 to 150/90.

In addition to an initial work-up involving a history and physical examination, the patient completed a self-rated health/wellness (SRHW) survey.¹¹ The history and physical exam revealed symptoms of numbness and tingling in the shoulder following trauma to the extremity two years earlier. Other previous traumas included a motor vehicle accident, a fall from a tree, and a twenty-year involvement with Judo. The patient had been suffering emotionally from the recent death of his wife. In addition to blood pressure measurements, baseline and comparative testing was performed with surface electromyogram (sEMG) (Insight sEMG, Morristown, NJ) (see Figures 1-3)

Based on the history and physical examination findings, the patient was offered and accepted a trial of chiropractic care set at twice a week for eight weeks with the care plan frequency reduced thereafter, based on the patient's response to care. The patient was cared for using the Torque Release Technique.¹²

Results

After six months of chiropractic care, the patient's blood pressure was measured at 134/86. At a further assessment two weeks later the patient's blood pressure had reduced to 132/80. The accompanying static EMG and thermal scans performed on the patient over the course of care produced increasingly more balanced and symmetrical findings and thus a marked improvement in both motor and autonomic function (See Figures 2 and 3).

Discussion

Hypertension is an important public health concern in both developing and developed countries. Cardiovascular disease is a major cause of death in most industrialised countries. In New Zealand, one study found the prevalence of hypertension at 31%, with 15% of hypertensive individuals reporting taking antihypertensive medication.¹³ Given that elevated blood pressure is a risk factor for cardiovascular disease, the importance of public health measures at lowering population blood pressure and alternative care approaches for patients with hypertension need further investigation. In a recent qualitative study by Lee, Mokhtar, Krauss, et al.,¹⁴ the investigators found that their participants had negative perceptions of Western medicine, self-adjusted their prescribed medication with complementary and alternative from their doctors. Indeed the scientific literature is replete with studies examining the effects of a number of alternative therapies on blood pressure such as dietary supplements^{15,16} to herbal remedies¹⁴ and practitioner-based CAM therapies.^{17,18}

As indicated previously, the historical perspective by Peters and Chance⁸ found that in addition to MSK conditions, chiropractors cared for patients presenting with visceral complaints, including hypertension. Indeed, there is documentation that today's chiropractors are of the opinion that patients with visceral conditions such as hypertension can be cared for using adjustments, nutritional therapy and a variety of other therapeutic modalities.¹⁹⁻²¹ Others²²⁻²³ advocated similarly with proper education, modification of dietary habits in conjunction with daily exercise regimens, and regular spinal maintenance under the purview of chiropractic care.

Hawk, Ndetan and Evans²⁴ advocated for the role of CAM practitioners such as chiropractors in evidence-based health promotion and disease prevention. Credence to this advocacy finds support in the finding by Hart.²⁵ Hart compared 2008 hypertension mortality rates in the U.S. by state to concentrations of doctors of chiropractic and medical doctors. Hart found that chiropractor concentrations revealed a stronger beneficial association with hypertension death rates compared to medical concentrations. Linear regression analysis revealed that an average national decrease of approximately one hypertension death per 100,000 population would be expected with an increase of one chiropractor per 10,000 population.

Mangum, Partna and Vavrek²⁶ performed a qualitative literature review on the efficacy of SMT for treating HTN. Using a number of databases (i.e., PubMed, Medline, Allied and Complementary Medicine Database, Cumulative Index to Nursing and Allied Health Literature, and Index of Chiropractic Literature) to find the literature and using Cochrane Collaboration's tool for assessing risk of bias, the authors found 10 relevant articles. Risk of bias scores revealed two studies with low risk, three studies with unclear risk, and five studies with high risk. Statistically significant decreases in blood pressure were not observed in clinical trials with low bias when SMT was compared with effleurage massage and a 5-minute wait. The studies with more risk of bias showed a greater treatment effect. The authors concluded that there is currently a lack of low bias evidence to support the use of SMT as a therapy for the treatment of hypertension.

Since the study by Bakris, Dickholtz, Meyer et al.¹⁰ demonstrating that spinal adjustments to the atlas results in a sustained decrease in BP that persisted at eight weeks, a number of case studies have since reported similar decreases in hypertension following chiropractic adjustments. Recently, Goertz, Long, Vining, et al.²⁷ published their findings on the use of chiropractic upper cervical technique as a treatment for hypertension. The results of their study were inconsistent with that of Bakaris, Dickholtz, Meyer et al.¹⁰ as the treatment group experienced less of a decrease in hypertension than the sham intervention group. The study produced more questions than answers regarding the effectiveness of chiropractic adjustments for the treatment of hypertension.

