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 world-wide experience non-fatal injuries due to MVA annually.1

Unintentional injury, including MVA, was the leading cause of death in females age 10-24 in 2014.2

Higher intensity therapy can result in greater gains in functional mobility in rehabilitation settings.3

Skilled nursing facilities typically care for 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

Injuries Included:

Fractures:
• Left orbital floor
• Left maxillary sinus, nasal bone
• C2 dens fracture, intrarticular fracture involving C2-C3
• Left ribs 3, 4-6, 8-9, 11-12 with pneumothorax of 12
• Right medial epicondyle avulsion fracture
• Open book pelvic fracture with pronounced diastases and asymmetry
• Extensive fractures of the sacrum and right acetabulum
• Left superior and inferior rami fracture
• Right L5 transverse process fracture

Other Trauma:
• Liver grade 2 trauma
• Left planter foot wound

Outcome Measures

CARE Items Mobility Assessment Score

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<tr>
<th>CARE Item</th>
<th>Basic Mobility</th>
<th>Functional Mobility</th>
<th>Therapeutic Exercise</th>
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<tr>
<td>Bed Mobility</td>
<td>• Rolling • Scooting</td>
<td>• Bed to/from wheelchair • Wheelchair to/from car • Wheelchair to/from car</td>
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<td>Functional Transfers</td>
<td>• Bed to/from wheelchair • Wheelchair to/from car</td>
<td>• Supine: • LE PROM/AROM • resistance training • Seated: • EOB tolerance • LE resistance and core exercise • Standing tolerance</td>
<td>• SCIFIT Pro 1000™ • NuStep Recumbent Trainer™ • Alter G™</td>
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<tr>
<td>Supine/Seated/ Standing</td>
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<td>Pre-Gait Training</td>
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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 sacrums, right acetabulum, right symphyis 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.

Figure 2. Interventions: A. Addressing impairments in sitting EOB tolerance in preparation for transfer to wheelchair and wheelchair tolerance training. B. Addressing impairments in standing tolerance while adhering to non-weight bearing orders for right lower extremity in preparation for future ambulation. C. AlterG gait training allows the therapist to adhere to weight bearing restrictions while preparing the patient for ambulation.

Figure 3. CARE Items Outcome measure is out of 84 possible points with higher scores relating to improved functional mobility.

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

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References