Surgeon-Administered Infiltration Is Equivalent to Anesthesiologist-Administered Adductor Canal Block (ACB) in Total Knee Arthroplasty (TKA)

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INTRODUCTION: Opioid-sparing perioperative analgesia in total knee arthroplasty (TKA) continues to be a challenge and to evolve. Periarticular injections (PAIs) and peripheral nerve blocks are commonly utilized. Traditional adductor canal blocks (ACBs) target the saphenous nerve and are typically administered by anesthesiologists using ultrasound guidance prior to surgery. This is a time and resource intensive intervention. An efficient intraoperative intraarticular posteromedial surgeon-administered (IPSA) block targeting the saphenous nerve and posterior capsular innervation has been evaluated by multiple surgeons on cadavers. Our hypothesis was that this IPSA block would provide non-inferior perioperative analgesia to a traditional ACB with regard to inpatient morphine milliequivalents (MMEs), without increasing length of stay (LOS) or complications.

METHODS: 133 sequential patients had 1) an anesthesiologist-administered ACB only (38), 2) an anesthesiologist-administered ACB and IPSA block (35), or 3) an IPSA block only (60). All patients received PAIs with a solution of 49.2 cc ropivacaine (0.5%), epinephrine 0.5 mg, and clonidine 80 mcg diluted to 100 cc with saline, with Ketorolac added to the solution at patient-specific dosing. This solution was also used for the IPSA block. The ACB consisted of 20 mL of bupivacaine (0.25%) and 5 mcg/mL epinephrine.

RESULTS: Gender ($p = 0.79$), laterality ($p = 0.25$), and BMI ($p = 0.42$) were not different between groups, and differences in age ($p < 0.05$) were not clinically meaningfully different. There was no significant difference in total inpatient MMEs ($p = 0.92$) between groups 1, 2, and 3: 100.43 ± 63.71, 107.06 ± 68.00, and 105.36 ± 67.23 units, respectively. There was also no difference in LOS (hours) ($p = 0.26$) between groups 1, 2, and 3: 35.02 ± 26.69, 36.41 ± 21.88, and 29.40 ± 19.08, respectively. There were no complications related to the blocks in any patient, and no rescue blocks required.

DISCUSSION AND CONCLUSION: IPSA blocks are safe and non-inferior to anesthesiologist-administered ACBs with regard to inpatient MMEs and LOS. IPSA blocks eliminate the cost and time associated with ultrasound-guided anesthesiologist-administered ACB without compromising outcomes.