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Who: 65-year-old female with h/o seizures and declining balance had MRI that revealed cerebellar atrophy secondary to extended use of seizure medication. Pt. had one fall episode on the past year due to balance deficits.

What: AlterG was incorporated into this rehab program allowing the patient to improve her Berg Balance Score and Dynamic Gait Index. At discharge, patient presented with reciprocal gait pattern with improved balance and ability to perform stair ambulation independently.

Why: Body weight support allowed patient to train for longer periods without c/o calf pain (patient had h/o vascular claudication). Patient was also able to work on dynamic balance within the AlterG feeling safe and having confidence, with direct carryover to overground walking.

Introduction

Patient is a 65 year-old female with a long history of seizures and declining balance over the past 3 years. Her MRI revealed cerebellar atrophy due to prolonged use of seizure medication. The patient has fallen once over the past year due to her balance deficits and not her seizures. Her balance improved and her seizures stabilised with a change in her medication, but her balance did not return to her previous level of function. Prior to experiencing changes in her balance the patient was independent with household and community walking, negotiating stairs, and performing household chores. She is now experiencing moderate difficulty with all activities. She has to sit on a bench while showering, is unable to walk her dogs, has to support herself to bend over and feed her dogs, and uses a handrail to negotiate stairs. She has no confidence in her balance.

Goals

4 Weeks

- Patient to be independent with dynamic sitting balance activities.
- Patient to increase single limb balance to 10 seconds without UE support with supervision.

8-9 Weeks

- Patient able to negotiate 10 steps without handrail, step over step independently with no loss of balance.
- Patient to restore Berg Balance Score to 51/56 to restore her balance in the home and community.
- Patient to increase her Dynamic Gait Index to 24/24 so she can turn and talk to someone while walking without falling and losing her balance.
- Patient to be able to take moderate perturbations in static standing without loss of balance so she can walk in a crowd and keep her balance when she is bumped.
- Patient to perform tandem walking 8' with no loss of balance to restore her ability to walk in narrow spaces.
- Increase dynamic gait index to 18/24 to reduce risk of falling in the home.

History

- Patient has difficulty performing sit to stand transfers secondary to weakness and loss of balance.
- Patient has fallen once in the last year.
- Patient had a left knee replacement in 2005 which continues to be limited in mobility.
- Patient ambulates with a narrow base of support with a reciprocal gait pattern. Loss of balance reported when going around corners.
- MRI reveals cerebellar atrophy.



Objective Data At Initial Evaluation

- Berg Balance Score of 45/56.
- Dynamic Gait Index Score of 17/24.
- Core Strength 4/5.
- Functional Gait Assessment 26/40 at week 4.

Treatment

The AlterG Anti-Gravity Treadmill™ training was implemented during the second week of physical therapy (see progression table for details). Physical Therapy treatment for this patient also included a progressive dynamic balance retraining program on and off the AlterG, low level laser therapy, core and lower extremity strengthening with a power plate, and neurological reeducation.

Considerations

Patient has the following co-morbidities: chronic neck pain, headaches, hand tremors, occasional blurred vision with difficulty focusing, chronic Tegretol and Dilantin therapy, previous history of breast cancer, pain and stiffness in left knee from left total knee replacement 6 years ago, and side effects to keppra which include decreased balance and energy.

Results

The AlterG was extremely motivating for this patient. She looked forward to coming to therapy and walking distances that she has not been able to walk in over a year. She felt very safe and confident in the AlterG which allowed her to challenge her balance early on. She has benefited greatly from treatment and progressed at a good pace. At discharge, she presented with a reciprocal gait pattern with proper base of support and arm swing on various surfaces, significantly reduced her risk of falling, ability to bend forward and feed her dogs without loss of balance, ability to stand and shave her legs while showering with no loss of balance, ascends and descends 3 stairs with independence and no use of handrail. Berg balance score improved from 45/56 to 55/56. Dynamic Gait Index score improved from 17/24 to 24/24. Functional gait assessment score increased from 26/30 to 28/30 at discharge.

Week	Initial WB%	Speed	Time (mins.)	Frequency
2	75	1.5	10/16	2 x daily
3	75	1.7	22	1 x daily
4	75	1.7 (0.6 reverse for 5 mins.)	25/27	2 x daily
5	75	1.7 (0.6 reverse for 5 mins.)	30/35	2 x daily
6	75	1.7 (0.6 reverse for 5 mins.)	45/46	2 x daily
7	80	1.7	41/41.5	2 x daily
8	85	1.7	22	1 x daily
9	85	1.7	49	1 x daily

