Case Study

Resolution of Hypothyroidism & Dysautonomia Following Chiropractic Care to Reduce Vertebral Subluxation: A Case Study & Review of Literature

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Abstract

Objective: This case study describes the positive health outcomes of chiropractic care via Torque Release Technique (TRT) on a 61-year-old female patient with hypothyroidism and dysautonomia.

Clinical Features: A 61-year-old female presents to the chiropractor with an insidious onset of thyroid problems, weight gain, and decreased energy that began two years prior when she was diagnosed with hypothyroidism. Examination revealed vertebral subluxations and paraspinal thermography displayed severe temperature asymmetry in the patient's cervical, thoracic, and lumbar spine indicating dysautonomia.

Intervention and Outcomes: TRT protocol was utilized to reduce vertebral subluxations. Thirty days into care, the patient reported feeling an increased amount of energy and stability in her weight. Two months into care, the patient returned to her medical doctor for an annual check-up and was referred out for a serum lab evaluation. The lab results revealed that her TSH, T3, T4, FT3, and FT4 values were all within the normal reference range.

Conclusions: TRT is shown to be effective in addressing vertebral subluxation as well as decreasing dysautonomia in a 61-year-old female patient with hypothyroidism. The reduction in signs and symptoms of vertebral subluxation were associated with an improvement in thyroid function and symptoms related to hypothyroidism. Further research on chiropractic care reducing pressure and tension on the spinal cord in association with improved thyroid function is suggested.

Key Words: *Vertebral subluxation, chiropractic, Torque Release Technique, TRT, Integrator, digital paraspinal thermography, hypothyroidism, adjustment*

Introduction

Thyroid diseases and conditions are becoming increasingly prevalent in the United States. Presently, it is estimated that twenty million Americans have some form of thyroid disease and greater than twelve percent of the American population will develop a thyroid condition over the course of their lifetime.[1-2] Despite the increasing prevalence, much is still unknown as to what exactly causes thyroid disease and which methods of treatment are most effective.

At the time being, most thyroid conditions are lifelong and are primarily managed by the medical system through the use of prescribed pharmacological interventions.[2] This form of intervention has left many patients dissatisfied due to the ineffectiveness of the treatment and the increase in adverse side effects from the medications.[1] For that reason, there is significant demand for an alternative way to care for patients suffering with thyroid conditions.

History

Before treatment became routine, an individual who was diagnosed with hypothyroidism was likely to pass away over the course of the next ten years. The condition was often identified later in its course when severe intellectual, neurological, and psychiatric deficiency had already taken hold of the patient. The first studies dating back to the late

nineteenth century suggested that iodine was crucial for proper function of the thyroid gland. It was this observation that led to the concept that iodine deficiency may lead to hypothyroidism. Until recently, iodine deficiency was the most common cause of hypothyroidism. Now that the majority of foods and nutritional programs are fortified with iodine, the most common cause of hypothyroidism is autoimmune thyroid disease.[3]

Epidemiology

Thyroid deficiency is the number one endocrinological condition seen throughout the world. Thyroid problems have shown to be more prevalent in the female population, as one in eight women will likely develop a thyroid disorder in her lifetime, and the likelihood of suffering from such conditions increases with age.[1]

The role of the thyroid gland is in regulation, metabolism, growth, and maturation of the human body. The thyroid's hormones regulate important functions of the body such as: breathing, heart rate, body weight, body temperature, cholesterol levels, central and peripheral nervous system function, and much more.[4] The thyroid uses iodine from the food and energy stores that an individual consumes and utilizes it to form two vital hormones, triiodothyronine (T3) and thyroxine (T4). The hypothalamus is constantly working to balance T3 and T4 levels by either increasing or decreasing the release of thyroid stimulating hormone (TSH). The reason being, T3 and T4 travel throughout the bloodstream to reach virtually every cell in the body in order to regulate the speed in which vital processes are being carried out.[5]

