Challenge Accepted:
Team approaches to navigate the complex care of patients with spinal cord injury

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Spinal Cord Specialty Program
MossRehab
Overview

Learners will be able to

• Identify common medical, functional and emotional challenges seen when caring for individuals with spinal cord injury
• Define team strategies to successfully treat complex issues and ensure positive patient outcomes
• List techniques to manage unrealistic expectations of patients and families
MossRehab/Einstein Healthcare Network

199 licensed acute rehab beds
#1 in Pennsylvania
#10 in Nation
15 CARF accredited programs
Top Workplace Philly.com
‘Quality of life is an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person’s physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment’

World Health Organization
Transdisciplinary approach

- Task oriented
- Relationship oriented
- Facility culture
• 32 years old

• GSW to right shoulder and neck
  • Comminuted fractures of posterior elements of C6 & C7, large central hematoma, diffuse subarachnoid hemorrhage with intracranial extension

• C5 AIS A tetraplegia – admitting dx from acute hospital

• Previous history of assault 10 years earlier
  • Maxillary & orbital fractures, left epidural hemorrhage requiring craniotomy/evacuation – treated for 3 wks on our traumatic brain injury unit – family reported full functional recovery
MossRehab initial admission

- ISNCSCI upon Moss admit C3 AIS A
  - Spinal precautions with CTO brace
  - Aggressive respiratory toileting
  - Dysphagia management with chopped diet, thin liquids and no overt signs & symptoms of aspiration
  - DVT & GI prophylaxis

- SCI Rehabilitation services initiated
  - spasticity/orthostasis/AD/bladder/bowel/skin/pain/sleep management

- Anxiety management, significant non-compliance

- Day 17 developed fever, increased SOB, hypoxia, tachycardia
  - PE verses pneumonia - PE protocol initiated - sent to ED
Acute hospital 4 week re-admission course

- Bilateral aspiration pneumonia & pleural effusion – no PE
- Ventilated, trached, pegged – day 23 failed vent weaning
- Episodes of asystole, febrile, brief LOC
- Anxiety management – placed on 1:1 at night
- Day 5 sacral pressure injury developed – OR debridement stage 4
- Thick secretions continue, aggressive suctioning, sputum culture + MSSA on antibiotics
- Eventually stabilized, extubed and off ventilator
- CTO removed – cervical collar only
MossRehab re-admission focus

• Respiratory/dysphagia care
• Treatment of Sacral stage 4 pressure injury
• SCI rehabilitation care
  • Spasticity, orthostasis, AD, bladder/bowel, skin, pain, rehabilitation technology use
• Emotional health - anxiety management, significant non-compliance
• Patient & family engagement, education & training
22% of all SCI deaths are the result of respiratory disease
71.7% of these are from pneumonia

- Diaphragm and intercostal muscle weakness
- Loss of abdominal muscle strength
- Autonomic nervous system disruption of breathing
- Impaired inspiration & weak or inability to cough
30-70% incidence of dysphagia in individuals with cervical SCI

Often times not recognized

- Intubation results in
  - Poor secretion management
  - Changes in pharyngeal and airway sensation
Respiratory/dysphagia Team Strategies

• Nursing, respiratory, speech and occupational therapy
  • Pulmonary toileting protocol
    • Insufflator/exsufflator (coughalator) treatment TID
    • Manual assistive cough use
    • Acapella and incentive spirometer respiratory muscle exercises
    • Staircase ventilation exercises
    • Passy muir valve use
  • Fiberoptic endoscopic evaluation of swallowing (FEES)
    • Failed study on admission day one – NPO/Tube feed started
    • VitalStim® therapy
    • Dietary advancement under close supervision with ST
      • Suctioning & HOB elevation during & immediately after meals

All patients with cervical level injuries now have a FEES performed upon admission
Incentive spirometer

Acapella
Positive expiratory pressure (PEP)

Peak flow meter
Maximum exhale/Maximum cough
Neurogenic bladder

• Combined CNS & ANS disruption
  • No cerebral awareness or sensation of fullness
  • Loss of voluntary use of abdominal muscles
  • Sympathetic & parasympathetic denervated effecting
    • Volume compliance
    • Internal sphincter control
    • Destrusor muscle contraction
    • External sphincter control
Neurogenic bladder Team Strategies

• **Nursing and occupational therapy**

  *Goal is: low bladder pressure with adequate bladder emptying*

  *Pressure injury concern was #1 priority*

• Foley catheter Fr #16 w 5cc balloon maintained throughout admission
  • Changed upon admission to closed system protocol
  • Urine culture on admission +
  • Family taught routine change
Neurogenic bowel

- Combined CNS & ANS disruption
  - No cerebral awareness or sensation of fullness
  - Loss of voluntary use of abdominals and external anal sphincter
  - Sympathetic & parasympathetic denervated effecting
    - Mesenteric & hypogastric nerves to provide propulsion of stool
    - Vagus nerve stimulation & external sphincter control
• **Nursing and Occupational therapy**

  *Goal is: planned and complete bowel evacuation*

• Routine bowel program initiated – suppository, colace, senna
  • Patient refused suppository >50%
  • Timed for use with gastrocolic reflex ineffective with tube feeding
  • Banana flakes to improve stool consistency
  • Unable to do upright program due to functional limitations
  • Extensive bowel education for patient & family provided by nursing and OT
Stage 4 sacral pressure injury

- Readmission with stage 4 sacral pressure injury
  - Additional debridement at week 1 & week 3
Pressure injury risk

- Re-hospitalization
  - Disease of the skin is second most common cause at 30.1%

