Stage 1 Percutaneous Dorsal Column Stimulator Placement in a Patient with Local Anesthetic Allergy and Hypokalemic Periodic Paralysis

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We would like to describe a case of a 33 year old male with a history of hypokalemic periodic paralysis and local anesthetic allergy who underwent percutaneous stage 1 dorsal column stimulator trial for chronic lower back pain. The patient is an obese 33 year old male with a history of diabetes mellitus type 2, obstructive sleep apnea and L4-5 disc herniation following a work related injury who initially presented to our comprehensive pain management clinic with persistent lumbar pain following posterior laminectomy and lumbar decompression at L5-S1, which was performed 6 months prior to his initial visit. Patient reported having undergone two lumbar epidural steroid injections prior to his surgery, each exacerbating his hypokalemic periodic paralysis because of the use of steroid. He reported exacerbation of HPP with the use of pregabalin and gabapentin as well, limiting the use of these neuropathic agents in the treatment of his radicular symptoms. The symptoms of HPP he described included diaphoresis, weakness in the arms and hands, as well as respiratory difficulty. The patient also reported severe hypertension with previous lidocaine administration, along with upper and lower extremity generalized weakness.

After initial evaluation, we elected to perform high volume caudal epidural steroid injection with saline for lysis of epidural adhesions. He was started on cyclobenzaprine for myofascial pain. Patient did not report any benefit from the caudal epidural injection. Because of allergy to local anesthetics and sensitivity to multiple agents, patient was presented with DCS option for long-term control of his lower back pain with radiculopathy. Prior to DCS placement, patient underwent allergy testing showing severe hemodynamic response to lidocaine and bupivacaine. Stage 1 percutaneous DCS trial was scheduled to be done under light sedation without the use of local anesthetics for skin infiltration. Patient reported that prolonged fasting was known to trigger his HPP, therefore blood glucose and potassium levels were checked pre-operatively and potassium supplemented. Patient was brought to the operating room and placed in the prone position. He received sedation with midazolam and fentanyl boluses, as well as dexmedetomidine infusion. The sedation was titrated based on patient’s comfort and level of consciousness. The lumbar spine was prepped and draped in the routine manner. The L3/L4 interspace was located using fluoroscopy. The overlying skin was anesthetized using Gebauer™’s PainEase skin refrigerant spray. When adequate skin anesthesia was achieved, we were able to introduce a 3.5- inch 14-gauge modified Tuohy needle through the skin to the L3/L4 interspace. The rest of the procedure was carried out without difficulty and patient was monitored in the post anesthesia care unit post-operatively with no complications. Patient will return for stage 2 DCS implantation under general anesthesia if the trial is successful, with special considerations regarding hypokalemic periodic paralysis.