Hypothyroidism is a form of thyroid disease in which the thyroid gland does not produce sufficient amounts of thyroid hormone. It can occur at any age, but is primarily prevalent in the elderly population, affecting close to ten percent of women and six percent of men.[1] This condition can be subdivided into primary and secondary hypothyroidism, depending on whether the disease is caused by the thyroid itself (Primary) or by the hypothalamus or pituitary gland (Secondary). Primary hypothyroidism is the more common condition of the two and involves increased TSH levels, while decreased TSH levels can lead to the clinical diagnosis of secondary hypothyroidism.[5]

Primary hypothyroidism results from an increase in TSH and a decrease in free triiodothyronine (FT3) or free thyroxine (FT4). These values are most commonly identified through the use of blood tests. The primary tests available to evaluate the function of the thyroid are TSH Tests, T4 Tests, T3 Tests, and Thyroid Antibody Tests. Optimal blood levels vary depending on the particular laboratory and test, but a general diagnosis of primary hypothyroidism can be made when TSH levels are below the normal reference range of the laboratory and FT3 or FT4 levels are above the reference range.[4]

Primary hypothyroidism most commonly results from an autoimmune condition called Hashimoto thyroiditis. Signs and symptoms of hypothyroidism widely vary from patient to patient, but the most common symptoms are as follows: dull facial expression, voice hoarseness, slow speech, cold intolerance, constipation, weight gain, personality changes, facial puffiness, and coarse, dry skin and hair.[5] Signs and symptoms are more recognizable in younger individuals and appear more subtle and insidious in the elderly population.[1]

Most individuals suffering from hypothyroidism will require lifelong thyroid hormone therapy. The most commonly prescribed treatment is a synthetic thyroxine preparation, or the brand-name levothyroxine, that is to be taken once daily. The starting dosage in the normal adult population is 1.6mcg/kg/day. This synthetic thyroxine is to be taken first thing in the morning. Individuals who find this difficult are in turn prescribed to a nocturnal dosing regimen. These dosages will vary depending on the population being treated.

Pregnant women, elderly, patients with a history of or suspected ischemic heart disease, patients with subclinical hypothyroidism, and patients suspected of having myxedema coma are all treated differently than the typical adult patient. Pregnant women are prescribed higher dosages, between 2-4 mcg/kg/day, due to the increased metabolic demands. These dosages are typically increased from one trimester to the next in order to keep the mother healthy and avoid potential adverse birth defects as a result of thyroid deficiency. Elderly patients are generally recommended a lower dosage of 25-50mcg/day because of the increased risk for osteoporosis and fibrillation with over-replacement of T4 that increases with age. Those with a history of ischemic heart disease or those suspected of having ischemic heart disease are kept on an even lower dosage between 12.5-25 mcg/day because of the increased risk for fibrillation.[6]

Hypothyroidism may also be treated through the use of nutrition and supplementation. Dietary iodine plays an essential role in thyroid function and can most notably be obtained through the consumption of iodized salt, saltwater fish, and sea vegetables. Other vitamins and minerals that influence thyroid function are selenium, vitamin A, iron, and zinc.[7] There exists an assortment of alternative approaches to manage hypothyroidism along with nutrition and supplementation, such as yoga, meditation, massage, Tai Chi, Reiki, and Chinese medicine.[2]

Medical Costs

A study performed in 2008 stated that adult women spent an annual total of $4.3 billion on their thyroid conditions. $2.2 billion of that money was spent on ambulatory visits while $1.4 billion was spent on prescription drugs. The average woman who suffered with some sort of thyroid condition spent $343 annually for their disease treatment. The annual mean amount per woman spent for ambulatory care was $409 while the mean for prescription medications was $116.[8]

About 58% of the total spent by women between the ages of 18-64 for treatment of their thyroid disease was paid by private insurance while 27.7% of the expenses were paid out-of-pocket. For women aged 65 and above, Medicare paid over 52.4% of the costs. Regarding the ambulatory visits due to thyroid disease, Medicare paid 67.4% of the expenditures. Concerning prescription medications to treat the thyroid conditions, 55.5% of the women aged 65 or above paid out-of-pocket.[8]