- Mortality
  - Septicemia is second leading cause of death – usually associated with pressure ulcers, urinary tract or respiratory infections
Pressure injuries are considered an adverse event –

“When unintended harm, injury, or loss occurs that is more likely associated with an individual’s interaction with the healthcare system than with disease”

Medicare Patient Safety Monitoring System (MPSMS)
• Hospital acquired pressure injuries (HAPI) incidence 4.5%
• Present on admission (POA) 5.8%
  • 16.7% developed at least one additional PI
• Concomittent co-morbidities
  • CHF, COPD, CVD, DM, use of corticosteroids, obesity
• Those with HAPIs significantly more likely to
  • Have longer length of stay (LOS)
    • 11.6 days vs 4.9 days
  • Be admitted within 30 days after discharge
  • Die while hospitalized

_In the SCI population the incidence rate is reported as high as 40% - 73%_
What is the impact?

- 2.5 million individuals effected annually
- 60,000 result in death
- $8,730/pressure ulcer to treat
- $11.6 billion per year in healthcare cost

Risk to patient recovery and health
Risk to patient satisfaction
Risk of litigation
Affordable Care Act 2010

• Standardize all post-acute data collection
  • Continuity and Record Evaluation (CARE) tool
• Identify new Inpatient Rehabilitation Facility-Patient Assessment Instrument (IRF-PAI)
Expectations (quality outcome reporting)

• Mandatory reporting of all pressure injuries (defaults to individual facility standard)
  • MUST identify stage within 72 hour admission window
  • MUST identify stage within 72 hours of discharge
  • MUST identify any worsening of pressure injuries

Reimbursement will be impacted negatively if worse than other comparative rehabilitation facilities
Pressure injury Team Strategies

• The entire SCI rehab team
  • Consultation with CWOCN
  • Pressure mapping week 1 of bed surface and cushion
  • Pressure injury prevention (PIP) team strategies
  • Consultation with general surgery and plastic surgery
    • Multiple debridements, use of VAC
  • Consultation with “patient advocate”
  • Engagement of family in all aspects of assessment, treatment & prevention strategies
• Aggressive prevention strategies by all staff
• Weekly transdisciplinary bedside team rounds
• Real-time feedback to all staff
• Detail data collection for individual units & all of Moss
  • POA, HAPI, location, staging, progression, identification of mucosal &
    device related PIs, daily documentation completion and errors
• Critical performance analysis resulting in Quality Improvement
  “Action Plans”
• Monthly reporting and analysis to rehab counsel
• Quarterly reporting and analysis to administration
### Weekly Wound Rounds List & Outcome Data Collection

**For Pressure Injuries**

**Date:**

**Unit:**

<table>
<thead>
<tr>
<th>Pt#</th>
<th>TIME</th>
<th>Patient Name &amp; Medical Record #</th>
<th>Room #</th>
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**Patient #**

**Assessment Date**

**Location**

**Today's Assessment Stage**

**1st Documented Stage on Discovery**

**Wound has Worsened**

**List Stage Change (2 to 3)**

**Wound has Healed**

**If Device related:** Identify/provide detail

**Additional Comments:**
1 North | Monthly Incidence Rate
Hospital Acquired Pressure Injuries (HAPIs)

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Rehabilitation technology Team Strategies

• **Physical, occupational and recreational therapy**
  • Significant physical limitations
    • Shoulder and elbow flexors only 2/5
    • PROM limited due to pain
    • Absent proprioception elbow to thumb
    • Orthostasis with limited upright position in wheelchair & poor arousal
  • Neuro re-education with Saebo, Jaeco, E-stim trial
  • Refused home assistive technology trials
    “I like when my family feeds me”
  • Power mobility with sip ‘n puff
    • Cervical collar limited choice
    • Breath support exercises ongoing
  • Extensive family education
The entire SCI rehab team led by neuropsychology & social work
Denial and avoidance is no longer effective

- Offered modified learning styles (poor auditory processing)
  - Increased verbal & visual information
  - Pacing
  - Repetition
- Peer mentor sessions
“Challenge accepted. Peers connected”

- Invitation to become a peer mentor
- 4 hours of group education
- Curriculum
  - Code of ethics
  - Confidentiality/hospital policies
  - Limitations of mentor role
  - Listening skills
  - Role playing
  - Resources
Management of pre-morbid personality issues

- Psychiatry consult
- Pain control
- Anti-depressants
- Mood stabilizers
- Sleep wake cycle correction
Non-compliance

Difficult to meet 3 hour rule

• Established a collaborative relationship
  • Use of behavior rounds
  • Allowed safe choices and control of some structure

• Breaking the news
  • Important to instill “hope”
  • Careful timing of prognosis status to maintain treatment engagement
Family dynamics

- Extensive family therapy – everyone was “burnt out”
  - One on one with patient alone
  - One on one with girlfriend
  - One on one with father and step mother
  - One on one with biological mother
  - Couple counseling

- Family meeting
- Hands on family training
- Overnight stay
Discharge planning

- Home with girlfriend and two small children
- Home with father and step mother
- Continue rehab at respiratory facility

*Ethical dilemma for the team*
Discharge

- Transfer to post acute complex medical care facility
- Still there 9 months later
- One readmission to hospital
  - Hydronephrosis
  - Renal calculi obstructing ureter requiring stent
  - Bowel impaction
- Future uncertain does he have the resilience?
“the process of adapting well in the face of adversity, trauma, tragedy, threats or significant sources of stress…. (It) is not a trait that people either have or do not have. It involves behaviors, thoughts, and actions that anyone can learn and develop”

American Psychological Association
Works cited


