

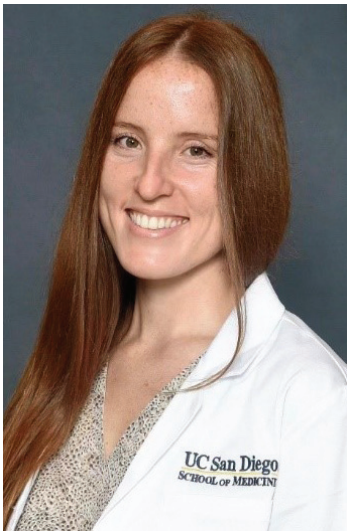
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Does Bupivacaine Liposome Injectable Suspension Further Aid in Decreasing At-home Narcotic Utilization in Children and Adolescents Following Anterior Cruciate Ligament Reconstruction: A Preliminary Report

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Sports

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Abstract

Introduction: Opioid misuse and addiction among children and adolescents is an increasingly concerning

problem. Post-surgical opioid prescriptions for commonly performed surgeries such as anterior cruciate ligament reconstruction (ACLR) increase opioid exposure in young athletes. This study's purpose was to determine if bupivacaine liposome injectable suspension admixture administered as a single-shot adductor canal peripheral nerve block (SPNB+BL) would decrease utilization of at-home opioid analgesics after ACLR in adolescents compared to single-shot adductor canal peripheral nerve block with bupivacaine (SPNB+B) alone.

Methods: Consecutive ACLR patients with or without meniscal surgery by a single surgeon were enrolled in this prospective case-series study. All patients received a preoperative single-shot adductor canal peripheral nerve block with either 0.25% bupivacaine alone (Group 1, SPNB+B) or with admixture of bupivacaine liposome injectable suspension combined with 0.25% bupivacaine (Group 2, SPNB+BL). Postoperative pain management included cryotherapy, oral acetaminophen, and

ibuprofen. A prescription for 10 doses of hydrocodone/acetaminophen (5/325 mg) was provided in a sealed envelope with instructions that the prescription should only be used in the case of uncontrolled pain. Pain using the visual analog scale (VAS); number of consumed narcotics, acetaminophen, ibuprofen; and pain treatment satisfaction for the first three postoperative days were recorded. Reports of no opioid use were corroborated by the unopened envelope and unfilled prescription. Statistical analysis was performed.

Results: Fifty-eight patients were enrolled in the study (SPNB+B=32 patients, SPNB+BL=26 patients). Average age was 15 ± 1.5 years. Forty-seven patients (81%) did not require home opioids postoperatively. A significantly lower proportion of patients in the SPNB+BL group required opioids compared to the control patients (7.7% vs. 28.1%, $p=0.048$). Average opioid use was 2 morphine milligram equivalents (MME), 0.4 pills (range, 0-20 MME). Only 2 patients reported consuming 4 pills. There were no group differences in VAS or pain

treatment satisfaction scores, other demographics, or other operative data. The groups statistically differed in distribution of insurance type ($p<0.001$), sex ($p=0.039$), and administering anesthesiologists' years in practice ($p=0.014$); therefore, an inverse probability of treatment weighting analysis was performed to account for treatment group differences. Resulting analysis of home opioid use between groups remained significantly different ($p<0.001$).

Conclusion: This study demonstrates that bupivacaine liposome injectable suspension admixture administered as a single-shot adductor canal peripheral nerve block in children and adolescents undergoing ACLR effectively reduces home opioid usage postoperatively compared to bupivacaine alone.

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