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Acute Care Rehabilitation considerations in disorders of the brain and spinal cord

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OBJECTIVES

1. Correctly diagnose and treat disorders of the spine and central nervous system
2. Anticipate and treat common medical complications in these patients
3. Apply a knowledge of post acute care systems to facilitate timely progression of these patients to discharge from the hospital

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DISCLOSURES

1. No financial disclosures

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Epidemiology - TBI

- 500,000 TBI/year in the US that require hospitalization
- Bimodal distribution
- Male to female ratio 2.5:1
- MVC is the most common cause of head injury
- Most common cause of death is ejection from the vehicle
- EtOH is found in 50% of patients presenting with TBI
- Marital status: Single > divorced > widowed
- Risk factors: pre-injury personality disorder, ADHD, family discord, antisocial behavior

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Epidemiology - SCI

- Incidence: 11,000 new cases per year
- Prevalence: 250,000
- Gender: 75% male
- Etiology
  - 47% MVC
  - 24% falls
  - 14% violence (most GSW)
  - 9% sports (mostly diving)
- Falls are becoming a more common cause
- Most common time
  - Summer (July highest)
  - Weekends (Saturday > Sunday)
  - Nighttime

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Case 1

- 24 year old man was an unrestrained passage in a MVC who underwent a traumatic spinal cord injury (T12 level)
- Immediate loss of sensation and motor function in bilateral lower limbs
- Discharged to SNF
- Develops dyspnea, chest pain, fever, and spasticity and returns to the hospital
- Diagnosis?

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Case 1 VTE prophylaxis

- Risk factors
  - Increasing Age
  - Complete Injury and level of injury
  - Lower extremity/pelvic fx
  - Previous VTE
  - Classic Virchow's triad: abnormal clotting, decreased flow, endothelial injury
- Management/Prophy
  - SCDs with or without stockings
  - LMWH for 8 weeks
  - Consider longer duration (e.g. 12 weeks) based on motor complete injuries, fractures, previous VTE, cancer, obesity

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Case 1

- Spasticity Management
  - Stepwise approach
  - Rehabilitation
  - Medications (Baclofen, Tizanidine)
  - Chemodennervation (Botox, Phenol)
  - Baclofen Pump
  - Surgery

- Roger Wolcott Pearl: THC also works really well

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Case 2

- A 37 year old man presents with an anoxic brain injury status post heroin drug overdose.
- 3 days into the hospital stay, staff approaches you and asks for Haldol for severe agitation, aggressive behavior

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Case 2

- Agitation management in Brain Injury
  - 10% of patients with brain injury
  - Look for causes, first
  - Start with non-pharmacologic
  - Propranolol (especially if storming)
  - Trial of low dose pain medication
  - Atypical antipsychotics
  - Avoid typical antipsychotics and benzos if possible

1. Reduce the level of stimulation in the environment:
- Place patient in quiet, private room.
- Remove noxious stimuli if possible—tubes, catheters, restraints, traction.
- Limit unnecessary sounds—TV, radio, background conversations.
- Limit number of visitors.
- Staff to behave in a calm and reassuring manner.
- Limit number and length of therapy sessions.
- Provide therapies in patient room.

2. Protect patient from harming self or others:
- Place patient in a floor bed with padded side panels (Craig bed).
- Assign 1:1 or 1:2 sitter to observe patient and ensure safety.
- Avoid taking patient off unit.
- Place patient in locked ward.

3. Reduce patient's cognitive confusion:
- One person speaking to patient at a time.
- Maintain staff to work with patient.
- Minimize contact with unfamiliar staff.
- Communicate with patient briefly and simply, one idea at a time.

- Give Choices
- Consider a large board that orients the patient

4. Tolerate restlessness when possible:
- Allow patient to thrash about in floor bed.
- Allow patient to pace around unit with 1:1 supervision.
- Allow confused patient to be verbally inappropriate.

(From Braddom RL. Physical Medicine and Rehabilitation, Philadelphia: W.B. Saunders Company; 1996, Table 49–8 with permission.)

Case 3

- 22 year old man sustains a TBI status post being run over by a car
- He had minimum movement in all four limbs, not opening his eys
- Following commands inconsistently
- Family asks about prognosis

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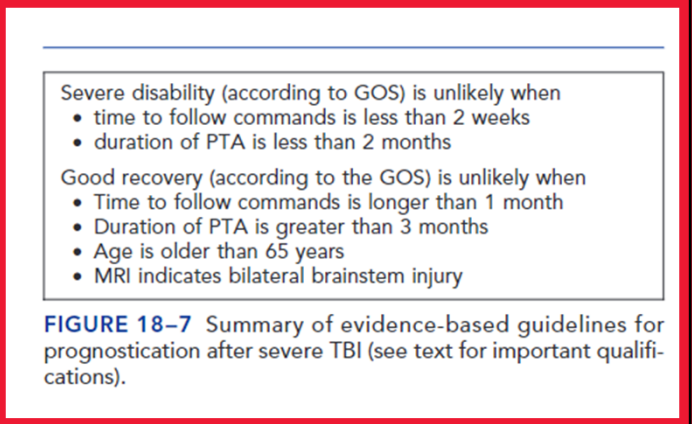
Case 3: Prognosis

- Prognostic factors for TBI
- Prognostic humility
- Signs of improvement early on are a good prognosis



Severe disability (according to GOS) is unlikely when
- time to follow commands is less than 2 weeks
- duration of PTA is less than 2 months

Good recovery (according to the GOS) is unlikely when
- Time to follow commands is longer than 1 month
- Duration of PTA is greater than 3 months
- Age is older than 65 years
- MRI indicates bilateral brainstem injury

FIGURE 18–7 Summary of evidence-based guidelines for prognostication after severe TBI (see text for important qualifications).

