

Comparison of Regional and Local Indwelling Catheter Techniques to Prolong Analgesia in Total Knee Arthroplasty Procedures: Continuous Peripheral Nerve Block and Continuous Periarticular Infiltration

Authors : Jared Cheves, Amanda DeChent, Joyce Pan

Abstract : Total knee replacements (TKAs) are one of the most common but painful surgical procedures performed in the United States. Currently, the gold standard for postoperative pain management is the utilization of opioids. However, in the wake of the opioid epidemic, the healthcare system is attempting to reduce opioid consumption by trialing innovative opioid sparing analgesic techniques such as continuous peripheral nerve blocks (CPNB) and continuous periarticular infiltration (CPAI). The alleviation of pain, particularly during the first 72 hours postoperatively, is of utmost importance due to its association with delayed recovery, impaired rehabilitation, immunosuppression, the development of chronic pain, the development of rebound pain, and decreased patient satisfaction. While both CPNB and CPAI are being used today, there is limited evidence comparing the two to the current standard of care or to each other. An extensive literature review was performed to explore the safety profiles and effectiveness of CPNB and CPAI in reducing reported pain scores and decreasing opioid consumption. The literature revealed the usage of CPNB contributed to lower pain scores and decreased opioid use when compared to opioid-only control groups. Additionally, CPAI did not improve pain scores or decrease opioid consumption when combined with a multimodal analgesic (MMA) regimen. When comparing CPNB and CPAI to each other, neither unanimously lowered pain scores to a greater degree, but the literature indicates that CPNB decreased opioid consumption more than CPAI. More research is needed to further cement the efficacy of CPNB and CPAI as standard components of MMA in TKA procedures. In addition, future research can also focus on novel catheter-free applications to reduce the complications of continuous catheter analgesics.

Keywords : total knee arthroplasty, continuous peripheral nerve blocks, continuous periarticular infiltration, opioid, multimodal analgesia

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