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Introduction

The high incidence of hip trauma in the elderly population likely due to a high risk of mechanical falls and conditions like arthritis, combined with the high likelihood of having other severe comorbidities makes the anesthetic management for these cases very challenging. When making an anesthetic plan for corrective hip surgery, it is important to consider the possible complications of each anesthetic approach and the implications they might have on the specific patient comorbidities. Neuraxial is usually preferred for management in the elderly population to avoid the increased risk of respiratory complications, postoperative delirium and mortality that is associated with general anesthesia. In the case of a patient the has significant cardiovascular comorbidities, the sympathectomy associated with neuraxial anesthesia could lead to significant hemodynamic instability.

Figure 1: Suprainguinal Fascia Iliaca Block with 5mL of Ropivacaine 0.5%

Figure 2: Transgluteal Sciatic Nerve Block with 5mL of Mepivacaine 1.5% and 10mL of Ropivacaine 0.5%

Figure 3: Femoral Nerve Block with 5mL of Mepivacaine 1.5%

Figure 4: Lateral Femoral Cutaneous Nerve Block with 3mL of Mepivacaine 1.5mL

Case Report

Case of a 98-year-old female nursing home resident with medical history of severe aortic stenosis with an aortic valve area of 0.7cm^2 , moderate pulmonary hypertension with an estimated pulmonary artery systolic pressure of 54mmHg, heart failure with preserved ejection fraction, left bundle branch block with a permanent pacemaker in place, uncontrolled hypertension and Alzheimer's disease. The patient presented with a displaced right femoral neck fracture after a fall. Prior to the fall the patient was minimally ambulating with a walker. The patient was scheduled for a right hemiarthroplasty with the goal of pain control and recovering some mobility.

Preoperatively the patient was in hypertensive emergency with systolic blood pressure of 220-200, likely due to a missed dose of her oral blood pressure medication due to her NPO status and challenging pain control.

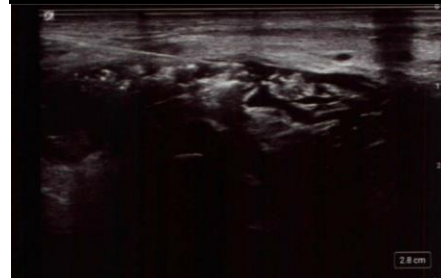


Figure 1: Suprainguinal Fascia Iliaca Block



Figure 2: Transgluteal Sciatic Nerve Block



Figure 3: Femoral Nerve Block

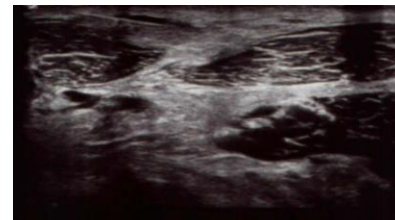


Figure 4: Lateral Femoral Cutaneous Nerve Block

Anesthetic Management

- The patient received 100mcg of fentanyl as premedication prior to the start of the peripheral nerve blocks. Ultrasound guided trans gluteal sciatic, femoral, suprainguinal fascia iliaca and lateral femoral cutaneous nerve blocks with ropivacaine and mepivacaine were performed.
- Upon arrival to the operating room a radial arterial line was placed. The systolic pressure continued to be 220-200. During the intraoperative period, the patient received 100mcg of fentanyl given in separate doses of 25mcg, 4 mcg of dexmedetomidine and a low dose propofol infusion during the beginning of the procedure in efforts of controlling the hypertension. After control of the blood pressure was obtained, no additional pain medications were required during the procedure.

Discussion

- By utilizing peripheral nerve blocks as anesthetic management, we can minimize the hemodynamic instability that can be associated with general anesthesia and neuraxial anesthesia. This can be especially beneficial for the anesthetic management of high-risk elderly population in which hip fractures due to mechanical falls are very common.
- The combined trans gluteal sciatic, femoral, suprainguinal fascia iliaca and lateral femoral cutaneous nerve blocks were able to provide adequate surgical anesthesia for the procedure.

References

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