Chung, Brown and Bussa²⁸ described a 57-year-old male presenting for chiropractic care with sciatica and wrist pain. The patient was also hypertensive that was managed with the medication Lisinopril and Simvastatin. The patient was cared for using contact specific, low force adjustments (NUCCA) to the upper cervical area of the spine. Throughout care, the patient noted decreases in his sciatica pain, wrist pain and decreases in his blood pressure. Following 16 visits, the

patient no longer required his medications to control his hypertension with his blood pressure remaining stable. Whedon²⁹ described the care of a 25-year-old woman with migraine headaches and medically diagnosed hypertension. The patient received Knee Chest upper cervical care for twelve weeks. By the end of care, she experienced a significant decrease in blood pressure from 134/98 to 114/80 mmHg. She also experienced a significant decrease in both frequency and severity in her migraine headache symptoms.

McMasters, Wang, York, et al.³⁰ described the care of 24 African American patients that spanned 23 visits for each patient. The mean values of three baseline blood pressure readings were compared with the mean values of blood pressure readings taken on visits 21, 22, and 23. Reductions for both systolic and diastolic blood pressures were not statistically significant ($P > .07$). However, when four patients having body mass index values that were considered as outliers were excluded, a statistically significant decrease in diastolic blood pressure was observed ($P = .004$). By group, a statistically significant reduction occurred in the hypertension stage one group for systolic and diastolic blood pressures.

Qualls and Lester³¹ described a 68-year-old female presenting with fatigue, weakness, dyspnea, tachycardia and hypertension. She received high velocity, low amplitude adjustments in the knee-chest position to the atlanto-occipital area on four separate visits. Upon receiving a second adjustment, the patient's heart rate variability readings suggested autonomic balance.

So, Giolli, Chang et al.³² examined the effect of care using the Migun HY 5000 thermomechanical massage deviceTM, which has effectively been used in conjunction with chiropractic care for the treatment of hypertension. Due to the link between the two disorders, all of the participants suffered from hypertension and/or Type II Diabetes and most participants experienced a significant change in symptoms. Both systolic and diastolic measurements were significantly decreased as well as blood glucose measurements.

Plaughter and Bachman³³ described the care of a 38-yr-old male with complaints of hypertension and lower back pain. The patient received HVLA type adjustments and during the course of care, the patient's need for hypertensive medication was reduced and eventually withdrawn over a period of two months.

Although the mechanisms involved in spinal adjustments leading to decreased blood pressure in hypertensive patients remains to be elucidated, the clinical effects continue to be documented, particularly with higher level-research designs.⁹ Bakris, Dickholtz, Meyer et al.¹⁰ related the position of the Atlas vertebra in affecting BP through the work of Coffee, Nicholas, Egan et al.³⁴ Coffee's review of magnetic resonance images found a significant association between pulsatile arterial compression of the ventrolateral medulla and the presence of hypertension. The association between changes in atlas anatomy and posterior fossa circulatory changes associated with hypertension have been reviewed by Reiss.³⁵

Interestingly, Bakris, Dickholtz, Meyer et al.¹⁰, ruled out the role of sympathetic tone as a major contributing mechanism as heart rate was not significantly changed. This remains to be confirmed in subsequent studies. In the case report described, changes in nervous system function was documented via

surface EMG (sEMG) and thermography measures using the Chiropractic Leadership Alliance (CLA) InsightTM surface EMG and thermal scanning technology. The system measures paraspinal muscle tone and skin temperature as a means of evaluating neural control and for assessing vertebral subluxation. Scientific literature supports the validity and inter-examiner reliability of the tool.^{36,37}

Limitations

The post-positivist methodology posits the limitation of case reports as lacking generalizability due to confounders (i.e., lacking a control group, spontaneous remission, self-limiting course and natural history of the disorder, subjective validation, and expectations for clinical resolution). However, as clinicians, we would argue that case reports are epistemologically in harmony with the experiences of our patient and our own clinical experiences and therefore forms the basis for generalization. In addition to informing higher-level research designs, case reports further provides for clinicians (and patients) an understanding of their clinical experiences that may lead to an increase in their conviction that the can "help" a patient.

Conclusion

This case report describes the successful chiropractic care of a patient with vertebral subluxations concomitant with improvements in medically diagnosed hypertension and decreased medication. We support continued research in this population of patients examining the theoretical and clinical paradigm of the detection and removal of spinal subluxations.

