

## Lecture V: Optimal Regional Anaesthesia – Analgesia for Knee Surgery: Current Trends & Future Perspectives

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Major orthopedic surgery is frequently associated with high pain scores. For many procedures, especially those that are known to cause severe postoperative pain, guidelines from many countries recommend the use of RA for postoperative pain control. Although randomized controlled trials have demonstrated clinically significant pain reduction after peripheral nerve blocks and wound infiltration with local anesthesia, these techniques are still underused [1].

Approximately 15% of patients report persistent knee pain despite surgical success following total knee arthroplasty. Acute postsurgical pain, generally regarded as pain within the first 72 hours postoperatively, has been found to be independent risk factor of chronic postsurgical pain [2].

Early mobilization is the cornerstone of enhanced recovery program. Early mobilization (sitting out of bed/walking) can result in a reduced length of stay of 1 to 2 days and should be considered within the first 24 hours after surgery [3]. Early ambulation (on post-operative day 1) is also associated with lower hospitalization costs [4].

What are the different approaches?

Periarticular infiltration using the appropriate technique and knowledge of intraarticular knee anatomy may increase pain control and maximize rehabilitation [5].

Femoral block is also associated with lower opioid consumption and a better recovery at 6 weeks than periarticular infiltration [6]. Early postoperative activity measures were proved to be possible indicators of knee function recovery at 6 weeks after surgery.

In a metaanalysis, Adductor Canal Block method was superior in terms of equivalent morphine consumption in the first 24 hours and 48 hours, without increasing the risk of complications, when compared to the Peri articular Infiltration method [7].

What's the best approach?

Blocking multiple nerves was preferable to blocking any single nerve, periarticular infiltration, or epidural analgesia.

1- Proximal blocks

The combination of femoral and sciatic nerve block appears to be one of the best approaches [8].

The combination of Femoral, Sciatic, Obturator and Lateral Cutaneous of the thigh nerve blocks has shown that the opioids requirements in the first 48hours were extremely low (20mg to 30mg Oral Morphine Equivalent). Quadruple nerve block could be considered as a reliable option to achieve per and postoperative analgesia for TKA in combination with a multimodal analgesia regimen (intravenous dexamethasone, intravenous ketamine, paracetamol, ketoprofen, etc).

2- Distal blocks

Combined Obturator and Femoral triangle block reduces morphine consumption better than LIA after TKA [9].

There is moderate level evidence that iPACK might provide analgesia for posterior pain after total knee arthroplasty when compared with a control group at 12 h, but was not associated with any other meaningful benefits. Based on these results, there is currently limited evidence supporting the use of iPACK as a complement to adductor canal block for analgesia after total knee arthroplasty [10].

Genicular nerve blockade may also be associated with a reduction in opioid consumption at 24 hours in primary total knee arthroplasty patients [11].

3- Association of LIA and Distal Blocks

In a recent publication, the 24 h resting VAS score was lowest in Adductor Canal Block + Peri Articular Infiltration and 48 h resting and movement VAS score was lowest in continuous ACB also showing the interest of the catheter in this indications [12].

The best choice for optimal analgesia in TKA remains controversial. Combination of different techniques is preferable than using a single nerve injection or a unique approach. Early mobilization should be considered for an optimal enhanced recovery program. Suitable analgesia may reduce the risk of chronic postsurgical pain lasting more than 6 months after

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