

Introduction

- Achondroplasia is a disorder that results in skeletal dysplasia, including atlantoaxial instability, kyphoscoliosis, spinal stenosis
- General anesthesia poses the risk of a potential difficult airway, whereas neuraxial presents challenges of procedure difficulty, unpredictable spread, and higher incidence of neurologic injury
- Anesthetic plans for this population have reported general anesthesia as the historical preference over neuraxial, particularly for cesarean sections

Case Presentation

- 56 year-old female with history of achondroplasia, kyphoscoliosis, multilevel spinal stenosis status post C3 through C5 fusion, and hip dysplasia presented for left total hip arthroplasty
- Inter-incisor distance > 4 cm, thyromental distance > 6 cm, Class I Mallampati score, and limited neck extension. Previous intubation was a Grade I view with a C-MAC video laryngoscope D-blade
- After discussing risks and benefits of general and neuraxial anesthesia, the patient opted to proceed with a combined spinal-epidural

Perioperative Course

- Patient was positioned upright with NIBP, pulse oximetry, supplemental oxygen, and a timeout was completed
- Procedure was performed under sterile technique with a 3.5 inch 17 gauge Tuohy needle and 5 inch 25 gauge Gertie Marx spinal needle
- First attempt at L3-4 with midline approach was unsuccessful with subsequent decision to attempt at a new level
- Loss of resistance obtained at L4-5, spinal needle inserted with return of cerebral spinal fluid, followed by barbotage with off-label intrathecal use of 60 mg of 2% mepivacaine. Placement of a 21 gauge epidural catheter was unsuccessful and the decision was made to proceed to the operating room
- Surgical block confirmed prior to incision. Patient was sedated and maintained spontaneous ventilation for a total operative time of 150 minutes. Approximately 90 minutes after spinal was administered, sedation was supplemented with fentanyl and increasing doses of propofol



Discussion

- No established intrathecal dose of local anesthetic for patients with achondroplasia. Reported spinal dosing for cesarean section ranges from 5.5 - 10.5 mg of hyperbaric bupivacaine
- Given the difficulty of neuraxial access, we proceeded without spinal dose reduction, lest unsuccessful epidural placement
- Observed appropriate and adequate spread, though decreased duration of surgical block
- Patient did not experience neurologic injury or exacerbation of spinal stenosis symptoms at follow-up 4 weeks and 3 months postoperatively

Conclusion

- Neuraxial anesthesia may offer a safe, alternative anesthetic to general anesthesia for selected achondroplastic patients
- Titratable technique may be favored for greater control of block spread and duration

References

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