## **Minimally Invasive Craniosynostosis**

THIS PATHWAY SERVES AS A GUIDE AND DOES NOT

Inclusion Criteria: patients s/p craniosynostosis surgery

#### Care in PACU1:

- Vitals q1hr
- CBC 1 hour post-op
- Pain management per anesthesia

To remain in PACU until post-operative CBC results have been reviewed and/or transfer at the discretion of the neurosurgery team

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



#### Vitals:

- 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

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

Pain

Management

If acute kidney injury<sup>2</sup>: Avoid NSAIDs or

discuss with Nephrology for approval.

Mild:

Acetaminophen IV 15 mg/kg/dose

q6hr around the clock for 24 hours

acetaminophen, switch to

acetaminophen PO: 15 mg/kg/

After 24 hours of IV

(max 1000 mg/dose)

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**

#### Post-operative antibiotics are NOT indicated if there is no hardware present.

If there is hardware, consider: Cefazolin IV 100 mg/kg/day div q8hr (max 2000 mg/dose)

#### If penicillin allergy:

- Vancomycin IV
  - <52 weeks PMA<sup>‡</sup>/about <3 mo old: 15 mg/kg g8hr or as determined by pharmacy based on estimated AUC
  - ≥52 weeks PMA<sup>‡</sup>/about ≥3 months old - 11 years old: 70 mg/kg/day div q6hr (max 3 g/day)
  - ≥12 yrs old: 60 mg/kg/ day div q8hr (max 3 g/

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

## Diet:

#### Clears and advance diet as tolerated

FEN/GI

#### Fluids:

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

#### Anti-emetics: Ondansetron IV 0.1

mg/kg/dose a8hr (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

#### <sup>1</sup>If 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
  - 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)
  - 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)
  - Acetaminophen 12.5-15 mg/kg/dose x1 and observe for improvement
  - Consider 5 ml/kg 0.9% NS bolus
  - Notify Neurosurgery if no improvement

### Definition of Acute Kidney Injury

(It should be noted that this definition does not apply to children <1 year of age)

#### AKI is defined by having either:

- At least a 50% increase in Scr above baseline\* and new Scr ≥0.5 mg/ dL OR
- An increase by 0.3 mg/dL from baseline\*, and new Scr ≥0.5 mg/dL

\*If a baseline creatinine is unknown, estimate baseline Cr using the Schwartz Calculation (baseline creatinine = (0.413 \* height cm)/120 GFR). For patients with Chronic Kidney Disease (CKD), use the CKiD U25 Calculator.

#### 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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