Case Report

History

The patient is a 61-year-old Caucasian female in sales. She initially presented to the chiropractor's office with complaints of thyroid problems, weight gain, decreased energy, migraines, dizziness, vertigo, tinnitus, and Meniere's disease. Her complaints began insidiously in 2006. After reporting to her medical doctor with tinnitus and vertigo, the patient was ultimately diagnosed with Meniere's disease, a condition in which etiology is most commonly unknown.[9] She stated that the tinnitus occurred intermittently and at times became unbearable. No information was noted as to how the condition had been treated between the initial diagnosis and the first encounter in the chiropractor's office.

The primary complaint that led the patient into the chiropractor's office was the weight gain and increased fatigue that she attributed to her thyroid problems. Hypothyroidism is often correlated with weight increase combined with a decrease in basal metabolic rate and thermogenesis.[10] In 2013 the patient reported to her medical doctor when she began experiencing these symptoms of weight gain and an overall sense of fatigue. Her medical doctor referred her to a lab for a thyroid function test, which is amongst the most commonly requested lab tests in primary health care.[11] Upon receiving her results from the test, the medical doctor diagnosed the patient with hypothyroidism. Since that initial diagnosis, the patient has struggled to stabilize her weight and find the energy to perform daily tasks and play with her grandchildren.

The patient had previously been under chiropractic care, but no information was provided as to when and how long the patient was under care. She also reported being under the care of a naturopath, but no further information was provided as to the services that were rendered or the type of care that had been administered.

Examinations

The patient's examination included static palpation, motion palpation, range of motion, standing postural analysis, digital thermography, and anteroposterior as well as lateral plain film views of the cervical, thoracic, and lumbar spine.

Static palpation of the cervical para-spinal musculature revealed bilateral spasms and tenderness at the segmental levels of C2, C3, and C6. Motion palpation of the cervical spine revealed segmental dysfunction at the aforementioned levels. Static palpation of the thoracic para-spinal musculature revealed bilateral spasms and tenderness at the segmental levels T4, T5, and T9. Motion palpation of the thoracic spine revealed segmental dysfunction at those same levels. Static palpation of the lumbar para-spinal musculature revealed bilateral spasms and tenderness at the L3 segmental level. Motion palpation of the lumbar spine revealed segmental dysfunction at the L3 segmental level. Static palpation of the musculature over the sacrum revealed spasm. Motion palpation of the sacrum as it relates to its position on L5 revealed segmental dysfunction.

A global decreased range of motion was noted in the cervical, thoracic, and lumbar spine, as well as the right sacroiliac area. Standing postural analysis revealed a postural deficit in the cervical, thoracic, and lumbar regions, while also displaying a pelvic tilt.

Digital paraspinal thermography was also incorporated into the patient's initial examination in an attempt to measure skin temperature differences along the spine, using the CLA NeuralTherm™ Scanner. The purpose of this assessment was to evaluate sympathetic nerve function and assess for the presence of dysautonomia secondary to vertebral subluxation. Variations in skin temperature patterns are correlated with abnormality in the function of the autonomic nervous system (ANS), which includes the sympathetic nervous system.[12] Dysautonomia can often be a result of vertebral subluxation.

Temperature differences found in the assessment were compared to the normative values and were rated as follows: temperature differences between one and two standard deviations indicate a mild asymmetry; differences between two and three standard deviations represent a moderate asymmetry; and differences of three or more standard deviations signify a severe asymmetry.[13] Digital thermography showed the most severity in the upper cervical and lower thoracic regions of the spine. The results from the initial digital thermography assessment can be seen in Table 1.

Anteroposterior and lateral static x-ray films were taken in the patient's initial examination. The cervical films showed a severe decrease in the cervical lordosis as well as narrowed disc spaces between C5-C6 and C6-C7 vertebral segments. The thoracic spine films resulted in a negative study. The lumbar spine films displayed a narrow disc space between L4-L5 vertebral segments.

