ERAS Pediatric Hip Preservation Surgery - Bernese Periacetabular Osteotomy

Pre-op & Intra-op Components

Pre-Admit

Screening & Optimization: T & S
- **Vital Signs, Height & Weight (BMI)**
- **Medications Documented**
- **Education provided during patient's clinic visit**
- **If patient < 12 years old, <40 kg, needs CNCA postop and/or has complex comorbidities (eg: sickle cell), consult Peds Pain Team**

Radiology
- **Hip pain series (AP, AIR, and Faux Profile)**

Treatments
- **Shower/bath at home with regular soap (Option: Chlorhexidine bath)**

Pre-op DOS

Pre-emptive Analgesia (ordered by ACT)
- Acetaminophen PO
  - <40kg: 15mg/kg
  - 40-59kg: 650mg
  - >60kg: 1000mg
- Gabapentin PO*
  - <12yrs and/or <40kg:15mg/kg
  - >12yrs and 40-59kg: 600mg
  - >12yrs and >60kg: 900mg
- Celecoxib PO*
  - < 12 years old or <50 kg: 100 mg
- Naproxen PO*
  - >/= 12 years and =/>50 kg: 500mg
- Methadone PO
  - 0.1 – 0.2 mg/kg (MAX 5mg)

*** Choose either Celecoxib or Naproxen based on weight or age. Do not give both.**

* Exercise caution / dose adjust for renal impairment)

Fasting and Carbohydrate Loading Guidelines
- Follow ASA NPO guidelines
- Allow for liberal clear carbohydrate consumption until 2 hours before surgery (inpatient) or scheduled arrival time (outpatient)
- Clear carbohydrate beverages include: Gatorade, vitamin water, apple juice (no protein containing liquids, no sugar free versions of above)

Intraoperative

**Midazolam given at discretion of ACT*

Patient Warming Strategy
- Raise room temp (68-72F) prior to patient arrival in OR
- Use active forced air warming device and warm IV fluids
- Place esophageal/foley temperature probe and begin monitoring ASAP

Types, Doses, and Routes of Anesthetics Administered
- Volatile agent titrated to MAC 0.5-1

Pain Management
- Bolus Fentanyl 1-2 mcg/kg IV on induction then titrated as needed
- Periacetabular catheter to be placed by surgeon at end of case with bolus of 20 ml ropivacaine 0.2% **(ordered by surgical team)**

Anti-Emetic Prophylaxis:
- Dexamethasone 0.15 mg/kg IV (MAX 8mg)
- Ondansetron 0.1mg/kg (MAX 4mg IV)

Antibiotic Therapy
- Cefazolin 30 mg/kg (MAX 2g) q4hrs (If allergy, discuss giving test dose unless reaction is anaphylaxis)
- If Cephalosporin allergy, Clindamycin 10mg/kg (MAX 900 mg) q6hrs

Antifibrinolytics
- Tranexamic acid loading dose 30 mg/kg bolus over 20 min (MAX 2g) followed by infusion 10 mg/kg/hr

Mechanical Ventilation Strategy
- TV 8ml/kg IBW, PEEP 5, FiO2 minimal need to maintain >95% O2 Sat

BP Goals
- MAP 65-75
- Maintain SBP within 20% of baseline

Intraoperative Fluid Management Strategy

Generalized principles to limit excess crystalloid administration
- Intraoperative maintenance fluid based on IDEAL BODY WEIGHT
- Lactated Ringer's 3ml/kg/hr
- If hypotensive (MAP <20% baseline), bolus 5ml/kg of 5% Albumin (MAX 500ml), for a total dose of 2 boluses
- If hypotensive despite albumin boluses x2, start phenylephrine infusion

Transfusion Guidelines per ASA
- Maintain goal hemoglobin >7g/dL – unless symptomatic
- Transfuse autologous blood when available
- Discuss transfusion with surgeon prior to administration of blood products
- Administer 10ml/kg/dose or 1 unit/dose for children >30kg

PACU

- OnQ ball 0.2% ropivacaine **should be ordered by surgery** and attached to periacetabular catheter in the PACU. Rate should be set at 10 ml/hr.
- Initiate Morphine PCA (per floor orders)
- PACU dose of fentanyl limited to 100mcg IV (MAX single dose 25mcg)
- Ondansetron 0.1mg/kg/dose prn nausea (MAX 4mg)
- Diazepam 0.05mg/kg/dose IV (MAX 2mg) prn muscle spasm

