November 2022

Pediatric Spinal Cord Injury Post-Acute Management

Pediatric patients admitted to Monroe Carell Jr. Children's Hospital at Vanderbilt with a spinal cord injury

5 days out from initial injury

Consults
- Case Management
- Child Life
- Hematology
- Nutrition
- Physical Medicine and Rehab
- PT, OT, Speech Therapy
- School teacher
- Social Work
- Spine Service
- Urology
- Wound Nurse

Spine immobilization
- Cervical collar or brace care per primary spine team recommendations
- Refer to VCH cervical collar clearance

Vital Signs
- Per unit standard
- Monitor for respiratory insufficiency, hypotension or hypertension, bradycardia or tachycardia

Pulmonary
- Refer to VCH PICU Spinal Cord Injury Ventilator Guidelines

Surgical incision care (if indicated)
- Wound care as per recommendations from spine team
- Monitor for any signs of wound infection:
- Temperature greater than 101.5;
- Wound dehiscence; and
- Drainage from the incision site

Nutrition
- Avoid interrupting enteral nutrition
- PO feeding vs Nasogastric tube
- Ensure Speech consult for all patients –feeding evaluation if cervical spine injury +/- swallow study
- Nutrition consultation – to provide specific recommendations for healing

Bowel and Bladder Management
- Foley catheter until next bladder plan has been determined per PM&R or Urology
- Bowel regimen per provider order
- Positioning – bedside commode for set time

Activity
- Ensure Physical therapy and occupational therapy consulted
- Mobilize once cleared by primary spine team per provider order
- Upright positioning and transfer strategies per therapy team – goal of three times a day
- With PT/OT Recommendations:
  - May sit up at 90 degrees on ischium when sitting up in a chair. Start 30 minutes twice daily. Advance 15-30 minutes every 3-5 days as long as skin remains free of wounds or no wound progression. When sitting in chair, provide pressure relief every 15 minutes by leaning side to side and then forward for 15 seconds each or may push up in chair to relieve all buttocks pressure for 15 seconds.
- Range of motion and positioning per therapy team – goal of three times a day
- Bedrest on Dolphin mattress/Stryker bed (contraindicated for patient with unstable spine)

Pressure injury prevention
- Refer to the Skin Care and Pressure Injury Prevention and Treatment Pediatric protocol
- All spinal cord injuries should be identified as high-risk despite Braden/Braden QD score; wound nurse consult for high level monitoring and wound prevention;
- Pressure relief seating strategy per therapy team with goal of ninety-degree upright positioning;
- Upright positioning in Neuro chair no longer than two-hour interval;
- Positioning Recommendations:
- Full side-lying
- Implementation of prone positioning as recommended by therapy teams
- Avoid back-lying
- Do not recline chair for comfort – return to patient bed
- Turn patient at least every two hours from side to side 30 degrees from supine using patient positioning system;
- Positioning device to bedside: Z-Flo positioners, pressure relief cushion, heel lift boots;
- Do not use foam donuts for pressure relief;
- Send pressure relief cushion with patient at discharge; and
- Elevate HOB less than or equal to 30 degrees due to increased pressure on sacrum when sitting in upright positions.

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Communication
- Speech consult – cognitive evaluation as indicated
- Ensure communication strategy and adaptive call light if warranted

Psychologic
- Shared goals and expectations with patient, family, and multidisciplinary care team. Consider family meeting early in hospitalization.
- Engage Child Life services as indicated.

Joint contractures
- Range of motion and positioning recommendations per therapy team which should be continued by caregiver
- Multipodus boots, hand splints, and/or custom splints per therapy team which should be continued by caregiver

Postural hypotension
- Ted hose/ACE wraps with all upright positioning and out of bed – remove when lying down
- Abdominal binder for cervical and thoracic spinal cord injuries with
- all upright positioning or out of bed – remove when lying down

Thromboprophylaxis
- Sequential compression device (SCDs) for all patients
- Deep vein thrombosis (DVT) prophylaxis for patients ≥ 12 years old as recommended by Hematology, PM&R, and/or PICU once cleared by primary spine team

School
- Ensure hospital school teacher consult placed.

Disposition
- Inpatient rehab recommendations initiated immediately per case management as indicated.

Autonomic Dysreflexia
For patients with injuries T6 and higher:
- Monitor for:
  - Hypertension (> 20 points above baseline) which is sudden and severe in nature;
  - Severe pounding headache;
  - Skin rash (flushed, blotchy, transient);
  - Vasodilation above the level of injury or sweating;
  - Vasoconstriction below the level of the injury – pale, cool skin with goosebumps;
  - Blurred vision/pupillary dilation;
  - Anxiety
  - Nausea.
- Management:
  - Notify primary team immediately
  - Remove noxious stimuli where possible
    - Loosen clothing, remove compression stockings, removal abdominal binder
    - Perform urinary catheterization or ensure foley catheter not blocked
    - Bowel disimpaction per provider
    - Look for areas of pressure
  - Position patient upright with head of bed elevated
  - Monitor blood pressure and heart rate Q 5 minutes
  - Discuss potential administration of antihypertensive agent with primary provider

Definitions:
- Incomplete spinal cord injury: preservation of sensory function below the level of injury, or combination of varying degrees of sensory and motor preservation below the level of injury.
- Complete spinal cord injury: complete loss of sensory and motor function below the level of injury.
- ASIA (American Spinal Injury Association) Impairment Scale: International classification system for level of impairment as a result of spinal cord injury.
- Spinal Shock: Temporary loss of autonomic control and muscle tone below the level of injury. May lasts up to 6 weeks after injury. Typically occurs in spinal cord injury to cervical and upper thoracic spinal cord.