Paper #42

Effectiveness of Liposomal Bupivacaine for Postoperative Pain Control in Total Knee Arthroplasty: A Prospective, Randomized, Double Blind, Controlled Study

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Introduction: Pain control following total knee arthroplasty (TKA) heavily influences timing of mobilization and length of hospital stay postoperatively. We studied the effectiveness of periarticular liposomal bupivacaine in TKA postoperative pain control, including impact on early mobilization and length of hospital stay, compared to another local analgesic (ropivacaine) when both are used as part of a multimodal pain management approach.

Methods: We performed a double blind, randomized, controlled, prospective, IRB-approved study on opioid naïve patients with a primary diagnosis of osteoarthritis undergoing a unilateral TKA between May 2014 and March 2015 (n=96). Patients with prior knee replacement, inflammatory arthritis, bilateral TKA, or opioid tolerance were excluded. Study participants were randomized into a control group, given the standard intra-articular injection (ropivacaine, ketorolac, morphine, and epinephrine in saline; 100cc), and experimental group, given a similar intra-articular injection (bupivacaine, ketorolac, morphine, and epinephrine in saline; 80cc) plus 1.3% liposomal bupivacaine (20cc; total injection 100cc). Postoperative pain management and physical therapy were standardized. The frequency and total use of oral and intravenous narcotic use was recorded during hospital stay. We also recorded Visual Analog Pain scores, hours to ambulate 100 feet, and length of hospital stay (hours).

Results: There was no significant difference between the groups in mean narcotic use per hour (differed by 0.1mg), total narcotic (hydrocodone) use during hospital stay (experimental: 97.7mg±42.84; control: 89.6mg±58.57), mean length of stay (experimental: 59.0±13.7hours; control: 60.3±23.7hours), time to ambulate 100 feet (experimental: 27.3±17.4hours; control: 26.4±19.4hours), or Visual Analog Score for pain on day 1 or day 2 post-operatively. The experimental design had a power of 0.074.

Conclusions: When comparing liposomal bupivacaine to ropivacaine as part of a multimodal pain management approach in TKA, there is no difference in postoperative opioid consumption, Visual Analog Scores for pain, amount of time to ambulate or length of hospital stay.

Notes