SCI OBJECTIVES

- Apply nursing process to clients with ...
  - SCI
  - Neurogenic shock

- Breakfast @ 7:00
  (C1 thru C7)

- Lunch @ 12:00
  (T1 thru T12)

- Dinner @ 5:00
  (L1 thru L5)

- Dessert w/ dinner @ 5:00
  (S1 thru S5)
Thoracic level injuries

- Loss of movement of chest trunk, bowel, bladder, and legs may occur, depending on the level of injury
- Paraplegia
- Autonomic dysreflexia
- Visceral distention

Lumbar Sacral Injuries

- Loss of movement and sensation of lower extremities may occur
- Neurogenic bladder
- Injury above S2 in males allows them to have an erection, but unable to ejaculate
- Injury between S2 and S4 prevents erection and ejaculation

Risk Factors

- Men
- Young adults
- Seniors
- Sports activist
- Acts of violence
- Predisposing conditions
**SCI Definition**

- “SCI occurs when force exerted on the vertebral column, resulting in damage to the spinal cord.” (Sole, 2009, p. 424)
- “…when displaced bone fragments, disc material, or ligaments bruise or tear into spinal cord tissue…” (National Institute of Neurological Disorders and Stroke, 2008)

**SCI Pathophysiology**

- Damage to spinal cord
  - Altered ANS → ↓ HR, BP, and Temp
  - Loss input
  - Neurogenic shock
- Cord edema
- Vascular changes
  - Microscopic hemorrhages → ↓ blood flow → ischemia → cell death with permanent neurological deficit

**Neurogenic Shock**

- Aka
  - Distributive Shock
  - Vasogenic shock
- Causes
  - SCI
  - Spinal anesthesia
  - Severe pain
  - Hypoglycemia
- Signs / symptoms
  - Vasodilatation
  - Hypovolemia
  - ↓ SVR
  - ↓ venous return
  - ↓ preload
  - ↓ CO
  - ↓ HR
  - ↓ BP
**SCI Classifications**

- Complete
  - Permanent loss of function below level of injury
- Incomplete
  - Sparing some motor and sensory function below level of injury

**Incomplete Lesion**

- Anterior cord
- Central cord
- Brown-Séquard Syndrome

**Brown-Séquard Syndrome**

- Injuries that affect half of spinal cord
  - Ipsilateral loss of
    - Motor function
    - Proprioception
    - Vibration
    - Deep touch sensations
  - Contralateral loss
    - Sensations of pain
    - Temperature
    - Light touch sensations
Respiratory Assessment

- Complete Lesions
  - C1 to C3 ► ventilator dependent
  - C4 to C5 ► may or may not need ventilator
  - Below C5 ► have intact diaphragmatic breathing

Respiratory Assessment

- Incomplete Lesions
  - Varying degrees of respiratory impairment

Priority Interventions

- Maintain airway
- Endotracheal intubation
- Stabilization
  - Rigid Cervical Collar
  - Halo Vest
  - Crutchfield Tongs
  - Surgery
Medical Interventions

- Maintaining cerebral perfusion
- Glucocorticosteroid protocol
  - High dose methylprednisolone
  - Within first 8 hours of injury
  - Lasting 24 hours
- Caution …. Adverse effects
- Thromboembolism prevention
- Surgical intervention

Neurological Assessment

- Emphasis on:
  - Motor
  - Reflex
  - Sensory
  - Hourly assessment
  - GCS

Hemodynamic Assessment

- ICU
  - Initial 7-14 days
  - Early detection and management
  - Anticipate Spinal shock
    - Common in complete injuries above C5
**Bowel and Bladder Assessment**
- Bladder atony
- Urinary retention
- Bowel atony
- Loss of peristalsis
  - Ileus
  - Bowel program

**Autonomic Dysreflexia**
- Medical Emergency
- Exaggerated response of SNS

**Causes**
- Kinked Foley
- Bladder distention
- UTI
- Calculi
- Fecal impaction
- Tight clothing
- Bed linens

**Signs/Symptoms**
- Pounding H/A
- Uncontrolled HTN
- ↓ HR
- Nasal congestion
- Blurred vision
- Profuse sweating
- Flushing
- Pallor, chills, vaso-constriction, and piloerection
Skin Assessment
- High Risk for breakdown
- Preventive care
- Routine inspection
  - Halo
  - Cervical collar
  - Pressure points

Psychological Assessment
- Fear
- Anxiety
- Powerlessness
- Consultations

Nursing Diagnosis
- Risk for injury
- Impaired gas exchange
- Ineffective airway clearance
- Ineffective thermoregulation
- Risk for Autonomic Dysreflexia
- ↓ CO
- Imbalanced nutrition
- Ineffective tissue perfusion
- Risk for infection
- Constipation
- Fear
- Anxiety
- Powerlessness