

Regional Blockade & Total Knee Replacement

Anesthetic Pearls: Anesthetic Implications of Regional Technique for Total Knee Replacement

Indications:

Pain control is the most important indication for performing a regional anesthetic block for Total Knee Replacement (TKR). Regional methods may also be the safest anesthetic method for the patient since most TKR's are usually performed on elderly or obese patients who may not tolerate a general anesthetic.

Limitations:

The time of surgery may be a limiting factor based upon the effective half-life of the desired local anesthetic. Patient's who have a regional block and remain awake may become profoundly uncomfortable after lying in one position for an extended period of time. Additionally, the patient will have to be moved two times to access the nerves that need to be blocked to achieve adequate anesthesia of the knee.

Regional Nerve Blockade:

Lateral Femoral Cutaneous, Obturator, Femoral, and Sciatic Nerves.

Regional Approaches:

1. **Spinal** with isobaric or hyperbaric anesthetics (patient should be placed in lateral position with operative side down to improve the block achieved).
2. **Regional:** There are several approaches that ultimately block the previously mentioned four peripheral nerves (Sciatic and Lumbar Plexus blockade). A well-placed **Femoral** nerve block (single shot or catheter) placed in the supine position can adequately anesthetize the Femoral, Obturator, and Lateral Femoral Cutaneous nerves. A **Sciatic** nerve block (single shot or catheter) placed in the lateral (Labat's technique) or prone position can adequately anesthetize the Sciatic nerve. Due to the invasiveness of the surgery, a pre-surgical regional technique has the theoretical advantage of providing pre-emptive analgesia that may potentially result in post-operative pain reduction and greater patient satisfaction.

Complications / Contraindications:

As with all procedures, these blocks do have inherent potential complications. Spinal anesthesia may have resultant in hypotension, high spinal blockade, nausea and vomiting, post-dural puncture headache, backache, urinary retention, and site specific infection. Lower extremity regional techniques can result in epidural blockade, venous or arterial injection of local anesthetic, and direct neural trauma. Always remember that patient refusal and existing infection at regional block entry points are definite procedure contraindications.

