Monitored Anesthesia Care and Soft-Tissue Infiltration With Local Anesthesia for Short Cephalomedullary Nailing in Medically Complex Patients: A Technique Video

Sanjit R Konda[1], Sara Jo Solasz[2], Abhishek Ganta[3], Kenneth A Egol[1]
[1]NYU Langone Medical Center, [2]NYU Langone Health, [3]NYU Hospital For Joint Diseases

Background
Monitored anesthesia care is defined as sedation and analgesia that is titrated to a level that preserves spontaneous breathing and airway reflexes. Soft-tissue infiltration with local anesthesia refers to soft-tissue infiltration with local anesthesia directly into the surgical site and is performed by the surgeon before starting the procedure.
Purpose
This video demonstrates the technique for monitored anesthesia care and soft-tissue infiltration, with local anesthesia as the only form of anesthesia, for short cephalomedullary nailing in medically complex patients.
Methods
The anesthetic is dosed at 2.5 mg/kg of bupivacaine, with a maximum allowable dose of 175 mg plus as much as 100 cc of saline. The saline serves as a volume expander to allow for improved soft-tissue coverage. A 60-cc syringe with a 20- or 22-gauge spinal needle is used to inject the three planned surgical incision sites and the fracture site. The proximal incision for the starting guidewire is located approximately 5 cm proximal to the tip of the greater trochanter and injected with approximately 60 cc of the anesthetic cocktail. The injection is carried down to the tip of the greater trochanter. The middle incision used for cephalad lag screw placement is injected with approximately 60 cc and directed anterior to the anterior cortex of the proximal femur to inject around the fracture site. The distal incision used for locking bolt insertion is injected with approximately 20 cc of the anesthetic cocktail. The indications for this technique include intertrochanteric hip fracture that can be fixed with the use of a short cephalomedullary nail.
Results
A retrospective, case-controlled, propensity matched feasibility study comparing 20 patients with an intertrochanteric hip fracture who underwent monitored anesthesia care and soft-tissue infiltration with local anesthesia versus 20 patients who underwent spinal anesthesia versus 20 patients who underwent general anesthesia was performed. Monitored anesthesia care and soft-tissue infiltration with local anesthesia was associated with better maintenance of normal heart rate parameters intraoperatively. In the first 3 hours immediately postoperatively, patients who underwent monitored anesthesia care and soft-tissue infiltration with local anesthesia had lower visual analog scale pain scores. Through 48 hours postoperatively, narcotic use was similar in the patients who underwent monitored anesthesia care and soft-tissue infiltration with local anesthesia and the patients who underwent spinal anesthesia and was five times less than that for the patients who underwent general anesthesia. No episodes of postoperative delirium was reported in the patients who underwent monitored anesthesia care and soft-tissue infiltration with local anesthesia, which was similar to that in the patients who underwent spinal anesthesia compared with one patient who underwent general anesthesia. No difference in the 30-day mortality rate was reported among the three groups.
Conclusion
Monitored anesthesia care and soft-tissue infiltration with local anesthesia can be universally applied for the fixation of intertrochanteric hip fractures with the use of short cephalomedullary nails, even in the most complex patients. Monitored anesthesia care and soft-tissue infiltration with local anesthesia is surgeon-controlled, easy to administer, and avoids the inherent risks of general and spinal anesthesia.