Neuromuscular Patients Undergoing Major Orthopedic Surgery

Enhanced Recovery After Surgery (ERAS)

Children's Mercy KANSAS CITY | Evidence Based Practice

Abbreviations (laboratory and radiology studies excluded):
SDS - Same Day Surgery
APS - Acute Pain Service
PENG - Pericapsular nerve group block
NG - Nasogastric
PO - By mouth
POD - Post-operative day
PONV - Post-operative nausea and vomiting
P.T. - Physical Therapy
TIVA - Total intravenous anesthesia
PACU - Post-Anesthesia Care Unit

Preoperative Care

- Active warming of patient in SDS
- Anxiolysis: midazolam per anesthesia team

Nerve Block Considerations

- Consider lower concentrations of local with high volume if fascial plane block
- Be mindful of toxic local anesthetic dosages when multiple blocks are performed
- If unable to perform peripheral nerve blocks consider epidural placement
- **Adjuncts:** Consider clonidine or dexmedetomidine and preservative free dexamethasone to prolong block

Intraoperative Care

Intraoperative Medication Bundle

- ***Antibiotics:***
  - Discuss at huddle
  - Administer before incision
- ***Antiemetics:***
  - Dexamethasone 0.1 mg/kg (max 8 mg)
  - Ondansetron 0.15 mg/kg (max 4 mg)
- ***Multimodal Analgesia:***
  - IV acetaminophen 12.5 mg/kg (max 1000 mg) at start of case
  - Ketorolac 0.5 mg/kg (max 15 mg) at closure
  - Consider dexmedetomidine bolus/infusion
  - Consider ketamine infusion
- ***Limit IV opioids:***
  - Fentanyl prn
  - Minimize long-acting opioids
- ***Tranexamic acid (TXA):***
  - If requested by surgeon
  - Bolus 30 mg/kg (up to 2 gram) then infusion 10 mg/kg/hr

Regional Anesthesia

Please Consult APS Physician

- **Discuss nerve blocks with surgeon at huddle**
  - ***If Proximal femoral osteotomy only:***
    - Femoral nerve block plus lateral femoral cutaneous nerve block **OR**
    - Suprainguinal fascia iliaca block **+/-** PENG block **OR**
    - PENG block + lateral femoral cutaneous nerve block
  - ***If Acetabuloplasty:***
    - Suprainguinal fascia iliaca block **+/-** PENG block **OR**
    - Quadratus lumborum block
  - ***If Tibial involvement:***
    - Popliteal nerve block with saphenous nerve block **OR**
    - Popliteal nerve block with adductor canal block
  - ***If Distal femur involvement:***
    - Femoral nerve block **OR**
    - Adductor canal block

Maintenance of Anesthesia

- ***Volatile*** or TIVA maintenance at discretion of anesthesiologist
- ***Normothermia:***
  - Patients with cerebral palsy are at high risk for hypothermia
    - Room temperature set to 70° F
    - Utilize Bair Hugger
    - Goal intraoperative temperature 36° - 38° C
- ***Euvolemia:***
  - Goal is clinical **euvolemia** (zero fluid balance, no net weight gain on POD #1)
  - **Isotonic fluids at 3-7 ml/kg/hr** (additional as clinically indicated)

Prior to Transfer to PACU

- Discontinue urinary catheter

Postoperative Care: Inpatient to discharge

Main Inpatient Goals of Care

Bowel regimen & Diet

- Daily bowel regimen
- Avoidance of NG tube
- Advance diet on POD 0
- Antiemetics: ondansetron and diphenhydramine prn

Postoperative Pain Management

Surgeon and anesthesiologist to discuss need for APS consult based on effectiveness of peripheral nerve blocks

Dexmedetomidine infusion (only if APS consulted) 0.1 - 0.3 mcg/kg/min
- May adjust depending on baseline neurological function

PO diazepam 0.1 mg/kg q6 hrs scheduled (unless otherwise discussed with surgeon)
IV acetaminophen 12.5 mg/kg (max 1000 mg) q6 hrs scheduled
Change to PO on POD 1
IV ketorolac 0.5 mg/kg (max 15 mg) q6 hrs alternating q3 hrs with acetaminophen
Oxycodone 0.1 mg/kg q 4hrs prn once tolerating clears
IV hydromorphone (only if APS consulted) 5-10 mcg/kg or morphine 0.05-0.1 mg/kg q4 hrs prn severe breakthrough pain or if not tolerating PO intake

Physical Therapy

- P.T. consulted on POD 1

Discharge home with post-operative follow up visit in two weeks

Prior to surgery algorithm

Contact: EvidenceBasedPractice @cmh.edu

Link to: synopsis and references

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