

Spine Surgery in Children with Cerebral Palsy

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Objectives

- Review anesthetic challenges in children with CP
- Discuss intraoperative monitoring challenges
- Discuss use of antifibrinolytic agents in spine surgery
- Discuss postoperative pain management options

Disclosures

NONE

Anesthetic Challenges

- Behavior and communication problems
- Premedication?
- Airway management
- Positioning
- Vascular access
- Postoperative pain assessment

Intraoperative Monitoring

- Invasive monitors
- SSEP/MEP
 - Contraindications
 - Anesthesia induction
 - Anesthetic maintenance

Protocol for MEP Monitoring

- Anesthesia induction: midazolam, opioid, propofol, short-acting NMB
- Anesthesia maintenance
 - Remifentanyl 0.1-1 mcg/kg/min
 - Propofol up to 100 mcg/kg/min
 - Ketamine 1-4 mg/kg/hr
 - Short-acting NMB to maintain 25-40% twitch height
- Bite block/oral airway during transcranial stimulation

Frei, Ryhult, Duitman, et al. Spine 2007; 32:911-917

Lieberman, Lyon, Feiner, et al. Anesth Analg 2006; 103:316-21

Lotto, Banoub, Shubert. J Neurosurg Anesthesiol 2004; 16:32-42

Kawaguchi, Furuya. J Anesth 2004; 18:18-28

Antifibrinolytic Agents in Spine Surgery

- Tranexamic acid and ϵ -aminocaproic acid both shown to reduce blood loss and transfusions in PSSIF
- No evidence of significant side effects or complications
- Amicar regimen:
 - 100 mg/kg (up to 5 g) tro 15 min after anesthesia induction
 - 10 mg/kg/h until completion of wound closure

Thompson GH, et al. Spine 2008; 33(24): 2623-9

Gill JB, et al. J Bone Joint Surg Am 2008; 90(11): 2399-2407

Postoperative Analgesia

- PCA
- Continuous morphine infusion
- Intrathecal opioid
- Epidural analgesia
- Combined intrathecal/epidural analgesia