

## A Case of Acute Spinal Trauma

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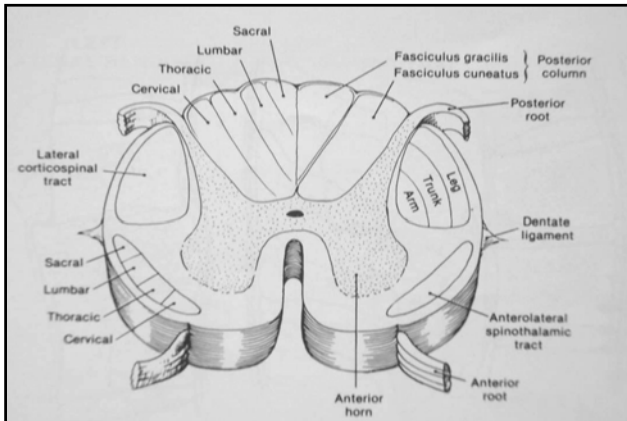
### Objectives Acute Spinal Cord Injury

- Review the clinical presentation
- Review the injury grading scales
- Discuss the management
- Introduce the potential late sequelae

### Case Study: Spinal Cord Injury

- 16 yo male
- Trampoline for his birthday
- Brought EMS; 2 IV's, backboard, C-collar
- Nasal intubation in the field
- VS: P 128; BP 90/55
- Alert
- No spontaneous movement or reflexes





### SCI: Subtypes

- **Complete:**
  - Complete transection of motor and sensory tracts
- **Incomplete:**
  - Central Cord Syndrome
  - Anterior Cord Syndrome
  - Posterior Cord Syndrome
  - Brown Sequard Syndrome

### Neurologic Examination

- Document all findings
- Level of consciousness
- Motor strength
- Sensation to light touch and pinprick
- Diaphragm, abdominal, and sphincter function
- DTRs, plantar reflexes, sacral reflexes
- Position sense
- Sacral sparring (perineal sensation, sphincter tone)

### ASIA Impairment Scale

- **A: Complete**
- **B: Incomplete:**
  - Sensory, but no motor function below neurological level
- **C: Incomplete:**
  - Motor function preserved below level; muscle grade < 3
- **D: Incomplete:**
  - Motor function preserved below level: muscle grade > 3
- **E: Normal**

### Complete Cord

- No sensation
- Flaccid paralysis
- Initially areflexia
  - Hyperreflexia, spasticity, positive plantar reflex ( after days to months)
- <5% chance of functional recovery if no improvement within 24 hours

### Traumatic SCI: Management

- ABC's: Treat / prevent hypoxia and hypotension
- Stabilize the spine to prevent additional injury
- Rule out other serious injuries
- Careful neurological examination
  - Level of neurological impairment
- Imaging
- Neuroprotective pharmacotherapy?
- Early rehabilitation

Guidelines for the Management of Acute Cervical Spine and SCI. *Neurosurg 2002;50 (suppl) :1-200*

- Evidence based practice guideline
- 22 chapters
- Pharmacologic therapy most controversial
- Preface: 17 pages of editorial commentary

### IX. Pharmacological Therapy after Acute Cervical Spinal Cord Injury

- Recommendations: Corticosteroids
  - Standards: None
  - Guidelines: None
  - Options: Treatment with methylprednisolone for either 24 or 48 hours is recommended as an option in the treatment of patients with acute spinal cord injury within 12 hours of injury.

### IX. Pharmacological Therapy after Acute Cervical Spinal Cord Injury

- B) GM-1 Ganglioside
  - Standards: None
  - Guidelines: None
  - Options: Treatment of acute spinal cord injury patients with GM-1 ganglioside is an option for treatment without clear evidence of clinical benefit or harm.

### Mortality

- Mortality highest in the 1st year after injury
- If paraplegia at age 20, average life expectancy of 44 years vs 57 years for the general population
- Leading causes of death are
  - Pneumonia, PE, heart disease, and sepsis (No longer Renal failure)

### Conclusions Spinal Cord Injury (SCI)

- Basis for acute management is preventing additional injury and providing supportive care
- Role methylprednisolone is questionable
- Acute SCI above T7 has low sympathetic activity
- Chronic SCI has high sympathetic activity
- Pneumonia, PE, and sepsis are the most common causes of death in chronic SCI

**Questions??**

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