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TREATING SECONDARY SYMPTOMS OF CEREBELLAR ATAXIA: A CASE REPORT

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ABSTRACT

Objective: To discuss management of secondary symptoms of a patient with cerebellar ataxia.

Clinical Features: A 67-year-old man presented with right-sided neck and shoulder pain and upper back tightness. In 2005, he noticed tingling in his hands, difficulty gripping a pencil, and difficulty with stairs. In late 2010 he went to a neurologist, who suspected cerebellar ataxia. The neurologist then referred him for a second opinion, which confirmed the presence of cerebellar ataxia. His first had occurred in 2005 during that initial occurrence of his condition. In 2020, he began using a walker, and by 2022 he could not perform any ambulatory movement without it.

Intervention and Outcome: His care plan was 1 visit per month for 9 months. He received chiropractic care using ActivatorTM, diversified and Thompson techniques. He had home care recommendations for heat and cervical exercise. He met his short-term goal of reducing his Quadruple Visual Analog Scale (QVAS) score from 47 to 30.

Conclusion: The patient had decreased pain scores, demonstrating that chiropractic care and rehabilitation exercises may help improve secondary symptoms of cerebellar ataxia. This suggests the need for more research and controlled studies in how chiropractic care combined with other rehabilitation options may help patients' secondary symptoms of cerebellar ataxia. *(J Contemporary Chiropr 2023;6:52-55)*

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Key Indexing Terms: Chiropractic; Cerebellar Ataxia

INTRODUCTION

Ataxia is a general term for disordered movement termed incoordination. Cerebellar ataxia is described as uncoordinated muscle movement due to disease or injury to the cerebellum. (1) It may cause difficulty with walking, balance, eye movement, hand coordination, speech, and swallowing. Gait is frequently affected because the cerebellum helps control the timing, rate, and force of muscle activity for walking. (1) The distal joints are usually the most seriously damaged. As symptoms progress, patients my then rely on walking aids, which may contribute to increased musculoskeletal pain and joint dysfunction. (2)

Currently there is no pharmacological treatment that can halt or slow progression of hereditary cerebellar ataxias. Rehabilitation programs are used to manage symptoms and prevent secondary complications such as falls. Low-cost home-care programs are often recommended by doctors for patients at-home use. (3)

Postural and balance issues associated with cerebellar ataxia have a moderate level of improvement with rehabilitation programs. (4) These improvements are described in a systematic review of 19 articles. The studies show that virtual reality, treadmill exercises, supported bodyweight with torso weighting and biofeedback are helpful. Other methods discussed included trunk exercises, static and dynamic balance exercises, climbing, traditional hospital rehabilitation and gait training. All 19 studies showed improvement in daily life activities or the patient's outcome assessments. (4)

The Chiropractic adjustment may help in treating patients with nervous system issues. (5) It helps patients with acute neck and low back pain. The neurophysiological effects of chiropractic care are that biomechanical changes in the vertebral column alter neural input to the tissues of the vertebral column. Thus, central processing and somatomotor or somatovisceral reflex traffic, and the neuromusculoskeletal system are also affected. (6) This paper describes the case of a patient who received chiropractic care for cerebellar ataxia.

CASE REPORT

A 67-year-old male sought care for right-sided neck and shoulder pain and upper back tightness. His first chiropractic visit occurred in 2005 when he noticed tingling in his hands, difficulty gripping a pencil, and difficulty moving up and down stairs. In early 2010 he noticed a gradual increase in difficulty in walking, especially on stairs, and began using a walking stick. In late 2010 he went to neurologist who suspected cerebellar ataxia. The neurologist referred him for a second opinion.

The presence of cerebellar ataxia was indeed confirmed. His gait worsened, and he began physical therapy immediately. In 2015, he noticed pain radiating into his right leg while walking and began using a cane. In 2017 he began having trouble turning while walking.

He underwent a cervical MRI in 2020 when he started to experience left-sided radiation in the left C6-C8 dermatomes.7 The MRI results showed that there was canal narrowing at C6/C7. In 2020, he started to use a walker. By 2022 he could not perform any ambulatory movement without a walker. This is when he sought chiropractic care for his right-sided neck and shoulder pain. 1

Physical Examination

He exhibited anterior head carriage and muscle atrophy of the lower extremities. His vital signs were normal save for blood pressure, which was measured at 155/96 mmHg. He stood 66 inches tall and weighed 180 pounds.

Orthopedic examination revealed mildly decreased extension, right rotation, and right lateral flexion with dull, local, right-sided pain. Left lateral flexion was decreased with a left-sided stretching pain. All other ranges of motion were normal. The shoulder depression test was positive with right-sided localized pain. Foraminal compression test and Valsalva's tests were negative.

