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Rhythm and Risk: Cesarean Delivery and Brugada Syndrome

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Brugada Syndrome: SCN5A mutation affecting sodium ion channel function, predisposing patients to malignant arrhythmias and sudden cardiac death

Local anesthetics, such as high-dose bupivacaine, have been associated with exacerbating EKG abnormalities and triggering arrhythmias.

Meticulous history-taking and perioperative planning including preoperative EKG assessment, telemetry monitoring, and immediate access to defibrillation and resuscitation equipment - are essential to ensure maternal and fetal safety









Case Presentation

33-year-old G3P0201 parturient at 31w4d gestation presented with severe-range hypertension, blurry vision, and headaches, and is a known SCN5A mutation carrier

FH includes Brugada syndrome-related cardiac events, including a brother with ICD placement after ventricular arrhythmias, and a maternal grandfather who expired from sudden cardiac death

As per our discussion with her cardiologist, patient remains asymptomatic with a negative IV procainamide provocative test and a normal baseline TTE. She had two prior preterm Cesarean deliveries for severe preeclampsia under spinal anesthesia with bupivacaine without complications

Due to persistent hypertension and neurological symptoms, a decision was made to proceed with Cesarean delivery

Preoperative preparation included a large bore ultrasound guided IV, arterial line transducer, defibrillator pads, and a crash cart

Spinal anesthetic was performed at L4-L5 using intrathecal morphine 150mcg, fentanyl 20mcg, epinephrine 100mcg, and 1.6 ml of hyperbaric bupivacaine 0.75%

SBP maintained in the 160s with moderate-dose phenylephrine infusion, with subsequent delivery of the baby followed by oxytocin infusion

Postoperatively, her neurological symptoms improved, and pain was well-controlled with intrathecal morphine, oral acetaminophen, and two doses of oxycodone 5mg over a span of 48 hours

No arrhythmias or complications occurred during her close monitoring on telemetry

avoidance of intravenous arrhythmogenic drugs

Alternatively, a CSE technique could have been explored which would allow for titratable analgesia; however, the use of local anesthetic in the epidural space would be restricted to minimize risk of inducing any malignant arrhythmias

> Had the patient required a general anesthetic, etomidate and succinylcholine induction with volatile anesthetic for maintenance would be preferred; however, no definite recommendations exist

> > A thorough understanding of contraindicated medications and alternative techniques is essential for optimizing anesthetic management in patients with Brugada syndrome, particularly in high-stakes scenarios such as Cesarean delivery

Teaching Points

Ultimately, a spinal anesthetic was chosen given the patient's history of prior successful spinal anesthesia, the limited systemic absorption of intrathecal bupivacaine, and the

References:

- 1. de Wolf et al. Case Rep Anesthesiol. 2019.
- 2. Postema et al. Heart Rhythm 2009.