Torque Release Technique®

The chiropractic technique utilized on the patient was Torque Release Technique® (TRT). This technique, which was founded by Dr. Jay Holder and Dr. Marvin Talsky, embraces a vitalistic paradigm and follows the premise that life is an expression of tone and disease occurs when there is variation in that tone; a concept on which D.D. Palmer originally founded chiropractic. According to Palmer, tone is life being expressed in physical matter through vibration at different frequencies. In this paradigm, the vertebral subluxation creates a deviation from normal frequency ranges and neural tension, while the adjustment corrects that very issue and normalizes that individual's frequency and neural tension.[14-15]

TRT was created in an addiction treatment facility where the effectiveness of subluxation-based chiropractic care was being researched on a population dealing with various addictions. This randomized, double blinded, placebo controlled clinical study showed that patients who received regular care under TRT were more likely to stick to their addiction treatment plan, while displaying improvement in anxiety and depression scores, than the patients who received the placebo treatment or no treatment at all. TRT combines many aspects from nine different chiropractic techniques into a model that views the subluxation as a separation from wholeness, while utilizing 15 objective indicators of dis-ease and subluxation.[14-15]

The patient is examined for those 15 indicators of spinal subluxation utilizing an evaluation of the prone functional leg length reflex. The protocol involves applying light digital pressure tests in pre-determined lines of correction, at vertebral levels with either direct or indirect dural attachment to the spine. In TRT, the examiner solely looks for primary subluxations, which can be determined when the pressure test causes observation of exact evening of the leg lengths bilaterally upon prone deep tendon reflex analysis.[15]

The technique utilizes a handheld instrument called The Integrator, which delivers a low mass, high velocity adjustment in 1/10,000 sec while using either right torque, left torque, or no torque at all, in conjunction with a recoil. The Integrator™ as well as the TRT protocol were designed for the purpose of interexaminer reproducibility to enable more scientific research to take place within the profession of chiropractic.[14]

Chiropractic Intervention and Outcomes

The patient received twenty-one adjustments over a two-month period using Torque Release Technique®. Over this period of time, the patient was placed on a care plan that involved her coming into the office for an adjustment three times a week for the first two weeks and twice a week for the following nine weeks. The patient was compliant with the majority of her care plan but did miss three of her adjustments in that two-month span. The chiropractor's primary goal at each appointment was to locate and address the patient's vertebral subluxations, if present, through the use of chiropractic adjustments with The Integrator™.

Every time the patient came into the office, the doctor followed the same protocol. The patient emptied her pockets and positioned herself prone on the table with her feet hanging a half-inch off the end of the table. The chiropractor then performed the initial functional leg length reflex to determine the short leg.[14-15] Once the short leg was identified, the doctor performed the complete Torque Release Technique protocol. This analysis is primarily based on four fundamental components:

1. The patient actively rotates her head to the left and right.
2. The doctor performs digital pressure tests at specific vertebral levels.
3. The doctor flexes the patient's knees to ninety degrees.
4. The doctor performs functional leg length reflexes throughout the protocol.

The doctor adhered to the TRT protocol as designed by co-founders Dr. Jay Holder and Dr. Marvin Talsky. In doing so, the doctor performed the majority of the adjustments at the patient's C1 vertebral level as well as the sacrum. In fact, eighteen of the patient's twenty-one visits resulted in the C1 level being adjusted while twelve of the twenty-one visits involved a sacral adjustment. In TRT, the C1 segment is adjusted in two different ways. It is either adjusted at the C1 transverse process in a lateral to medial line of correction or it is adjusted at the C1 posterior arch in a posterior to anterior line of correction.[14] However, the sacrum is only adjusted one way, but can be adjusted at any of the sacral segmental levels. The decision to adjust at one sacral level and not the other is determined when the doctor performs a digital pressure test and the subsequent functional leg length reflex displays balanced legs bilaterally. The specific sacral level is then adjusted at the sacral tubercle in a lateral to medial line of correction. Each adjustment is carried out via The Integrator™ and is delivered using no torque, right torque, or left torque.[14-15]

Throughout the two months of care, the doctor kept track of the patient's subjective and objective findings. Before every adjustment, the patient stated that she had no change in her condition compared to her last visit. Upon examination at each visit, the doctor stated that he had identified vertebral subluxations at anywhere from one to three areas along the patient's spine. After each adjustment the doctor noted that the patient's condition was stable at the moment and that the patient tolerated and responded well to her treatment.