Neurological examination showed diminished deep tendon reflexes for all upper extremity reflexes at C5-C7 (+1). The reflexes were also hard to produce. The reflexes were equal bilaterally. His earlier examination showed a positive heel-to-shin test and oculomotor control exam. (7) A cervical spinal screening was also performed as well. His differential diagnosis in January of 2022 was a cervical sprain/strain, degenerative disc disease and subluxation, accompanied by cerebellar ataxia.

Management

His care plan was 1 visit per month for 9 months. He received chiropractic care with a mix of ActivatorTM, diversified and Thompson methods. C1 ASRP was consistently adjusted with another lower cervical on the left. The ASRP listing was derived from finding divergence between the C1 anterior tubercle in relationship to C2 at the anterior of the lateral cervical film along with decreased right lateral bend and left rotation between the C1 and C2 transverse. Static palpation findings revealed a more prominent posterior arch of atlas on the right side compared to the left side. A supine diversified adjustment was used by contacting the posterior aspect of the right transverse process with the lateral aspect of of the right index finger. The joint is brought to tension by laterally bending to the right side isolating between C1 and C2 and rotating the head to the left and thrusting from posterior to anterior.

Anterior drops on the glenohumeral joints bilaterally were also performed for postural support. ActivatorTM was used to aid in trigger point release throughout his trapezius and paraspinal muscles. He had home-care recommendations to apply heat and exercises for left rotation and cervical retraction.

Outcome

His short-term goals were to reduce intensity of pain by 25% in 4 months and the long-term goal was to reduce it by 75% in 9 months. He met his short-term goal of reducing his QVAS score from 47 to 30. The long-term goal may never be met due to a rapid increase in cerebellar ataxia symptoms. He has noticed he has full strength in his right arm, but it is getting harder to control while performing fine-motor movements. Despite his battle with this condition, he always has a positive attitude and states that he is grateful for the life he has been given.

DISCUSSION

Our patient experienced decreased pain scores, which may demonstrate that chiropractic care along with rehabilitation exercises can help improve symptoms of cerebellar ataxia. Neurorehabilitation is another widely used approach to help people with spinocerebellar ataxia. In one study, the 38 patients enrolled used neurorehabilitation for 24 weeks. (8) Treatment emphasized balance, coordination and muscle-strengthening exercises. The program significantly improved motor symptoms of cerebellar ataxia as evidenced by a decreased in the scale for assessment rating when compared with the controls for gait, stance, sitting, finger chase and heel-shin tests. This study mentions that exercises can be helpful in the palliative care of people with cerebellar ataxia. Chiropractic care may be a treatment option for CA patients as well. (8) A systematic review showed that chiropractic care combined with of several other rehabilitation options showed that combining it with rehabilitation may help patients' secondary symptoms of cerebellar ataxia. (4)

An additional study investigated short- and long-term effects of intensive rehabilitation on the activities of daily life of 42 patients with degenerative cerebellar disease. The experimental group received 2 hours of physical and occupational therapy consisting of balance and coordination exercises and 1 hour of exercises on the weekends for 4 weeks. The control group got the same treatment after a 4-week delay. Long-term outcomes were compared at 4, 12 and 24 weeks after the intervention. The experimental group that started the exercises right showed better results for ataxia, gait speed and activities of daily living. This suggests that receiving care sooner rather than later can help improve activities of daily living in people with cerebellar ataxia. Chiropractic care may be beneficial in combination with physical and occupation therapy for patients with this condition. (9)

Causes for cerebellar ataxia are difficult to identify. In a retrospective study of 624 elderly patients with gait disorders and falls, 45 patients had ataxia. The most common cause of ataxia was cerebrovascular disease, in 15 patients. Nine patients had a family history, 2 patients had alcohol as a potential cause, and no cause was found in 5 patients. (10) Another study found that cerebellar ataxia may be genetically transmitted. (3)

In addition to chiropractic care and rehabilitation exercises, an important aspect of our patient's treatment is the home exercises. It is important to empower patients to try to help themselves at home to increase self-efficacy. (3)

CONCLUSION

Evidence explaining why chiropractic may help neurologic conditions affecting in the neuromusculoskeletal system is expanding rapidly. The science behind why chiropractic may help cerebellar ataxia may be that chiropractic affects the proprioceptive afferent neurons from the paraspinal tissues. It can also affect pain processing and motor control. Cerebellar ataxia decreases motor control in the patient; thus, chiropractic care may be beneficial for secondary symptoms of cerebellar ataxia. (6) Our paper suggests that chiropractic care along with home exercises may help secondary symptoms of cerebellar ataxia.

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