ALTER G® Case Study

Pelvic Ring Fracture

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Who: 54 year-old female 12 weeks status post (s/p) pelvic ring fracture after falling from a horse and subsequent open reduction and internal fixation (ORIF).

What: The AlterG® Anti-Gravity Treadmill™ was used to help patient with safe, controlled progression towards Full weight-bearing.

Why: Body weight support allows for precise progressive loading for patient's needing to progress back to Full Weight Bearing status. Use of the Visual Monitoring Systems provides the patient verbal cues to allow them to correct/normalise gait pattern.

Introduction

The patient, a 54 year-old female, was riding a horse in May 2014 when the horse got frightened reared up. She fell from the horse backwards, and then the horse bounced off on her. The patient was referred for physical therapy after open reduction and internal fixation of her pelvic fracture, following specific weight bearing protection from the physician's protocol.

Goals

- Patient education: current baseline, fall risk without ankle-foot orthosis (AFO), pressure areas-skin inspection and modification of AFO.
- Progress patient from 25% weight-bearing on week 12 to 100% on week 15.
- Open chain isometrics and progress to open chain LE PREs through week 15.
- Begin AlterG Anti-Gravity Treadmill at week 15 at 50% weight bearing, initiate CORE exercises Level I.
- Progress to 100% weight bearing on AlterG in order to continue on home treadmill.
- Progress to closed chain PREs for BLE and progress to CORE exercises Level II.
- HEP: RPE, exibility, core strength, closed chain PREs, stationary bike/treadmill.
- Instruct in HEP, return to driving and work (office work with some carrying).

History

Problem List-Hospital (Reviewed October 2014)

- Small bowel obstruction due to postoperative adhesions.
- Multiple trauma.
- Acute blood loss anemia.
- Hypokalemia.
- Red blood cell antibody positive.
- Diaphragm injury with hematoma of stomach into the left hemothorax.
- Multiple pelvic fractures - left iliac/inferior pubic rami/superior pubic rami/ right sacrum.
- Pelvic hematoma.
- Left hemothora.
- Vertigophysical therapy.

Initial stabilisation with external fixator then followed by pins and screws posterior R sacrum-AP Crush Injury II

Problem List-Week 12: Gbhcc For patient

- Trauma patient - Life threatening accident, anxiety, possible post-traumatic stress disorder.
- Hospital Rehab - Focused on functional tasks in order to go home with her husband wheelchair level.
- Atypical AFO on LLE-drop foot since injury (atypical AFO-wraps around ankle more giving medial and lateral stability in addition to ankle at neutral rather than SLB with metal uprights).
- Muscle Weakness through Sciatic Nerve Distribution on LLE (Superior and Inferior Gluteal N).

- Sensation Loss through Sciatic Nerve Distribution on LLE (Lateral Femoral Cutaneous Nerve).
- Fall risk.
- Pressure Areas wearing AFO-unable to feel on LLE.
- The patient reported that by end of day, her foot turns a dark colour and is cold to the touch - a possible vascular component to the injury.

Results

AlterG Anti-Gravity Treadmill training was initiated at week 18 when physician's orders were received. Physicians actually wanted to begin using the Anti-Gravity Treadmill earlier (at week 15) to allow for safe, controlled progression towards full weight-bearing for this patient. Treatment was delayed due to patients neurological symptoms and completion of EMG testing.

The patient returned to driving (no restrictions were given by orthopedic physician per patient), helping the patient regain more control/independence and the feeling of going back to "normal life." She returned to her job in late October 2014 for four hours per day, Monday to Friday. She used a Single Point Cane for community walking at Modified Independent level (FIM 6). In her home and in physical therapy, the focus was on gait without an assistive device wearing her AFO.

The AlterG Anti-Gravity Treadmill was a very valuable tool in her therapeutic options because weight-bearing could be gradually introduced to the patient's tolerance and response to sessions. Treatment began on a level surface, then gradually increased the incline. The Anti-Gravity Treadmill also allowed physicians to closely monitor and improve the activity of the gluteus maximus by modulating the weight support on the AlterG as appropriate.

Week	Program	Speed (mph)	Incline %	Time (mins.)	Comments
18	Walking at 60% body-weight	0.5-1.0	0.0	5 Pain 8/10 LLE medial ankle	New order: 10/01/14 continue with AFO, begin Anti-Gravity Treadmill, walking for endurance OK, out of work until Nov. 1, f/u 6 wks.
19	Walking at 70% body-weight	0.8-1.0	0.0	10-13	6/10 pain left medial ankle, the patient stopped at 13 mins. Felt she was favouring LLE, instructed no tread-mill at home yet.
20	Walking at 100% body-weight	1.0	0.0	10-15	6/10 pain, the patient requested to do 100% body-weight. Has treadmill at home, instructed to continue with stationary bike at home, felt pelvis wobbling as fatigued.
21	Walking at 100% body-weight	1.2-1.5 Speed chosen by patient	0.0	20	5/10 pain, pins and needles in left ankle laterally, the patient stated she was using treadmill at home.
22	Walking at 100% body-weight	1.2-1.6 Speed chosen by patient	0.0-2.0 Alternate every 5 mins.	25	0/10 pain pre/post
23	Walking at 100% body-weight	1.2-1.8	0.0-2.0 Alternate every 5 mins.	30	