The doctor performed a re-assessment thirty days into the patient's care plan to review the progress that had been made and determine if any changes needed to be incorporated to the structure of the plan. At that re-assessment, the doctor performed another digital thermography assessment on the patient. The digital thermography displayed significant improvement from her initial assessment.

In regards to temperature differences, this re-assessment showed an increased number of vertebral levels without any significant temperature asymmetry, while displaying no signs of severe temperature asymmetry throughout her spine. The results from the digital paraspinal thermography re-assessment can be seen below in Table 2. Although the patient previously stated no change in her condition at the weekly visits, she explained at her re-assessment that she had been feeling an increased amount of energy, her weight had stabilized, and she was experiencing a decreased frequency in bouts of tinnitus. She reported feeling encouraged and motivated because her symptoms were improving.

After two months of care had passed, the patient returned to her medical doctor for an annual checkup and was referred out to the laboratory for further blood work. Upon receiving the results from her blood work, the medical doctor shared that the patient's TSH, T4, T3, FT4, & FT3 levels were all within the normal reference range.

Discussion

Chiropractic Literature

To this date, there is very little research that has been recorded on the effects of chiropractic care in those suffering from hypothyroidism. In fact, only four studies are correlated with the diagnosis and management of hypothyroidism via chiropractic care. Of those four studies, only two report efficacy in managing patients with complaints of hypothyroidism. A review of the literature brought to light a study done in 1984 by Jacobs et al on the use of Applied Kinesiology (AK) in the diagnosis of hypothyroidism. This study did not approach the concept of improving hypothyroidism through chiropractic care, but merely gave an in-depth look into how the AK technique can be utilized when

diagnosing an individual with hypothyroidism.[16] The other study by Echeveste describes the successful chiropractic care for a patient with challenged lifestyle due to Type 1 Diabetes Mellitus and hypothyroidism. Control of blood glucose levels was achieved, with stabilization of the amount of insulin needed per day. Improvement in well-being with improved sleeping patterns were also reported.[17]

In 2009 there was a case study by Bablis and Pollard to assess the impact that Neuroemotional Technique (NET) had on the treatment of two separate cases of individuals suffering from hypothyroidism. NET is a treatment used to address stress and other negative stimuli through the removal of certain patterns that an individual displays, by means of stimulating the nervous system via the spine. This approach is widely used in chiropractic and is a conglomeration of cognitive behavioral psychology, traditional Chinese pulse assessment, acupuncture, and manual muscle testing. Both patients in this case study were treated via NET.[18-19]

The first patient was a 41-year old female suffering with chronic tiredness that caused her to fall asleep early every night. At her initial thyroid function test, it was revealed that her TSH levels were elevated at 13.99 mIU/L (reference range: 0.30-3.50) and her free T4 levels were depressed at 8 pmol/L (reference range: 9.0-19.0), which is consistent with the diagnosis of primary hypothyroidism. After this initial diagnosis, the patient was then treated twice a week for eight weeks using NET. After eight weeks of treatment, the patient reported an improvement in her tiredness as well as an increase in energy levels. A follow up thyroid function test was performed, which revealed a drastically improved TSH level at 5.81 mIU/L as well as an increased level of free T4 at 12 pmol/L.[19]

The second patient was a 27-year-old female who suffered from fainting spells and bouts of dizziness. One year prior to this initial meeting, she had been diagnosed with hypothyroidism as the cause of these symptoms. In the one year between this diagnosis and the beginning of her NET care, she had tried taking medication, but removed herself off of the medication because the issue kept reoccurring. Her initial thyroid function test before she started care revealed an elevated level of TSH at 14.8 mIU/L. After receiving four treatments over a 50-day span, she reported feeling much better and stronger, while no longer experiencing any fatigue. She returned for a follow-up thyroid function test thirteen months later and found her TSH levels had been reduced to 3.58 mIU/L. Both of these cases were examples of patients with hypothyroidism showing subjective and objective improvement in their conditions after undergoing NET treatment.[19]

