

BACKGROUND

A 68 year old female social worker presented to a chiropractic neurology center with a sense of unsteadiness of gait concomitant with clumsiness, difficulty breathing, dizziness and fatigue with activity. The patient had been seen by a cardiologist on multiple occasions to monitor symptoms of apparent congestive heart failure. She reported falling multiple times per week and, at worst, would fall daily.



Posterior Pull Test with appropriate Stumble Correction Response

METHODS

The patient's posture included a wide based stance with anterior hips. She was ambulatory without assistance. However, she was very unsteady, having to steady herself with walls and other objects when maneuvering from room to room. She often needed to take more steps than necessary in order to walk from one destination to another. When taking a seat after an exercise, she often miscalculated the distance from her body to the chair and would sit on the arm rest or edge of the seat. She did not elicit a stumble correction response with a posterior pull test. Romberg's test was positive with posterior fall. A fingertip pulse oximeter was used with average readings of 94%-95%. Her heart rate was 56 beats per minute at rest and 46-47 during activity. Supplemental oxygen was administered throughout treatment to increase oxygen saturation. Repetitive peripheral nerve stimulation was performed in 3 sets of 30 seconds on ophthalmic, mandibular and maxillary branches bilaterally to regulate autonomic activity. Manual chiropractic adjustments to the upper and lower cervical regions were provided to prime the nervous system for neurologic rehabilitation. Off-vertical axis rotation (OVAR) was used to properly integrate movement patterns and improve perception of space. Whole body vibration (WBV) was used with added perturbations away from her center of gravity to improve her limits of stability. Interactive metronome was used to improve processing ability. Daily home exercises given to her included the following: marching in place, stepping in all 4 directions to a metronome while holding onto a counter, and performing slow leftward rolls on the ground. Treatment frequency was twice per week for 5 weeks.



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RESULTS

The patient's standing position at rest became narrow. Her gait improved to eliminate extra steps and loss of balance, no longer missing the chair at rest intervals nor hitting her extremities on walls. At the end of her course of care, she reported having gone 3 weeks without a single fall. Romberg's test was completed for 30 seconds with eyes closed without loss of balance. Posterior pull test revealed a stumble correction response to catch her balance. Her oxygen saturation was measured on average between 97%-98% and heart rate of 65 beats per minute at rest after her course of treatment.

CONCLUSION

The patient showed improvement in gait, posture, heart rate and oxygen saturation over the course of treatment. The results warrant further investigation of patients with cerebellar ataxia using a functional neurology approach.