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Figures

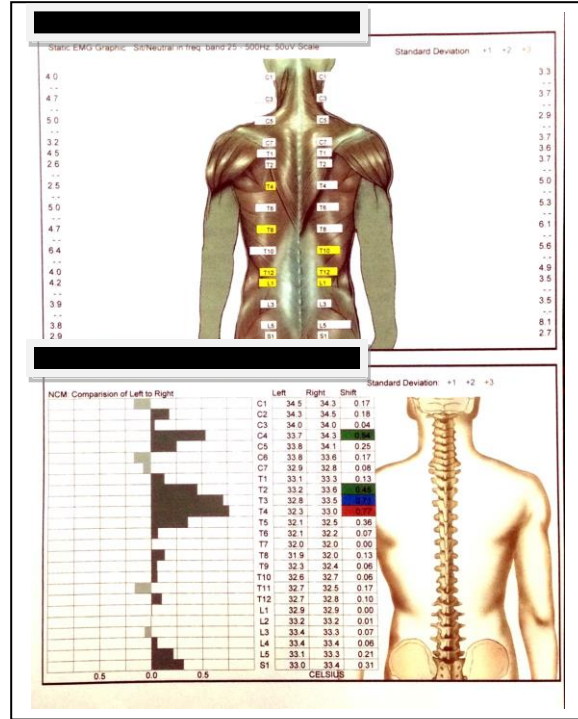
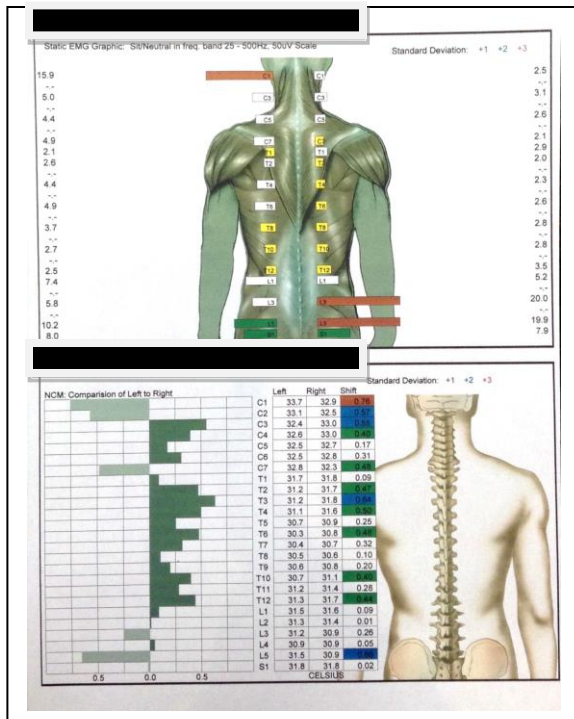


Figure 1: Initial sEMG and thermography scan

Figure 2: Second sEMG and thermography scan (2 months)

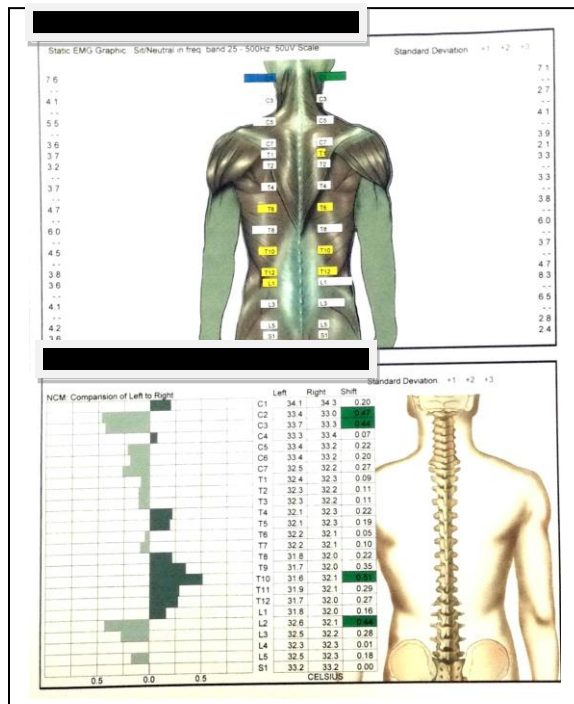


Figure 3: Third sEMG and thermography scan (4 1/2 months)