Minimally Invasive Craniosynostosis

THIS PATHWAY
SERVES AS A GUIDE
AND DOES NOT
REPLACE CLINICAL
JUDGMENT

Inclusion Criteria: patients s/p craniosynostosis surgery

Care in PACU¹:

- Vitals a1hr
- CBC 1 hour post-op
- Pain management per anesthesia

To remain in PACU x3 hours, or at the discretion of the neurosurgery attending, prior to transfer.

Consider Med/Surg admission if: minimally invasive craniosynostosis surgery AND normal emergence, no seizures, no hydrocephalus, hemodynamically stable, uncomplicated airway, Hgb in PACU >6 mg/dl

Consider PICU admission if: open craniofacial surgery, Hgb in PACU <6 mg/dl, hemodynamically unstable post-operatively, unstable airway, history of hydrocephalus, uncontrolled seizures

Monitoring¹

<u>Vitals</u>:

- Cardiorespiratory monitor and pulse oximeter for first 24 hours
- Vitals and neuro checks q4hr for the first 12 hours, then q8hr, if stable
- Calculate Pediatric Early Warning Score (PEW) and activate Medical Emergency Team (MET), per hospital protocol

Notify Neurosurgery immediately if:

- Wound drainage
- SBP <70 mm Hg
- Temp >38.4° C

Pain Management

If acute kidney injury²: Avoid NSAIDs or discuss with Nephrology for approval.

Mild:

- Acetaminophen IV 15 mg/kg/dose q6hr around the clock for 24 hours (max 1000 mg/dose)
 - After 24 hours of IV aceta minophen, switch to acetaminophen PO: 15 mg/kg/dose q6hr PRN pain (max 75 mg/kg/day or 4000 mg/day) for mild/moderate pain; may use PR acetaminophen for infants.
- If >6 mo old: add ibuprofen (100 mg/5 mL): 10 mg/kg/dose q6-8hr PRN pain

Moderate/Severe:

- Continue ibuprofen (if >6 months), as above
- Morphine 0.05-0.1 mg/kg/dose q3hr PRN pain (max dose 5 mg/dose)

Antibiotics

Antibiotic coverage x24 hours post-op

Cefazolin IV 100 mg/kg/day div q8hr (max 2000 mg/dose)

If PCN allergy:

- Vancomycin IV
 - <52 weeks PMA[‡]/about <3 mo old: 15 mg/kg q8hr or as determined by pharmacy based on estimated AUC
 - ≥52 weeks PMA[‡]/about
 ≥3 months old 11 years
 old: 70 mg/kg/day div
 a6hr
 - ≥12 yrs old: 60 mg/kg/day div q8hr

[†]PMA (Post-Menstrual Age) = gestational age + postnatal age

FEN/GI

Clears and advance diet as tolerated

Fluids:

D5 NS with 20 mEq KCJ/L at maintenance (KCJ may be left out if patient has hx renal impairment)

Anti-emetics: Ondansetron IV 0.1 mg/kg/dose q8hr

mg/kg/dose q8hr (max 4 mg/dose) PRN nausea/ vomiting

Other:

 Pediatric glycerin suppository daily
 PRN constipation

Wound Care:

Other

- Bacitracin to incision BID x3 days (unless Dermabond used)
- POD 3: May wash hair with regular baby shampoo

Activity:

- Consult
 Hangar/
 orthodics
- Advance as tolerated

Positioning:

Elevate HOB to help with postop swelling

¹If the child meets the following criteria, please alert the Medical Emergency Team (MET) as appropriate:

- 1) SBP <70 mmHg and/or Hgb <6 mg/dL (in PACU)
 - Notify NSG immediately
 - Transfer to PICU if SBP <70 mmHg
 - Transfuse pRBC (<25 cc/kg, unless indicated per hospital policy)
 - Recheck CBC 2-4hrs post-transfusion
- o Continuous CV monitoring and q2-4hr vitals for 12 hours post pRBC transfusion
- 2) HR >160 bpm and/or UOP <1 ml/kg/hr (first criteria not present)
 - o 10 ml/kg 0.9% NS bolus and observe for improvement
 - Notify Neurosurgery if no improvement
- 3) HR >160 bpm and UOP >1 ml/kg/hr (first criteria not present)
 - o Acetaminophen 12.5-15 mg/kg/dose x1 and observe for improvement
 - Consider 5 ml/kg 0.9% NS bolus
 - $\circ \qquad \text{Notify Neurosurgery if no improvement} \\$

²Consider Acute Kidney Injury (AKI) based on the following criteria:

- Increase in serum creatinine by 1.5-1.9 times baseline within the prior seven days, or
- Increase in serum creatinine by ≥0.3 mg/dL from baseline (≥26.5 mcmol/L) within 48 hours, or
- For those with unknown creatinine, an eGFR <90 ml/ min/1.73m²

Discharge Criteria:

Afebrile x24 hrs, vitals stable, good pain management on oral pain regimen, tolerating diet, bowel movement, improved periorbital swelling (and at least one eye open), follow up appointment with orthotics made (for cranial orthosis measurements, production, delivery and teaching)

Discharge Instructions:

- Call 911 for life-threatening emergencies.
- Call Neurosurgery at 860-545-8373 if any of the following: fever >101.5° F, redness, swelling, any drainage (monitoring for infection or CSF leak), poor wound healing, increased pain, increased swelling, poor oral intake, vomiting, changes in bowel/bladder function, changes in fontanelle, increased sleepiness, or with any other questions or concerns.

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