Cervical Spine Clearance Clinical Pathway
Johns Hopkins All Children’s Hospital

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Rationale:

This clinical pathway was developed by a consensus group of JHACH physicians, advanced practice providers, and nurses to standardize the management of children with cervical spine motion restriction.

Background

Standardization of cervical spine clearance in pediatric patients prevents missed injury and limits radiation exposure to children who do not require advanced diagnostics for clearance of the cervical spine after traumatic mechanism of injury. NEXUS criteria are commonly used for cervical spine clearance in examinable adults, but have not been fully validated in children.

Diagnostics

Radiologic studies: Lateral cervical spine x-ray; cervical spine CT, flexion/extension x-rays

Clinical Management

Patients with significant mechanism of injury or complains to midline cervical tenderness, paresthesia, or paralysis should be immobilized in an appropriately sized cervical collar for cervical spine motion restriction. Patients should be on bedrest and may have HOB up to 45 degrees for comfort until cleared by a physician for additional activity or restrictions.

Pharmacologic considerations: muscle relaxants as appropriate
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**Severe injury?**
(e.g. intubated, significant polytrauma, pan-CT scan planned)

- **YES**
  - Obtain CT cervical spine with reconstructions, in conjunction with other scans
  - Is C-spine CT normal?
    - **YES**
      - Continue C-spine immobilization with appropriate size soft collar
      - Workup/clearance per trauma team leader (TTL) & NSGY
      - MRI
        - Normal exam
          - Normal
            - Continue C-spine immobilization with appropriate size soft collar
            - CT vs. re-examination vs. NSGY consult per TTL
          - MRI abnormal
            - Obtain MRI cervical spine (within 48 hrs of injury, if condition allows)
            - MRI normal
              - Remove C-collar
            - MRI abnormal
              - Special high-risk situation?
                - MVC w/ ejection/death in same compartment
                - Diving injury
                - Predisposing condition with developmental delay (e.g. trisomy 21)
                - High suspicion for physical child abuse
              - Special high-risk situation?
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            - Special high-risk situation?
              - MVC w/ ejection/death in same compartment
              - Diving injury
              - Predisposing condition with developmental delay (e.g. trisomy 21)
              - High suspicion for physical child abuse
          - MRI abnormal
            - Obtain MRI cervical spine (within 48 hrs of injury, if condition allows)
Emergency Center Management
Patients to remain on bedrest with cervical collar/HOB 45 degrees per patient comfort until cleared by a physician for removal of collar or continued collar activity as ordered. A physician should be notified immediately for any neurologic change.

Admission/Inpatient
Patients admitted with cervical collar in place will follow physician orders for activity. Collars must remain in place at all times until cleared and removed by a physician.

References

Eastern Association for the Surgery of Trauma - Management Guidelines
https://www.east.org/education/practice-management-guidelines


Pediatric Trauma Society

Outcome Measures:

- Compliance with guideline
- Missed spinal injuries
- Readmissions with cervical spine complaints
- Unexpected mortality or morbidity
Disclaimer

Clinical Pathways are intended to assist physicians, physician assistants, nurse practitioners, and other health care providers in clinical decision-making by describing a range of generally acceptable approaches for the diagnosis, management, or prevention of specific diseases or conditions. The ultimate judgment regarding care of a particular patient must be made by the physician in light of the individual circumstances presented by the patient.

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