Distraction-Based Awake Spinal Anesthesia for Total Knee Arthroplasty in a Patient at High Risk for Cognitive Dysfunction

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INTRODUCTION

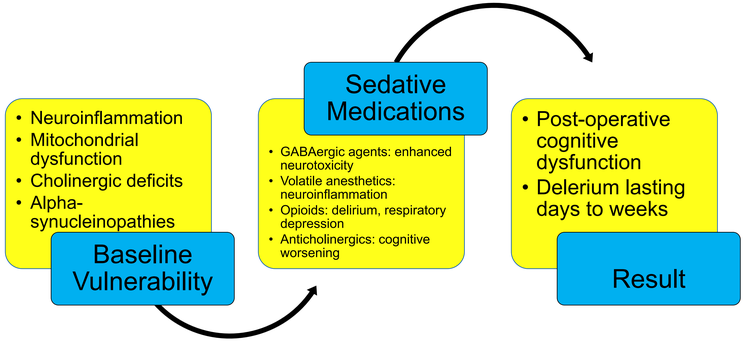
- This case highlights the feasibility performing total knee arthroplasty (TKA) under awake spinal anesthesia without sedation
- We utilized audio-visual distraction using noise canceling headphones to avoid sedation and augment spinal anesthesia

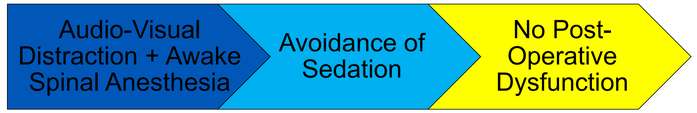
CASE

- **74-year-old male** (108 kg)
  - PMH: Subdural hemorrhage, Parkinson's disease w/ Lewy body dementia
- **Prior cataract surgery**
  - Received 50 mcg IV fentanyl and 4 mg IV zofran
  - Post-operatively he experienced 4 days of significant postoperative cognitive delay
- **Requested no sedation for TKA**
  - Alternatively, he would prefer to abort the procedure if sedation was required
- **Pre-Op**
  - Adductor canal block: 20 cc 0.5% bupivacaine with 1:200,000 epinephrine
- **Intra-Op**
  - L3-L4 spinal block: 4cc 2% Mepivacaine
  - Watched a movie with noise-canceling headphones, required no sedation
- **Post-Op**
  - No cognitive delay or dysfunction
  - Expressed satisfaction with the anesthetic approach and the avoidance of cognitive side effects

Audiovisual distraction during awake spinal anesthesia: feasible and potentially protective for high-risk patients

Figure 1: Intra-operative audiovisual distraction technique. Following pre-operative adductor canal block and intra-operative spinal block, the patient was provided noise-canceling headphones paired with a tablet.





DISCUSSION

- This case utilized a distraction-based approach in conjunction with spinal anesthesia
- Effectively eliminated the need for sedation or general anesthesia and resulting in a favorable outcome
- Successfully avoided postoperative cognitive dysfunction (PCD)
- Previous studies have explored distraction-based techniques similarly; however, few have reported benchmarked outcomes [3,4]
- This case underscores the importance of individualized anesthetic planning in patients with underlying neurocognitive disorders
- Avoidance of sedation and general anesthesia may mitigate the risk of PCD in vulnerable populations
- Future studies are warranted to evaluate clinical outcomes and patient satisfaction associated with awake regional anesthetic techniques in similar cohorts

CONCLUSION

- Audio-visual distraction with awake spinal anesthesia is both feasible and potentially advantageous for patients at high risk for postoperative cognitive complications.

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