Anesthetic Management in a Parturient with Transverse Myelitis
Cesarean Section - To GA, or Not to GA?
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Case Presentation

Patient: 26 yr female with hx of transverse myelitis presents for scheduled repeat Cesarean section (C/S) and bilateral tubal ligation at 39w0d. Pregnancy was complicated by obesity and symptoms of numbness/tingling in her back and lower extremities.

PMHx: transverse myelitis, obesity, tobacco use, anxiety, gestational diabetes
Obstetric Hx: G5P2153 (x4 SAB, x1 TAB/D&C), history of preterm birth at 26 weeks (unusual etiology), x1 prior C/S for NRFHT

Allergies: penicillin, amoxicillin – anaphylaxis

Pre-op VS: T 36.8 °C, P 90, BP 132/73, R 18, O: 98% RA; Height and Weight: 5’3”, 100kg, BMI 39
Neuro Exam: CN II-rx intact, 5/5 BL strength in upper and lower extremities, decreased sensation to light touch in BL LE (asymmetric)

Airway Exam: Mallampati IV, wide mouth opening, no limitation in neck flexion/extension

Labs: WBC 15.78, H/H 10.9/33.5, PLT 197; K+ 3.8, CBG 68

Anesthetic Challenge: On review of systems, she responds "yes" to "Do you have any numbness or tingling in your body?" On further questioning, she reports a diagnosis of transverse myelitis several months ago with initial lower extremity immobility and current partial resolution of symptoms. What is the best mode of anesthesia for this patient?

Anesthetic Management

Mode of Anesthesia: General

Induction: Bictrix, pre-oxygenation, cricoid pressure, RSI with lidocaine, propofol, and succinylcholine

Airway: Glide scope, 7.0 ETT

Antibiotics: Clindamycin

Intra-op course: Uncomplicated, maintained with isoflurane and nitrous oxide, extubated successfully

Infant: Viable infant with 9/9 APGAR scores at 1 and 5 minutes

Post-op course: Uncomplicated, no new neurologic symptoms, discharged on POD2

Discussion

Transverse Myelitis

Transverse myelitis (TM) is a rare neuro-inflammatory condition that tends to affect the thoracic level of the spinal cord, leading to acute to subacute onset weakness, impaired sensation, and autonomic dysfunction. The cause of TM is often debated, likely due to variation in symptomatic presentation and similarity between other neurologic inflammatory disorders including multiple sclerosis, Guillain-Barré syndrome, and neuromyelitis optica. Some cases have been attributed to a prior infectious cause, such as an upper respiratory infection or GI illness. Others suggest an immune system-related etiology, including development of autoantibodies and association with paraneoplastic syndromes. Diagnosis is usually with a combination of clinical signs and corroborating MRI and CSF findings. Treatment is usually with high dose steroids, though plasma exchange and cyclophosphamide have also been used with good outcomes. Most patients have partial, if not complete symptomatic recovery, though some patients also have recurrent disease (~25-30%).

Anesthetic Implications/Concerns with Transverse Myelitis

Patients with TM may also have autonomic dysreflexia as part of their disease process, leading to uncontrolled sympathetic outflow, which leads to hypertension and vasocninstriction. Surgical stimulation at the level for a Cesarean section is a perfect example of a possible precipitant for this phenomenon. An additional consideration is the use of succinylcholine in patients with neurologic disease which can lead to hyperkalemia from upregulation of extra-junctional acetylcholine receptors.

Regional Anesthesia and Neurologic Disease

There is considerable controversy regarding the use of neuraxial anesthesia in patients with pre-existing neurologic disorders. Multiple case reports worldwide show incidence of acute transverse myelitis after epidural and spinal anesthesia in patients without pre-existing disease. The incidence is thought to be between 1:100,100 and 1:1,000,000, with most recent estimates erring towards the lower incidence range (1-2 per million). The incidence of worsening disease with neuraxial anesthesia is unknown. Of note, there are case reports of successful neuraxial anesthesia in patients with transverse myelitis. Despite concerns surrounding neuraxial anesthesia and neurologic disease, transverse myelitis has also been described following general anesthesia.

Recommendations

The care of parturients with pre-existing neurologic disease is complex. Clinical judgment should play a large role in the decision-making process to weigh the risks and benefits of general anesthesia versus regional anesthesia. If neuraxial anesthesia is the most appropriate technique, some modifications to techniques, including less potent local anesthetic choice, lower volume dose, and avoidance of vasoactive additives may help reduce the risk of neurologic complication, though data is limited. Regardless of technique, a careful risk-to-benefit analysis of various anesthetic and analgesic options should be considered and discussed openly with patients.

References


