ALTER G® Case Study

Cerebrovascular Accident/THA

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Who: 65-year-old male s/p R Hip Arthroplasty, with h/o R sided hemiparesis post chronic stroke.

What: Walking program with the AlterG Anti-Gravity Treadmill™ was used to improve gait mechanics, increase walking speed, increase endurance/conditioning, and progress to ambulation without an assistive device.

Why: Body weight support allowed for safer gait training and decreased load in the lower extremities helped patient tolerate longer sessions practicing ambulation. Changes in the AlterG translated to functional mobility improvements overground for this patient.

Introduction

Patient is a 65 year old male who presented to outpatient PT for this episode of care seven weeks s/p R THA (9/21/10). Additional PMH includes CVA (Cerebrovascular Accident) in 2003 with significant R sided hemiparesis, L THA '09, osteosynthesis for B LE fractures s/p MVA '71, hypertension, and hyperlipidemia. Patient has been seen in our outpatient PT/OT department in the past and has been very compliant with attending therapy sessions and performing his home exercise program. Patient received OT and PT services at a frequency of two times per week during the time of this case study.

Goals

Short term and long term goals were established at the time of the initial PT evaluation on 11/11/10. These goals focused on decreasing pain with functional activity; increasing R LE strength and dynamic balance in order to progress with functional mobil- ity skills; increasing ambulation distance, speed and progressing towards ambulation without an assistive device; improving control and decreasing reliance on arm support with stairs nego- tiation, and improving overall endurance to allow patient to accomplish functional mobility in the community setting.

Functional outcome measures noted below were tracked pre-AlterG and 4 weeks post-Alter G during OP PT:

- Timed Up and Go
- 6 Minute Walk
- Lower Extremity Functional Scale
- Patient-Specific Functional Scale

History

Patient has been seen in OP PT two times per week for the above goals. Patient has been WBAT on R LE since surgery with total hip precautions. Patient initiated OP PT at 7 weeks post-op and started ambulation on AlterG at 9 weeks post-op. Patient completed 9 sessions on AlterG within four weeks with the goals of increased gait speed, improved endurance/tolerance for ambulation, better gait mechanics on level surfaces, and progres- sion to ambulation without an assistive device. See table below for details re: AlterG parameters utilized during OP PT sessions.

Progression Table

Weeks	BW%	Speed (mph)	Incline (%)	Time	Frequency
Week 9	70	1.0-1.4	0	10 min	1
Week 10	70	1.0-1.4	0	20 min	2
Week 10	70	1.2-1.4	0	20 min	
Week 11	70	1.0-1.3	0	20 min	
Week 11	70	1.0-1.3	0	25 min	
Week 12	70	1.2-1.5	0	15 min	2
Week 12	70	1.3-1.5	0	21 min	
Week 13	70	1.0-1.3	0	33 min	2
Week 13	70	1.3-1.6	0	35 min	

Results

This patient did demonstrate substantial improvement in the majority of his outcome measures in nine sessions on the AlterG within the four weeks. All outcome measures were tracked with ambulation on level surfaces in order to ensure that changes noted on the AlterG translated to functional mobility changes over ground for the patient. The patient used the LBQC for all functional outcomes measures pre- and post-AlterG.

While on the AlterG over the nine sessions, the patient demon- strated an increase in his walking speed as well as an increase in the overall time spent ambulating on AlterG. He improved his gait speed as evidenced by an increase of 259 feet in the 6 Minute Walk test from 357 feet at baseline to 615 feet after nine sessions. He also decreased his time to complete the Timed Up and Go from 36 seconds at baseline to 26 seconds in this same time period. The patient also progressed in independence by the end of the nine sessions to ambulating without an assistive device for up to 100 feet.

The Lower Extremity Functional Scale was chosen as the outcome measure to detect functional change in his daily activity/mobility skills and his scores improved from 37/80 to 44/80 (eight points is the MCD).

The Patient-Specific Functional Scale allowed this patient to rate four activities that were important to him, but initially unable to be performed or the patient had difficulty performing as a result of his R THA. This 10 point scale is scored from 0 (unable to perform activity) to 10 (able to perform activity at the same level as before injury or problem). The patient chose 1) gait speed and rated this category 3/10 initially and 7/10 at the end of nine sessions; 2) gait quality which he rated as 3/10 initially and 6-7/10 at the end of the nine sessions; 3) sit to stand without arm support and rated this category 0/10 and 5/10 after nine sessions; 4) floor to stand which remained a 0/10 pre- and post- as patient continues to have total hip precautions which prevent this transfer at this time.