The other case study that provided support for the concept that patients with hypothyroidism can benefit under chiropractic care was a 2015 study by Bak and Engelhardt. In this case study, a 44-year-old female patient had presented to the chiropractor with initial complaints of upper trapezius and inter-scapular pain that began 23 years prior when she suffered a motor vehicle accident. Four years prior to her walking into the chiropractor's office she had been diagnosed with Hashimoto's Disease when she presented with lethargy, weight gain, depression, and temperature intolerance, in combination with a thyroid function test that showed increased levels of TSH. Since that initial diagnosis, she had treated the hypothyroidism via medication. After one month of care utilizing Chiropractic Biophysics (CBP) technique, the chiropractor noticed the patient presented to his office with chattering teeth, shaking hands, and periods of essential tremors. He then recommended that the patient make an appointment with her endocrinologist, in which she was assessed and underwent a follow-up thyroid function test. Her results came back showing a dramatic drop in her TSH levels, all the way into the hyperthyroid parameters. Therefore, the endocrinologist reduced her medication dosage from 90mg to 60mg and the patient felt complete relief of the symptoms she had recently been experiencing.[20]

CBP is a technique that involves measuring an individual's posture and spinal alignment in order to come up with objective values, and comparing those values to an already established normal or ideal model. According to Harrison, as a patient deviates further away from the structural norm, spinal health tends to deteriorate. The majority of the analysis for this technique is done via plain film x-rays. As a patient progresses through care, he or she undergoes re-evaluations that involve taking follow-up films months into care, in order to evaluate the patient's progress towards the ideal model and make any changes to the care as needed.[21-22]

Upon review of the chiropractic literature, it was evident that this is the first case study on the use of TRT to aid in the management of hypothyroidism.

Subluxation Model

Torque Release Technique® operates under the notion that there are three kinds of subluxations that exist: primary, secondary, and tertiary. The primary subluxation is so overwhelming that it cannot be self-corrected and needs to be addressed through a chiropractic adjustment. The secondary and tertiary subluxations exist as mere compensations for the primary subluxations. More often than not, it is the secondary and tertiary subluxations that land a patient in a doctor's office because these subluxations are the cause of pain and other related symptoms that interfere with the patient's daily life. However, it is only the primary subluxations which are addressed by the TRT practitioner because the secondary and tertiary subluxations are said to be addressed through the adjustment of the primary subluxations.[23]

In conjunction with the three different types of subluxations, TRT also recognizes two different categories of subluxations: cord pressure and cord tension subluxations.[23] The cord pressure category of subluxation effects the inter-segmental areas of the spine while the cord tension subluxations involve the locations in which dura mater attaches to the spinal cord. These points of attachment are the sphenoid, occiput, C1 (indirect attachment), C2, C5, S2, S3, S4, and the coccyx. Dr. Holder contends that it is at these points of dural attachment that the primary subluxations most commonly occur.[14-15,23]

The effects of spinal cord tension have been studied for years. Previous research shows that tension on the spinal cord affects somatosensory evoked potentials, neurogenic motor evoked potentials, the blood supply and perfusion of the spinal cord,

oxidative mitochondrial metabolism, and nerves associated with the brainstem and cranium.[24] Also, when tension is present in one area of the spinal cord, it will automatically be transmitted to the rest of the spinal cord. This concept provides reasoning for the fact that a localized source of spinal cord tension can cause neurological effects in a distant area of the body. TRT is considered a tonal approach to the human body due to the fact that the technique views the spine and nervous system as one functional unit. Therefore, if a particular stress is placed upon the spine, the nervous system is affected, and the opposite holds true as well.[25]

