Sequential Combined Spinal-Epidural for Cesarean Delivery in a Patient with Achondroplasia

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Achondroplasia is the most common form of disproportional dwarfism characterized by premature bony fusions that can result in reduced range of motion, exaggerated spinal curvatures, facial abnormalities and spinal stenosis. The characteristic spinal abnormalities can increase the difficulty of neuraxial techniques and complications of patchy block, venous cannulation or dural puncture (1,2,3). The ideal neuraxial dosage for achondroplastic patients is unknown and a high spinal blockade may occur with a single-shot spinal technique. This report describes the use of a sequential combined spinal-epidural (CSE) technique for cesarean delivery in a patient with achondroplasia.

A 33 year-old G1P0 patient with a history of achondroplasia presented for an elective cesarean delivery at term gestation. On examination, she was 3'10 (117 cm) tall and 95 lbs (43 kg). She had a Mallampatti class III airway and macroglossia. A sequential CSE was performed in the sitting position and 0.6 mL of 0.75% hyperbaric bupivacaine (4.5 mg), fentanyl 15 mcg and preservative-free morphine 100 mcg were injected intrathecally to obtain a bilateral T3 sensory block. Despite the 62% reduction from our usual intrathecal dose for cesarean deliveries, her blood pressure following positioning was 64/30 but normalized with a 400ml crystalloid bolus and 10 mg ephedrine IV and 0.4 mg atropine IV. This was supplemented with 5 ml of 2% lidocaine with 1:200000 epinephrine and bicarbonate through the epidural catheter 27 minutes after the initial intrathecal dose because of complaints of pain. Block recession has been described previously with single-shot spinal for cesarean delivery (3) and can be attributed to the reduced drug mass injected to avoid a high spinal level. That can result in an inadequate surgical level for the duration of the procedure. The presence of the epidural catheter allowed us to administer additional local anesthetic for the duration of the procedure.

Because of the unpredictable dosage requirements for a single-shot spinal in patients with achondroplasia, a technique that allows for dosage titration is preferred. A combined spinal-epidural technique can reduce the risk of a patchy block, which has been described previously with the use of epidural anesthesia (1,2). This technique should be considered in the management of parturients with achondroplastic dwarfism undergoing cesarean delivery to allow for dose titration and avoidance of general anesthesia.