

Perioperative Opioid-Free Analgesia for Revision Total Hip Arthroplasty in a Patient with a History of Substance Abuse.

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INTRODUCTION

- Complimentary regional nerve blocks can synergistically provide sufficient analgesic coverage.
- A single peripheral nerve block may fail to cover all the involved sensory nerves of complexly innervated anatomical locations such as the hip joint.

CASE

- 69M presented for revision hip arthroplasty after unsuccessful treatment of recurrent periprosthetic joint infections.
- ASA III, DM2, moderate aortic valve stenosis, CKD3, class III obesity
- History of opioid abuse (in remission)
- Patient requested an opioid-free anesthetic
- Pre-Op:**
 - Acetaminophen 1 g PO, celecoxib 200 mg PO
 - Suprainguinal fascia iliaca (SIFI) block performed:
 - 35 cc total of 0.25% bupivacaine with 1:200,000 epinephrine
 - Pericapsular nerve group (PENG) block performed:
 - 15 cc total of 0.25% bupivacaine with 1:200,000 epinephrine
- Intra-Op:**
 - Total Intravenous Anesthesia
 - 80 mg of IV ketamine (total)
 - Surgeon-performed local infiltration analgesia (LIA):
 - Ropivacaine 150 mg, Ketorolac 15 mg
- Post-Op:**
 - Discharged on POD #6. He successfully remained opioid-free throughout his hospitalization on scheduled oral acetaminophen 1 g and celecoxib 200 mg with very brief deviations from 0/10 pain.

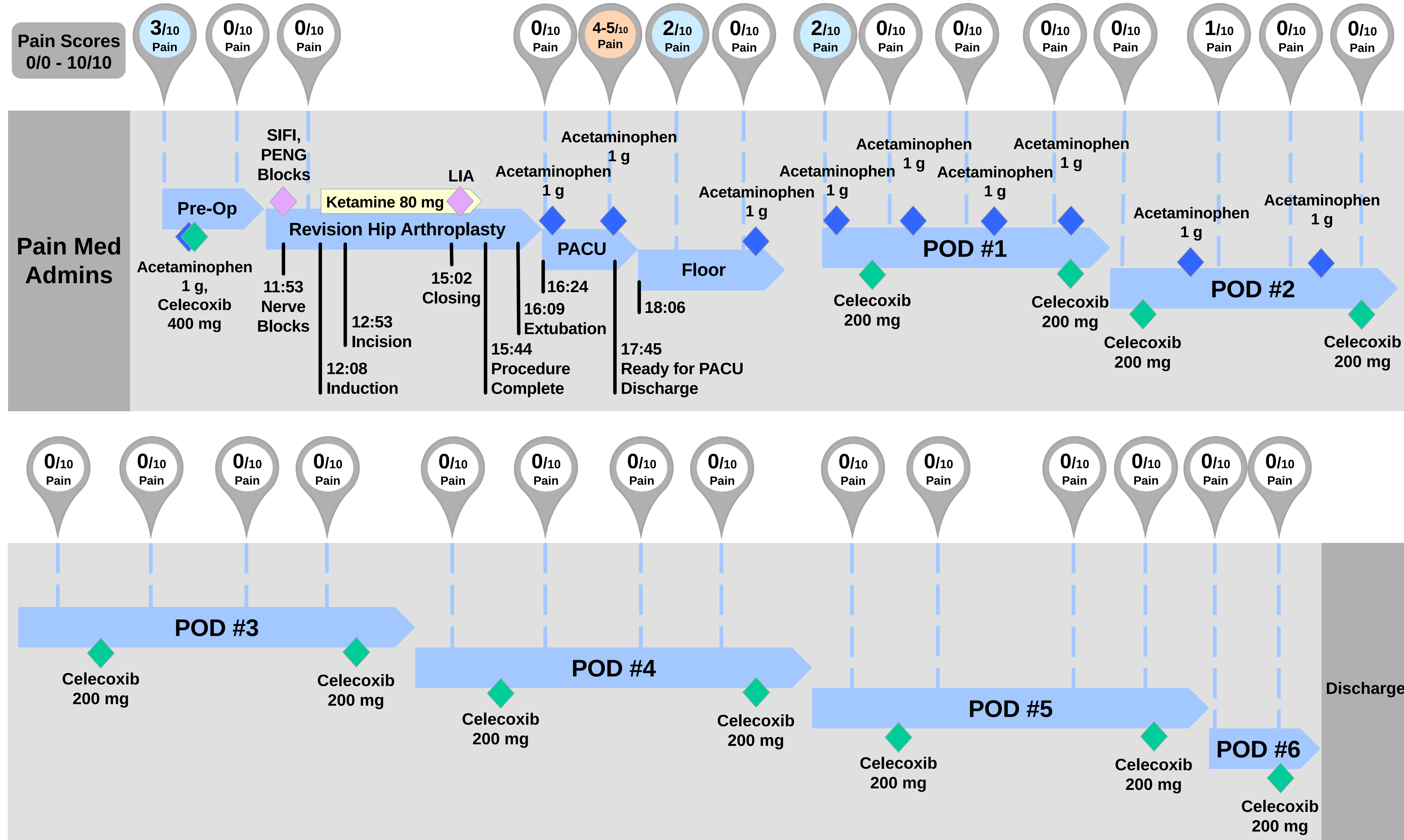


FIGURE 1 | Perioperative timeline with pain scoring in relationship to non-opioid analgesia administrations.

SIFI: Suprainguinal fascia iliaca block; **PENG:** Pericapsular nerve group block;
LIA: Surgeon-administered local infiltration analgesia;
PACU: Perianesthesia Care Unit; **POD:** Post-op Day

DISCUSSION

- Complex innervation of the hip joint:
 - Bony and cutaneous sensory innervation of the hip originates from the femoral, obturator, lateral femoral cutaneous, superior gluteal, and sciatic nerves.
 - The anterior hip capsule is mostly innervated by the femoral and obturator nerves, with occasional contribution from the accessory obturator nerve.
 - Articular branches of the femoral nerve provide most of the innervation to the lateral and superomedial capsule, while the articular branches of the obturator supply inferomedially (3).
- SIFI block is an anterior approach to the lumbar plexus in the space between the iliacus muscle and the fascia iliaca. It targets the femoral, obturator, and lateral femoral cutaneous nerves, which lie in this space, with some sparing of the obturator nerve (5,6).
- PENG block targets the articular branches of the accessory obturator and femoral nerves in the anterior hip joint while sparing some cutaneous structures.
- Opioid addiction carries dangerous complications, and relapse is incredibly difficult to avoid. Our patient had achieved remission and was adamant about avoiding narcotics.

CONCLUSION

- Understanding the anatomical innervation of the hip joint is critical for a targeted peripheral nerve block approach for opioid-sparing multimodal analgesia for surgical procedures.
- The complementary combination of SIFI and PENG blocks, along with LIA, synergistically targets most of the sensory innervation of the hip joint (each covering the areas that are lacking from the other) and, when combined with a multimodal approach, allowed this patient to receive an opioid-free revision total hip arthroplasty.

REFERENCES