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Post-op Components

	Service-Specific		Pain Management Per Ortho Team	Nutrition & GI Recovery	Early Mobilization	Drains and Lines
POD 0	•VS q4hr •Neurovascular checks q4hr •Braden q12hr •Inpatient consult for Case Management	•Continuous Pulse Ox & oxygen, O2 sats >93% •Strict Intake & Output q4hr including drains •Incentive Spirometry 10x/hr when awake •Check surgical dressing q shift & reinforce PRN •Zofran IV 0.1mg/kg IV (MAX 4 mg) q8h PRN for nausea/vomiting •Continue antibiotics from OR for 24hrs	•OnQ Ball 0.2% Ropivacaine 10ml/hr •IV Morphine PCA basal 0.02mg/kg/hr (MAX 1 mg/hr), patient bolus dose 0.02mg/kg (MAX 1mg) with lockout interval 8 minutes; 4hr dose limit 0.6 mg/kg (MAX 30 mg) •Acetaminophen IV or PO 15mg/kg (max 1g) q6hr scheduled •Valium 0.05mg/kg (Max 5mg) PO q6hr •Gabapentin PO TID (<40kg: 5mg/kg/dose, 40-59kg:200mg/dose, >60kg:300mg/dose) •Naproxen 500 mg PO BID (≥12 yrs & ≥50 kg)	•Clear liquids - Advance as tolerated •Assess bowel sounds •Encourage gum chewing	•PT/OT evaluate and treat •Turn q2hr and PRN until patient is rolling independently •OOB to chair as tolerated	
POD 1	•VS q4hr – after 24 hours, transition to VS q8hr per floor routine •Neurovascular checks q4hr •Braden q12hr •AM Labs: Hemoglobin and Hematocrit	•Wean O2 to keep sats >93% •Strict Intake & Output q4hr including drains •Incentive Spirometry 10x/hr when awake •Discontinue IV Fluid when tolerating PO liquids without nausea/vomiting •Discontinue antibiotics after 24hrs •Start Miralax 0.5g/kg PO daily (MAX 17g)	•Discontinue PCA Pump •Continue OnQ Ball at 10ml/hr •Start Oxycodone 0.1mg/kg (Max 10mg) PO q4hr PRN •Start Ibuprofen 10mg/kg Q8H (if <12 yrs or <50kg) **OR** continue Naproxen 500mg PO BID (≥12 yrs & ≥50 kg)* •Start Aspirin 81 mg BID (≥12 yrs & ≥50 kg) •Morphine 0.05-0.1mg/kg IV (MAX 2mg) q4hr for breakthrough pain •Continue scheduled acetaminophen, valium and gabapentin as ordered on POD 0	•Clear liquids - Advance as tolerated •Assess bowel sounds •Encourage gum chewing	•OOB to chair ad lib (at least TID) •Ambulate ad lib (at least TID) •Begin Stairs •Allow patient to shower with dressing ON prior to discharge	•Discontinue Foley if urine output >0.5ml/kg/hr AND PCA is discontinued
POD 2	•VS q8hr •Neurovascular checks q8hr •Braden q12hr	•Discontinue continuous Pulse Ox if O2 sats >93% on RA and PCA pump discontinued •Strict Intake & Output q4hr including drains •Incentive Spirometry q2hr when awake •Discontinue IV if tolerating PO liquids •Continue Miralax 0.5g/kg daily (MAX 17g) •Consider docusate 50-100mg PO BID	•Continue pain management program as above	•Diet - Advance as tolerated •Encourage gum chewing •Consider Dulcolax suppository 5mg (<10 years) or 10mg (>10 years) PR PRN if bowel sounds present and no stool	•OOB to chair ad lib •Ambulate ad lib (at least TID) •Continue Stairs	•Discontinue Foley if not done on POD 1
POD 3+	•VS q8hr •Neurovascular checks q8hr •Braden q12hr	•Discontinue continuous Pulse Ox if O2 sats >93% on RA and PCA pump discontinued •Routine Intake & Output including drains •Incentive Spirometry q2hr when awake •Discontinue IV •Continue Miralax and docusate	•Replace On-Q ball for discharge home with instructions to remove catheter on POD 5 •Change valium to prn •Continue all other PO pain medications as POD1: prn oxycodone, scheduled acetaminophen, scheduled gabapentin x 1 week, scheduled aspirin x 3 weeks, and scheduled ibuprofen **OR** naproxen x 3 weeks	•Diet -Advance as tolerated •Encourage gum chewing •Consider Dulcolax suppository if bowel sounds present/no stool	•OOB to chair ad lib •Ambulate ad lib •Conquer stairs	
	Criteria for Discharge: •Tolerating diet and PO medication • Pain under control with PO medication •Meet physical therapy goals for discharge					