

Loma Linda University Total Knee Arthroplasty Regional Anesthesia (TKARA) Protocol

Multimodal analgesia has become the cornerstone in the treatment of severe post operative pain in the total joint replacement patient population. Multimodal analgesia allows for superior pain control when compared to a pure opioid pain control regimen. This is a result of the synergistic effects of multiple medications acting via different pain pathways, resulting in the ability to significantly decrease the amount of parenteral opioids and opioid related side effects (sedation, respiratory depression, nausea, vomiting, pruritus, ileus and urinary retention).

Femoral nerve block (gold standard) has been shown to be a superior method for pain relief following total knee arthroplasty when compared to systemic opiates. Femoral nerve block; however, is associated with quadriceps muscle weakness, which may result in increased risk of falls and delayed rehabilitation. Adductor canal block (ACB) has been shown to be an alternative method for pain relief following total knee arthroplasty and is associated with significantly less quadriceps muscle weakness when compared to femoral nerve block.

The goal of the TKARA protocol is to combine the ACB with a multimodal analgesia pathway to improve post operative analgesia, improve time to rehabilitation milestones, improve time to discharge eligibility, and improve patient satisfaction all while decreasing parental opioid use and its associated side effects and complications.

PROTOCOL

PRE-OPERATIVE- GIVE 1-2 HOURS BEFORE SURGERY WITH A SIP OF WATER

1. Oxycodone extended release (Oxycontin) 10mg PO. Consider 20mg PO for opiate tolerant patients ¹.
2. Gabapentin 600mg PO for patients <69 and give 300mg PO for patients ≥70 (**Do not give** if elevated risk of post-op delirium or renal insufficiency).
3. Celebrex 400mg PO (**Do not give** if patient has chronic renal failure or coronary artery disease and if patient has true allergy to sulfa then substitute for Naproxen 500mg PO).
4. Acetaminophen 1000mg PO (500mg x2; **Do not give** if patient has severe liver dysfunction).
5. Pantoprazole 40mg PO.

OPIOID TOLERANT= patient has been receiving opioids for at least one week: 60 mg PO morphine/day OR 25 mcg fentanyl transdermal/hr OR 30 mg PO oxycodone/day OR 8 mg oral hydromorphone/day OR 60 mg hydrocodone/day OR an equivalent dose of another opioid(s)

INTRA-OPERATIVE

1. Spinal anesthesia with Bupivacaine 0.75% (10-15mg) and fentanyl 20-25 mcg + propofol drip for sedation (LMA if needed) **VS**. General Anesthesia- Decision to be made by attending Anesthesiologist based on patient's comorbidities. DO NOT GIVE INTRATHECAL MORPHINE.
2. Please limit the amount of opioid use- DO NOT GIVE LONG ACTING OPIOID LIKE IV MORPHINE OR HYDROMORPHONE.
3. Peri-articular injection at the discretion of the Orthopedic Surgeon.

PACU

1. Adductor Canal Block (ACB) catheter placement by Acute Pain Service- Bolus injection 15-30ml of 0.25-0.5% Ropivacaine and then 0.33% Ropivacaine infusion at 2ml/hr and 15ml programmed intermittent bolus q3 hours. Keep ACB in place till POD#1 with anticipated patient DC home on POD#2.
2. Fentanyl PRN
3. Dilaudid PRN
4. Oxycodone immediate release 5 or 10mg PO x1 prior to discharge from PACU (5mg if pain score <5, 10mg if pain score ≥5).

POST-OPERATIVE

1. Tylenol 650mg PO q6 hours.
2. Celebrex 200mg PO BID for a total of 10 days (**Do not give** if patient has chronic renal failure or coronary artery disease and if patient has true allergy to sulfa then substitute for Naproxen 500mg PO).
3. Gabapentin 300mg PO BID for total of 14 days (consider lower dose for patient with renal insufficiency or age >70).
4. Oxycontin 10mg PO BID ONLY for opiate tolerant patients¹ (Consider 20mg BID).
5. Oxycodone immediate release 5-10mg PO q3 PRN pain; 5mg for pain score < 5; 10mg for pain score ≥ 5.
6. Dilaudid 0.2-0.5mg IV q2 PRN severe break through pain.
7. Robaxin 750mg PO q12 PRN muscle spasms.
8. Pantoprazole 40mg PO.
9. Colace 100mg PO BID.

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DISCHARGE MEDICATIONS

To be written by the Orthopedic Surgery team

1. Celebrex 200mg BID or Naproxen 500mg BID for a total of 10 days.
2. Gabapentin 300mg BID for a total of 14days.
3. Percocet or Norco 5/325mg or 10/325mg 1-2tab q4-6; max 10 tab q24 hours.

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