ANESTHETIC MANAGEMENT OF FEMORAL FRACTURE REPAIR IN A PATIENT WITH CERVICAL MYELOPATHY, AUTONOMIC DYSFUNCTION, AND DIFFICULT AIRWAY

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Spinal stenosis is a potentially serious condition that can lead to myelopathies and autonomic instability, both of which, as a result, may complicate anesthetic management. Additionally, neuraxial anesthesia appears to increase the risk of worsened neurological outcomes in this population. A 56-year-old female with spinal stenosis, autonomic dysfunction, and known difficult airway who required anesthesia for repair of a femur fracture is presented. After pre-operative arterial line and femoral block placement, an ultrasound guided subarachnoid block was safely placed. This supports the notion that in the appropriate setting, a safe, successful neuraxial blockade can be performed when a general anesthetic may be fraught with more risk.

Introduction

Spinal stenosis is a known cause of myelopathy, the symptoms of which are variable and depend on the degree of stenosis as well as spinal level(s) affected. Existing spinal stenosis with autonomic instability can complicate the anesthetic management of patients who require general anesthesia or neuraxial blockade1. These patients are thought to be at higher risk for exacerbation of symptoms with neuraxial anesthesia, thus often precluding it in many cases2.

We present a case of a 56-year-old female with cervical spinal stenosis, autonomic dysfunction, and known difficult airway previously necessitating emergent tracheostomy, now requiring anesthesia for an open reduction and internal fixation of a femur fracture.

Case Report

A 56-year-old Caucasian female with a history of rheumatoid arthritis on long-term steroid therapy, severe contractures, severe C5-C6 cervical stenosis with autonomic dysfunction, and profound neck stiffness with known difficult airway presented with right supracondylar femur fracture, necessitating repair in the operating room.

Pre-operative evaluation of the patient revealed a recent MRI (Figure 1) demonstrating significant cervical stenosis at the C5-C6 level with cord compression and worsening symptoms. She also had significant kyphosis, and had previously been told that she was a “difficult intubation,” requiring previous emergent tracheostomy at an outside institution during elective circumstances.

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Given this clinical picture, a spinal anesthetic was performed, in conjunction with pre-operative femoral nerve block. A radial arterial catheter was also placed, prior to placement of the spinal.

Intraoperatively, the patient experienced a transient 20 mmHg drop in mean arterial blood pressure after the spinal, for which a phenylephrine drip was initiated and titrated. A low dose propofol infusion was also infused for sedation, with high vigilance given to prevent potential apnea, while a difficult airway cart was also readily available. The procedure was completed successfully without complications.

**Discussion**

Given the patient’s complex history, a neuraxial anesthetic was chosen to minimize potential airway compromise. However, this was also complicated by her autonomic instability and spinal cord pathology. Because her cord compression was in the cervical area with no apparent thoracic or lumbar involvement, we proceeded with an isobaric bupivacaine spinal for primary surgical anesthesia, a technique often overlooked in cases of autonomic instability. Vasopressors and resuscitative drugs were readily available.

Our case report demonstrates that despite cervical spinal cord pathology and autonomic instability, regional anesthesia can be safely implemented with proper preparation and monitoring, even in cases where general anesthesia is almost always precluded.

**References**


BRIDION—for optimal neuromuscular blockade management and improved recovery

Predictable and complete reversal

- 98% of BRIDION patients recovered to a TOF\(^*\) ratio of 0.9 from reappearance of T\(_2\)\(^+\) within 5 minutes\(^2\)
- 97% of BRIDION patients recovered to a TOF\(^*\) ratio of 0.9 from 1 to 2 PTCs\(^*\) within 5 minutes\(^3\)

Rapid reversal

- BRIDION rapidly reversed patients from reappearance of T\(_2\)\(^+\) in 1.4 minutes\(^1\)
- BRIDION rapidly reversed patients from 1 to 2 PTCs\(^*\) in 2.7 minutes\(^3\)

BRIDION is indicated for the reversal of neuromuscular blockade induced by rocuronium or vecuronium. In children and adolescents (aged 2-17 years), BRIDION is only recommended for routine reversal of moderate rocuronium-induced neuromuscular blockade.\(^1\)

Important safety information

BRIDION is not recommended in patients with severe renal impairment. Studies in patients with hepatic impairment have not been conducted, and therefore, patients with severe hepatic impairment should be treated with great caution. Caution should be exercised when administering BRIDION to pregnant women as no clinical data on exposed pregnancies are available.

If neuromuscular blockade is required within 24 hours of BRIDION administration, a non-polarized neuromuscular blocking agent should be used instead of rocuronium or vecuronium. The most commonly reported adverse reactions were dysgeusia (metallic or bitter taste) and anesthetic complications (movement, coughing, grunting, or retching on the endotracheal tube). In patients treated with BRIDION, a few cases of awareness were reported. The relation to BRIDION was uncertain. In a few individuals, allergic-like reactions (e.g., flushing, urticarial rash) following BRIDION were reported. Children should be prepared for the possibility of allergic reactions and be prepared for treatment. In a trial of patients with a history of priapism complications, intravenous papaverine was reported in 2 patients and a causal relationship could not be fully excluded. Volunteer studies have demonstrated a slight (\(10\%\)–20\%) prolongation of the pre-habibemant inhalated part of the decay time (PT/T\(_{1/2}\)) with BRIDION; however, clinical studies have demonstrated no clinically relevant effect on postoperative bleeding complications with BRIDION alone or in combination with anticoagulants. As BRIDION has demonstrated an in vitro pharmacodynamic interaction with anticoagulants, caution should be exercised in patients on anticoagulation for a pre-surgical or surgical condition. This pharmacodynamic interaction is not clinically relevant for patients receiving routine postoperative prophylactic anticoagulation. Although formal interaction studies have not been conducted, drug interactions were observed in clinical trials. Preclinical data suggest that clinically significant drug interactions are unlikely with the possible exceptions of bupivacaine, lidocaine, and sevoflurane.

\(^1\) Tach of four
\(^2\) POBOL (2008/0063/001)
\(^3\) Second Switch


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