Halo Gravity Traction Care Guideline

Inclusion Criteria: Halo Gravity Traction for treatment of scoliosis prior to surgical repair

Exclusion Criteria: Trauma, Jaw Surgery, not admitting to ortho/scoli program requiring Halo Gravity Traction; PICU level of care

Recommendations/Considerations

- 1 motor/sensory/cranial nerve exam per day by MD

Postoperative Assessment

- Vital signs:
  - Postoperative – Q1hr x 3, then Q4hr x 3 then BID after 24 hours post-op
  - VS with traction weight change and 4-6 hours post traction weight change
- Obtain height/weight weekly
- Neuro checks per orders with vitals, traction weight changes and 4-6 hours post traction weight changes
  - Assess for Lateral gaze palsy, Babinski and Clonus
- Pin site assessment upon admission and with each following assessment

Consults

- Pulmonology, Nutrition/GI, Psychology, Child Life, Case Management
- RT Order for Incentive Spirometer, Deep breathing/cough
- PT/OT Consult - Evaluate and Treat

Interventions

- Diet/Nutrition – Advance diet as tolerated
- Out Of Bed (OOB) – Post-op Day 0, as tolerated
  - Activity as tolerated with minimum 12 hours OOB (4 hours with walker)
- Pin site care – BID
- Ok to go off unit - must wait 2 hours after traction weight change
- Labs on admission and preop spinal fusion – CBC, CMP, Ferritin Level, Magnesium, PreAlbumin, INR/PTT, Vitamin B12 Level, Vitamin D 25-Hydroxy, Zinc

Medication Management

- Acetaminophen 15 mg/kg oral q 4h PRN pain 1-3 for adjuvant pain. Max – 500mg.
- Ibuprofen 10 mg/kg oral q6h PRN pain 4-7. Max – 600mg
  - STOP 1 week prior to spinal fusion
- Ondansetron
  - 8 mg Oral q8h PRN Nausea or Vomiting, Dosing Guidelines: > 12 yrs
  - 4mg Oral q8h PRN Nausea or Vomiting, Dosing Guidelines: 4-11 yrs

Complication Management

- Pin site infections
  - Cephalexin PO 25 mg/kg Q6h – Max 500mg, 5-10 day, per order
- If pins loosening, notify MD
- Neurological changes (i.e. - CSF leak, cranial nerve/nerve root or spinal cord palsy)
  - If there is any change in motor, remove all the weight – notify MD
  - If there is a cranial nerve concern, only remove the weight that was added that morning – notify MD
  - Add cervical spine x-ray
- If symptoms persist after weight removal, get STAT Spine MRI

Traction/Weight Recommendations

- Traction over night with head of bed elevated 30°
- Check traction q2 hours – includes integrity of ropes, bolts/screws, cord is centered on the traction device, carabiner integrity
- Turning and reposition in bed – patient stays in alignment and weight does not touch the bed/ floor
- Weight for the initiation, advancement (frequency), and max weight will be patient specific – please refer to order set
- RN to increase traction weight per orders – assess tolerance with each weight change
- Weekly spine x-ray
- Keep traction 23-24 hours a day, may only remove for showering

Patient removed from guideline and placed on appropriate spinal fusion guideline once spinal fusion surgery is completed.

Patient Education

- In development (for consideration for inpatient education as these patients will not be discharged before spinal fusion)
- PFE Handout for SSI
- PFE Handout for CHG bath

Approved Evidence Based Medicine Committee
5/17/2023

References
Halo Gravity Traction Care Guideline

Koller, H., Zenner, J., Gajic, V., Meier, O., Ferraris, L., and Hitzl, W. (2011). The impact of halo-gravity traction of curve rigidity and pulmonary function in the treatment of severe and rigid scoliosis and kyphoscholiosis: a clinical study and narrative review of the literature. European Spine Journal, 21(3), 514-529. doi: 10.1007/s00586-011-2046-5 (Level IV)

Li, G., Compson, K., Stone, J.D., Sanders, J.O. and Lover, C.R. (2021). Pathway for implementation of halo-gravity traction for the treatment of severe spinal deformities at a new institution. Journal of the Pediatric Orthopaedic Society of North America, 3 (Level I).

Li, Xiaojin, Zeng, L., Li, Xiaoyin, Chen, X., and Ke, C. (2017). Preoperative halo-gravity traction for severe thoracic kyphoscoliosis patients from Tibet: Radiographic correction, pulmonary function improvement, nursing, and complications. Medical Science Monitor, 23, 4021-4027.doi: 10.12659/MSM.905358 (Level IV)

Verhofste, B., Glotzbecker, M., Birch, C., O'Neill, N., and Hedequist, D. (2019). Halo-gravity traction for the treatment of pediatric cervical spine disorders. Journal of Neurosurgery: Pediatrics, 25(4), 331-452. https://doi.org/10.3171/2019.10.PEDS19513 (Level III)