TRAUMATIC BRAIN INJURY
CASE STUDY

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HISTORY

• Mr. N. sustained a traumatic brain injury on 8/21/11. He is 46 years old and was riding his motorcycle without a helmet when he crashed.

• Mr. N. was intubated at the scene and went to the operating room that same day where he was seen by multiple specialists.
FINDINGS

• Moderate left epidural hematoma
• Mild, diffuse subarachnoid hemorrhage
• Mild subdural hematoma
• Left temporal bone fracture
• Left clavicle fracture
• Left 4th rib fracture
• (left parietal and right temporal lobe involvement)
OR TREATMENT

• Left hemicraniectomy treating intracranial pressure, allowing removal of the epidural hematoma and subdural hematoma 8/21/11
• Twist-drill craniotomy on the right for the placement of an EVD 8/21/11 which was removed by 9/5/11
• Tracheostomy tube placement on 8/25/11
• PEG tube and IVC filter placement 8/26/11
PT ORDERS

• TBI
• (Dysphagia precautions with patient NPO)
• Helmet out of bed
• Fall precautions
• Non-weightbearing left upper extremity
FINDINGS UPON EVALUATION

- Vitals: BP 116/84 supine; 98/64 sitting  pulse 114 bpm  O2 sats 94% on 30% O2
- PROM: within functional limits
- AROM: no response to cues; spontaneous movements observed while function tested
- Strength: patient unable to participate in manual muscle testing – spontaneous movements are as follows: hip flexion 2/5R 3/5L, hip abduction 2/5B, knee flexion 2/5B, knee extension 2+/5R 2/5L, dorsiflexion 3/5R resisted L. Decreased muscle tone in right hemibody, but upper extremity more than lower.
- Movement patterns: patient moves his left hemibody more than his right, looking to stabilize with left upper extremity weightbearing. Right sided movement were observed less frequently with shortened right trunk muscles and right hemiparesis characteristics in sitting and stance. Patient is restless. Clonus noted at right ankle inconsistently. Reflexes are diminished.
- Coordination: impaired
- Sensation; unable to participate in formal testing, does react to some tactile stimulation in left upper extremity and bilateral lower extremities; not in the right upper extremity
EVALUATION MOBILITY

• Mat Mobility: Dependent assist of 2 in sit-supine; rolling dep upon command but spontaneously supervision as patient moved restlessly

• Transfers: Dependent assist of 2 in a lateral scoot transfer wheelchair-mat; dependent assist of 2 in sit to stand.

• Static Sitting: Dependent with moments of contact guard as patient extends trunk and then returns to rest position with poor awareness of self.

• Ambulation: Dependent – patient unable to initiate stepping from stance upon initial trial; trunk in full flexion; decreased stance on bilateral lower extremities, but right takes less weight than left; patient pushing to sit down.

• Wheelchair Mobility: Dependent – patient moved into a tilt-in-space wheelchair.
TREATMENT

• Vital monitoring
• ROM/Strengthening
• Positional stretching and weightbearing
• Sitting
• Stance
• Mobility
• Exercises
• Activities
CURRENT FUNCTION

• No use of oxygen
• Blood Pressure within normal limits
• Supervision with mat mobility
• Contact Guard with stand turn transfers
• Contact Guard to Minimal Assist of 1 & Supervision of another for Gait 1200’
• Minimal Assist of 1 & Supervision of 1 on 24 steps reciprocally with a handrail
• Minimal Assist of 1 & Supervision of 1 on 6 inch curb
• Supervision to Modified Independence with Wheelchair Mobility in a regular wheelchair
DISCHARGE PLANS

• The cognitive dimension & behavior
• Family support
• Best environment
• Equipment
• Further medical intervention
• Further PT recommendations