In the case of this particular patient with hypothyroidism, it is possible that the patient's subluxations occurring at different levels of the spine causing direct or indirect insult to the dura mater are playing a significant role in the patient's inability to properly regulate her own thyroid function. According to the American Thyroid Association, the primary cause of hypothyroidism is due to an autoimmune disease in which the patient's immune system mistakenly identifies his or her very own thyroid gland cells and enzymes as invaders, and consequently attacks them. This condition is called Hashimoto's Thyroiditis and it results in a decrease of thyroid cells and enzymes, leading to a lack of production of thyroid hormone.[2,26]

There is much to be said about the bi-directional regulation that exists between the central nervous system (CNS) and the immune system. The CNS plays a critical role regulating the immune system through many routes. One of the primary ways in which this regulation occurs is through the function of neurohormones. There exists a constant feedback mechanism from the immune system to the brain to regulate the neuroendocrine system. The neuroendocrine system plays a vital role in that it protects the body from autoimmune, inflammatory, infectious, and allergic diseases by warding off a variety of infectious, antigenic, and pro-inflammatory agents looking to attack the immune system. If the neuroendocrine regulation of the immune system is interfered with and becomes ineffective in any way, then the immune system is no longer tightly secured and becomes susceptible to autoimmune diseases.[27]

Through the use of TRT care, the objective of the practitioner is to analyze, locate, and address the primary subluxations of the spine that may be causing neurological deficit at the dural attachment points.[14-15,23] By addressing this neurological misfiring, the patient's central nervous system is able to function and communicate properly with the other systems in the body, namely the immune system, which allows the immune system to accurately identify invaders of the body and relieve the thyroid gland from autoimmune insult.

Limitations

There are multiple limitations to this case study. The primary limitation is that the patient's initial diagnosis of hypothyroidism occurred two years prior to her initiation of care in this chiropractic office. Over the course of this two-year period, the patient's lifestyle modifications were not monitored or recorded, so it's unclear as to whether or not the patient's condition had already been improving due to alternative lifestyle modifications or her previous chiropractic care before she started care in this office. The patient stated that she had previously seen a chiropractor and a naturopath, but no details were provided except for the fact that the previous chiropractor did not utilize TRT. The patient's subjective assessments that were recorded at the beginning of each visit lacked details as to how the patient was responding to care on a week-by-week basis.

Conclusion

The evidence collected in this case study suggests that TRT care may contribute to improvement in hypothyroidism and other thyroid function-related conditions, by decreasing the amount of pressure and tension that exists on the spinal cord. At the time in which this case study was written, there have been a few other studies within chiropractic literature that report efficacy in managing hypothyroidism through the use of chiropractic care. This is the first and only study in which TRT was used to aid in the management of hypothyroidism. Further research is necessary in order to determine the extent to which TRT care plays a role in the regulation of thyroid function.

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Appendix

Table 1. Initial Digital Paraspinal Thermography Assessment	
Vertebral Level	**Skin Temperature Asymmetry**
C2	Severe
C3	Severe
T8	Mild
T9	Moderate
T10	Severe
T11	Mild
L5	Severe

Table 1. Results from the patient's initial digital paraspinal thermography assessment using the CLA NeuralTherm™ Scanner. Skin temperature differences are ranked as follows: between 1-2 standard deviations - Mild; 2-3 standard deviations – Moderate; 3 or more standard deviations – Severe. Vertebral levels not listed above displayed skin temperature differences that were less than 1 standard deviation.

Table 2. Digital Paraspinal Thermography Re-assessment (30 Days into Care)	
Vertebral Level	**Skin Temperature Asymmetry**
C2	Mild
T4	Moderate
T5	Moderate
T6	Mild

Table 2. Results from the patient's digital paraspinal thermography re-assessment, which took place 30 days into care, using the CLA NeuralTherm™ Scanner. Skin temperature differences are ranked as follows: between 1-2 standard deviations - Mild; 2-3 standard deviations – Moderate; 3 or more standard deviations – Severe. Vertebral levels not listed above displayed skin temperature differences that were less than 1 standard deviation.