Effectiveness of Local Anesthetic Injection in Geriatric Patients Following Operative Management of Proximal and Diaphyseal Femur Fractures

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Purpose: Geriatric fracture patients are at risk for poor pain control and side effects of opioid medications. The arthroplasty literature has demonstrated infiltration of long-acting local anesthetic improves pain control and reduces postoperative opioid use resulting in better postoperative mobility without the deleterious effects of narcotics. Despite a higher risk for adverse events, there are limited data among geriatric trauma patients in this realm. The aim of this study was to evaluate whether local anesthetic infiltration (LAI) into soft tissues within the surgical field reduces narcotic use or pain scores in patients undergoing surgical management of proximal and diaphyseal femur fractures.

Methods: A retrospective review was performed of patients age >65 years undergoing operative intervention for proximal and diaphyseal femur fractures. The electronic record was utilized to determine if local anesthetic was injected into the surgical wound, the amount of narcotics administered over the 48 hours postoperatively, and visual analog scale (VAS) pain scores for patients pos-operatively in 4-hour intervals. The amount of narcotics was converted to morphine milligram equivalents (MME).

Results: Among 477 patients included, 359 did not receive LAI and 118 patients received LAI. Baseline demographics, fracture types, and surgical procedures were equivalent between the groups. In the first 4 hours, patients receiving LAI received 14.03 MME compared to 41.91 MME in those receiving no LAI (P = 0.0039). The cumulative narcotic use continued to be statistically significant for the first 28 hours postoperatively; 57.82 MME in the LAI group compared to 94.31 MME for those with no LAI (P = 0.034). From 28-48 hours postoperatively, there was no significant difference in MME between the groups. Despite decreased narcotics, the patient cohorts had equal pain scores (mean difference 0.37, P = 0.22). Multivariate analysis demonstrated a significant negative association between age and MME usage (Est. = –6.31, SE [standard error] = 1.17, P<0.001) as well as LAI administration and MME utilization (Est. = –42.55, SE = 21.94, P = 0.05). Admission to an orthopaedic surgery service was positively associated with increased MME usage (Est. = 77.16, SE = 38.54, P = 0.045). There was no significant difference in hospital length of stay between the LAI and non-LAI groups (7.05 days vs 6.40 days, P = 0.369). There was no difference in rates of postoperative complications.

Conclusion: LAI into soft tissues appears to be effective at decreasing narcotic use in geriatric patients undergoing surgical treatment for proximal and diaphyseal femur fractures while maintaining equally satisfactory pain control. Further research is needed to identify effective ways to optimize pain management in this at-risk patient population.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device he or she wishes to use in clinical practice.