From Brain Injury Medicine, Principles ad Practice, 2nd Edition

Case 3: Family Communication

- Family asks what we can do to help
  - Family support is crucial for getting patients the best possible recovery and increases probability of return home
  - Advocate for patient's needs
  - Help reduce patient stress, improve morale, improve cognitive proficiency and social skills
  - Follow the lead of the team
  - Patient and family factors are important

Case 3: Patient Communication

- Strategies for communicating with patients who have brain injury
  - Be sure the patient can see your face
  - Turn off distractions
  - Speak slowly
  - Short sentences
  - Pause between thoughts
  - Treat with respect (often receive more information than you would think)

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Post Acute Care Options

	Medical Complexity	Physician Supervision	Length of Stay	Insurance	Therapy
LTAC	++++	Daily	Variable	Often Impossible	1-2 hours
IRF	+++	3-7 days per week	2-5 weeks (diagnosis dependent)	Managed Medicare and Commercial will fight you	3 hours
SNF	++	Monthly	21 day Medicare benefit	Getting Harder	1ish hours
HH	+	Outpatient		Still will fight	1-2 hours per week

Post Acute Care Options

fewer cases per year.

IRFs vs. SNFs

Required by Medicare	IRFs	SNFs
Close medical supervision by a physician with specialized training	Yes	No
24-hour rehabilitation nursing	Yes	No
Multidisciplinary team approach	Yes	No
3 hours of intensive therapy; 5 days per week	Yes	No
Patients must require hospital-level care	Yes	No
Physician approval of preadmission screen and admission	Yes	No
Medical care and therapy provided by a physician-led multidisciplinary medical team including specialty trained registered nurses	Yes	No
Discharge rate to community	70%	33%
2013 Medicare fee-for-service spending	$6.8 billion	$26.6 billion

Data source: Medicare Payment Advisory Commission.

CMS 13 IRF Diagnoses

1. Stroke
2. Spinal cord injury
3. Congenital deformity
4. Amputation
5. Major multiple trauma
6. Hip fracture
7. Brain injury
8. Neuro disorders
9. Burns
10. Active, polyarticular arthritis, psoriatic arthritis, seronegative arthropathies
11. Systematic vasculidities with joint inflammation
12. Severe or advanced osteoarthritis (involving two or more major weight bearing joints)
13. Knee/Hip replacement (*If traditional Medicare ->immediately preceding IRF stay if bilateral, BMI = 50+, or if 85+ years old)*

Post-post acute TBI and SCI Rehabilitation: Moody Neurorehabilitation Institute of Lubbock

IRF Advocacy Pro Tips

- Focus on medical necessity
- Have a little more information
- Talk about complications
- Negotiate “for a week”
- Emphasize the potential to get them home
- Emphasize the high risk of return to acute
- Realize nobody bats 100%, but the more you fight them the less they will deny

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Case 4

- A 67 year old woman falls down the stairs and sustains a C6 spinal cord injury and a concussion
- On exam has severe hand weakness, numbness/tingling in upper and lower limbs
- She has 8/10 pain “everywhere” in neck, shoulder arms, legs, and headaches

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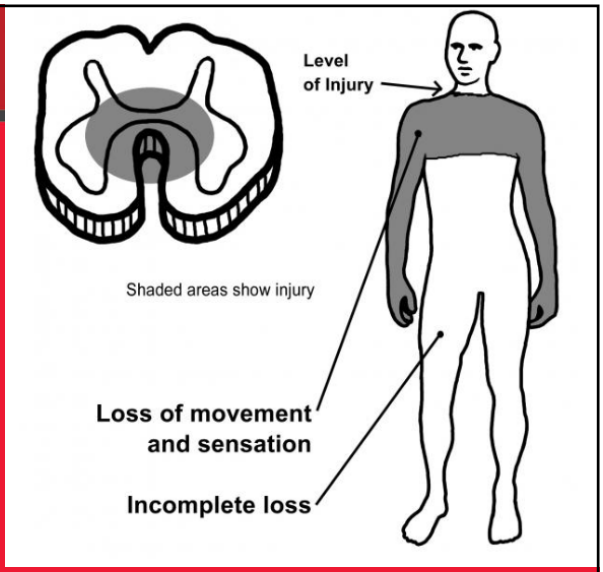
Case 4: Central Cord

- Generally older patients
- Fall with hyperextension of the neck
- Prognostic factors
  - Age (younger than 50)
  - Severity of the initial deficit
  - Severity of MRI findings
  - Most cases regain ability to walk



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Case 4: Pain Management

- Mobilization/education
- Scheduled non opioid meds
- Non opioids: APAP, topical agents (lidocaine, voltaren)
- NSAIDs not ideal in a older woman with a subdural
- Neurontin if neuropathic components
- Consider scheduling low dose opioids to avoid PRN higher dose opioids.
- E.g. oxycodone 2.5mg bid or tid

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Case 4

- Concussion/dual diagnosis
- Concussion Definition: Imaging Negative Brain Injury
- Key Assessments
  - Mood, sleep, concentration, family input
  - Higher Cognitive Functioning
  - Coordination

THANK YOU

Discussion

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