Restoration of Functional Mobility for a Young Adult Patient Following a Severe Motor Vehicle Accident: A Case Report

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Background

- Over 50 million people worldwide experience non-fatal injuries due to MVA annually.
- 1.2 million people die as a result of MVA annually.1
- Unintentional injury, including MVA, was the leading cause of death in females age 15-24 in 2014.2
- Higher intensity therapy can result in greater gains in functional mobility in rehabilitation settings.3
- Skilled nursing facilities typically care of older patients, but younger patients can also benefit.

Purpose

To document a young adult patient’s response to skilled PT interventions with the goal to return the patient to prior level of function.

Case Description

- 20 year old female, college student, involved in a MVA versus tree accident with fatalities.
- Fractures:
  - Left orbital floor
  - Left maxillary sinus
  - Right medial
  - Left planter foot wound
- Open book pelvic fracture with pronounced diastases and asymmetry.
- Extensive fractures of the sacrum and right acetabulum.
- Left superior and inferior pubic rami fractures.
- Right L5 transverse process fracture.
- Liver grade 2 trauma
- Open book pelvic fracture with pronounced diastases and asymmetry.
- Extensive fractures of the sacrum and right acetabulum.
- Left superior and inferior pubic rami fractures.
- Right L5 transverse process fracture.

Functional Mobility/Therapeutic Exercise

- Bed Mobility
  - Rolling
  - Scooting
- Functional Transfers
  - Bed to/from wheelchair
  - Wheelchair to/from commode
  - Wheelchair to/from car
- Supine/Seated/Standing
  - Supine: LE PROM/AROM/ resistance training
  - Seated: EOB tolerance
  - LE resistance and core exercise
  - Standing tolerance
- Pre-Gait Training
  - SCIFIT Pro 1000TM
  - NuStep Recumbent TrainerTM
  - Alter GTM

Radiographic Images of the Pelvis

Figure 1. Radiographic Images: A. The radiograph demonstrates a Foley catheter in place projecting over the pelvis. A comminuted left superior and inferior pubic rami fractures, pubic symphysis diastases, comminuted right acetabular and bilateral sacral ala fractures are demonstrated. A displaced fracture of the right L5 transverse process is also pictured, denoting an unstable vertical shearing injury to the pelvis. B. Patient was status post external fixation of the pelvis with screws traversing the right and left iliac bone. Multiple pelvic fractures are demonstrated including comminuting fractures of bilateral sacroiliac, right acetabular, right symphysis pubis, left superior and inferior pubic rami, and diastasis of the pubic symphysis is noted. C. X-ray taken 77 days post MVA. This radiographic image of the pelvis demonstrates healing of the previously stated fractures and the internal fixator.

Outcome Measures

<table>
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<th>CARE Items Mobility Assessment Score</th>
<th>Basic Mobility</th>
<th>Care</th>
<th>Tape</th>
<th>EOB</th>
<th>Standing</th>
<th>Car Transfer</th>
<th>Toilet Transfer</th>
<th>Wheeling</th>
<th>Locomotion - Walking</th>
<th>Locomotion - Wheeling</th>
<th>Distance</th>
<th>51/84</th>
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Outcomes

- Increased independence in all aspects of functional mobility
- Limited by non-ambulatory status, pain, non-compliance to weight bearing orders, decreased motivation
- CARE Items Mobility Assessment Score significantly improved
- Discharged following 10 weeks and 4 days at SNF

Discussion

- Functional mobility gains were noted through course of care.
- Improved outcomes and increased levels of independence may be due to consistent and appropriate progression of interventions.
- Factors possibly affecting recovery and discharge status: non-ambulatory status, pain, non-compliance to weight bearing status, motivation to participate in skilled interventions, family/caregiver support, and severity of injuries.
- Appropriate intervention prescription is an important aspect of providing patient centered care.
- Young adult patients following traumatic injuries may benefit from receiving physical therapy services at a SNF.

Acknowledgements

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- Patients for participation in the case report process.

References