Perioperative Management of a Parturient with Uncorrected Chiari Malformation on Buprenorphine Therapy

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Uncorrected Chiari malformation poses a peridelivery challenge for patients as both Valsalva maneuvers and dural puncture confer a theoretical risk of tonsillar herniation. Buprenorphine therapy further complicates perioperative pain management in parturients, necessitating multidisciplinary communication and planning. We present the case of a 25 year-old primiparous woman on buprenorphine with Valsalva-induced headaches, who was recently diagnosed bilateral cerebellar tonsillar ectopia extending up to eight millimeters below the foramen magnum, consistent with type I Chiari malformation.

The goals of her delivery and anesthetic plan included:

a. Minimizing Valsalva maneuvers
b. Avoiding dural puncture
c. Maximizing multimodal analgesia

A multidisciplinary team was established to weigh the risks and benefits of the various delivery options available. After consideration of the theoretical risks of dural puncture with neuraxial anesthesia and the patient's probable inability to tolerate assisted vaginal delivery without neuraxial anesthesia, primary cesarean delivery under general anesthesia was planned and performed at 39 weeks without complication.

Postoperative pain management was complicated by the patient's daily use buprenorphine and alprazolam, and was without the benefit of neuraxial narcotic. Therefore, a multimodal approach to analgesia was planned, with intraoperative placement of a transversus abdominis plane peripheral nerve block under ultrasound-guidance (40 milliliters of half-percent bupivacaine), intravenous hydromorphone (6 milligrams), intravenous ketorolac (30 milligrams), and postoperative intravenous hydromorphone patient-controlled analgesia (PCA). The patient's course was complicated by somnolence, induced by third-party triggering of her PCA, and significant bradyarrhythmia, thought to be secondary to supratherapeutic doses of outpatient buprenorphine and alprazolam. Ultimately, the patient received low dose intravenous ketamine (two doses of 10 milligrams each, given over twenty minutes) with satisfactory analgesia and hemodynamics.

This case highlights the benefits of a multidisciplinary and multimodal approach to the perioperative management of parturients with multiple comorbidities.

References: