Spinal cord injury Algorithm
Review definition and pathophysiology

Assess for the presence of risk factors

- Bullet or stab wound
- Direct trauma to the face, neck, head, or back (e.g., car accidents)
- Diving accident
- Electric shock
- Extreme twisting of the trunk
- Sports injury (landing on head)
- Major blow to the head or chest, car accident, fall from a great height


Assess for s/s:

- Head held in unusual position
- Numbness or tingling that radiates down an arm or leg
- Weakness
- Difficulty walking
- Paralysis of arms or legs
- No bladder or bowel control
- Shock (pale, clammy skin; bluish lips and fingernails; acting dazed or semi-conscious)
- Unconscious
- Stiff neck, headache, or neck pain

Initiate client education for Health Seeking Behaviors to identify:

- Encourage safety precautions: Helmets, seatbelts, avoidance of risk taking behaviors
- Prevent Risk factors
  - Many patients experience SCI as a result of incidents involving drunk driving, assaults, and alcohol or drug abuse.
  - Industrial hazards, such as equipment failures or inadequate safety precautions, are potentially preventable causes.
  - Unfenced, shallow, or empty swimming pools are known hazards. Source: [http://www.emedicine.com/EMERG/topic553.htm#section~Treatment](http://www.emedicine.com/EMERG/topic553.htm#section~Treatment)

Initiate the plan of care for a Risk For Ineffective Therapeutic Regimen management

- Review course and progression and requirements for rehabilitation
- Discuss diagnostic procedures; radiological testing
- Review s/s of complications; autonomic dysreflexia, Neurogenic shock, spinal shock
- Discuss medications; steroids, atropine, vasopressors
- Reinforce strategies to prevent complications of immobility

Potentially unstable?

Plan care for the client at risk for PC: Neurogenic shock, PC: autonomic dysreflexia, PC: spinal shock

See plan of care for hypoventilation, pneumonia, sepsis, DVT/PE, fracture, Neurogenic bladder, constipation vs. ileus, pain

Follow plan of care for Disuse Syndrome

Assess for positive findings present?

Are positive findings present?

Newly diagnosed?

YES

NO
PC: Neurogenic shock

Outcomes/Benchmarks:
No deformity, no worsening motor/sensory deficit
SBP>100, HR>60, T > 97.1

Are s/s present?
Injury above T6
Bradycardia, hypotension, hypothermia

Initiate plan of care to reduce ineffective therapeutic regimen:
- maintain spinal immobilization until cleared
- Log roll client
- Perform neurochecks as ordered and report changes in motor/sensory findings
- Monitor VS for bradycardia, hypotension and hypothermia

Initiate collaborative plan of care:
PC: Neurogenic shock

ASSESS s/s of Neurogenic shock
- Obvious trauma/deformity
- Motor/sensory deficit
- Injury or inflammation affecting the spinal cord above T6
- HR < 60
- SBP < 100
- Abnormally low body temperature
- Loss of bowel and bladder control

Identify High risk populations
- Injury above level T 6
- Inadequate immobilization

MONITOR for s/s Neurogenic shock
Initiate hemodynamic monitoring to identify alterations in ABCs
- Inadequate airway, hypoventilation, bradycardia, hypotension
- (bradycardia associated with hypotension indicates Neurogenic shock)
- Initiate pulse oximetry to identify desaturation associated with hypoventilation
- Monitor continuous cardiac monitoring for dysrhythmia
- (tachycardia from hemorrhagic shock may be masked in clients experiencing Neurogenic shock)
- Perform neuro checks (note the deficit will increase in the hours to days following acute injury)
- Monitor reflexes (absence is noted in spinal shock below the level of injury and may last from hours to days)
- Monitor I/O > 30 ml/hr
- Perform routine trauma workup lab/diagnostics
- Monitor x-ray reports

DO
- Maintain spinal immobilization as ordered
- Keep NPO in acute, initial management
- Establish need for airway/intubation
- Establish IV access and initiate IV fluid resuscitation
- Insert Foley catheter
- Administer atropine IV for bradycardia
- Administer IV vasopressors as indicated to maintain BP & urine output
- Administer high dose methylprednisone according to agency protocol
- Insert NG tube to prevent ileus
- Keep client warm using active external rewarming strategies
- Provide supportive care for the client experiencing disuse syndrome

CALL
- Call for refractory hypotension, hemodynamic instability, worsening neuro status
- Initiate ABC, shock management call ready response team and MD
PC: Autonomic Dysreflexia

Outcomes/Benchmarks:
100<SBP<140, 60<HR<100, skin pink warn dry, nares patent, no nasal congestion, no flushing/piloerection

Is the client experiencing:
Pounding HA, HTN, flushing, Goosebumps, nasal congestion, bradycardia, Visual disturbances

Follow plan of care for PC: Autonomic Dysreflexia

- Good bladder and bowel care (ie, preventing fecal impaction, bladder distention) are mainstays in preventing episodes of AD
- Teach client s/s of AD to report
- Explain importance of emergency management

PC: Autonomic Dysreflexia

ASSESS s/s of Autonomic Dysreflexia
- HTN, flushing, Goosebumps, nasal congestion, bradycardia, pounding HA, visual disturbances

Identify Contributing factors
SC Injuries above T6
Noxious stimuli that causes pain or irritation:
- Bladder/bowel distention
- pressure sores, cuts, burns, bruises, sunburn,
- pressure of any kind on the body
- ingrown toenails
- Tight clothing.

MONITOR for Autonomic Dysreflexia
Monitor for elevated blood pressure, decreased pulse. If present, repeat readings at 3-5 minute intervals
(elevated blood pressure may be the only sign)
An individual with spinal cord injury above T6 often has a normal systolic blood pressure in the 90-110 mm Hg range. Therefore, a blood pressure of 20 mm to 40 mm Hg above baseline may be a sign of autonomic dysreflexia. Source: http://www.guideline.gov/summary/summary.asp?doc_id=2964

DO
- placed in an upright position immediately
- inspect to identify the source of painful stimuli (eg, catheter, restrictive clothing, leg bag straps, etc
- Assess for bladder distension & insert catheter, if present
- Prior to inserting the catheter, instill 2 percent Lidocaine jelly (if immediately available) into the urethra and wait 2 minutes, if possible.
- If the individual has an indwelling urinary catheter, check the system along its entire length for kinks, folds, constrictions, or obstructions and for correct placement of the indwelling catheter.
- If the catheter appears to be blocked, gently irrigate the bladder with a small amount (10-15 cc) of fluid, such as normal saline at body temperature.
- Check rectum for stool using Lidocaine jelly as lubricant and disimpact client
- Administer an antihypertensive agent with rapid onset and short duration while the causes are being investigated.

CALL
Call MD and ready response team for recurring hypertension or symptomatic hypotension. Initiate ABCs, provide supportive care