

## Spinal Anesthesia for Total Joint Replacement

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None

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### Abstract

Total joint arthroplasty is one of the most performed surgical procedures in the developed world with millions of total hip and total knee replacements taking place each year.<sup>1</sup> It has long been debated whether general anesthesia or neuraxial anesthesia is the best choice for lower limb total joint arthroplasty. The purpose of this scientific poster is to explore and discuss the potential benefits of using spinal anesthesia rather than general anesthesia for total knee arthroplasty or total hip arthroplasty. A database search utilizing Embase, Medline complete, and PubMed was completed to obtain information for the poster. After data and resources were reviewed, several benefits were discovered related to the use of spinal anesthesia for total joint arthroplasty. Benefits included lower 30-day mortality rates, decreased odds for all-cause mortality and fewer complications in most cases, lower 90-day complication rate, decreased postoperative nausea and vomiting, and decreased medical costs.<sup>1-6</sup> According to the literature, a systematic review and meta-analysis, and a multinational expert group neuraxial anesthesia is the preferred anesthetic technique due to its reduction of most (but not all) complications.<sup>1</sup> Spinal anesthesia is the preferred method of anesthesia for total knee and total hip arthroplasty given the positive associated postoperative outcome benefits.<sup>1</sup>



# Spinal Anesthesia for Total Joint Replacement

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## Purpose

- Discuss the benefits of using spinal anesthesia for total knee arthroplasty (TKA) or total hip arthroplasty (THA).

## Introduction

- Total joint arthroplasty (TJA) is one of the most common performed surgical procedures in the developed world.<sup>1</sup>
- Globally, millions of patients receive TKR and THR every year with projected increase as the population ages.<sup>1</sup>
- It has long been debated which anesthetic technique is better for a patient undergoing TJA, general anesthesia (GA) or neuraxial anesthesia (NA). This DNP-A project aims to uncover any benefits patients may experience from receiving NA for TKR or THR.

## Case Description

### Preadmission Evaluation

- A 57-year-old, 85.8 kg, 167.6 cm, female presented for a right anterior total hip replacement for osteoarthritis of the right hip.
- Medical history: Essential hypertension, osteoarthritis, hereditary hemochromatosis, and insomnia
- Surgical history: cholecystectomy, carpal tunnel release, colonoscopy, EGD, C-section, TEE, Roux-en-Y gastric bypass, and bladder stimulator insertion
- Preoperative vital signs: HR 56, Blood pressure 137/90 mmHg, SpO<sub>2</sub> 99%, RR 16, temperature 97 °F
- Current medications: lisinopril-hydrochlorothiazide 2—12.5 mg tablet, oxybutynin 10 mg 24 hr tablet, daily multivitamin
- Airway Assessment: Mallampati III, TMD > 3 finger breadths, full neck ROM, bilateral front incisors chipped
- Other: EKG-NSR, Ejection fraction 55%, not taking blood thinners

### Intraoperative Management

- Preoperative medications given, 2 mg midazolam, 100 mg hydrocortisone, 20 mg famotidine, and 4 mg ondansetron
- Standard monitors applied to patient and spinal anesthetic performed at L3-L4 interspace with 1.8ml of 0.75% hyperbaric bupivacaine
- Patient instructed to lay with operative hip down, density of block assessed prior to incision, sensory block noted up to level T10.
- MAC maintained with propofol at 55mcg/kg/min, 50 mg of ketamine. BP maintained with 250 mcg phenylephrine, fluids replaced with 1250 ml albumin, and 600 ml lactated ringers-EBL 950ml
- Normothermia maintained at 98 degrees Fahrenheit, upon emergence patient rated pain 0/10 and was transported to the post anesthetic care unit on room air.

### Postoperative Care

- Patient had uneventful postoperative course, the patient required no opioid medications for pain control, as well as no medications for nausea or vomiting, no blood transfusion was required.
- A PENG block consisting of 5 mg of dexamethasone, 20 ml of 0.5% ropivacaine, 20 mcg of dexmedetomidine, and 300 mcg of buprenorphine was placed for post-operative pain control.
- Patient subsequently released to orthopedic care unit and discharged on post operative day one to her residence.

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