

Does Local Injection Therapy Provide Improved Pain Control Over Standard of Care Following Hip Fractures?

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Purpose: Improving pain control for hip fractures can prevent complications. The use of liposomal bupivacaine (LB) has been shown to decrease pain and narcotic requirements in arthroplasty and recently hip fractures. Less expensive cocktails using a combination of ropivacaine, clonidine, epinephrine, and ketorolac may have similar effect, with the upside of increased availability and decreased cost. The purpose of this study was to determine if these 2 different injections were comparable with regard to pain control. We hypothesized that the non-commercial cocktail would result in improved pain control when compared to LB and standard of care.

Methods: Patients 55 years and older undergoing general anesthesia and treated with either cephalomedullary nail, sliding hip screw, or hemiarthroplasty for OTA/AO type 31A or 31B fractures at 2 Level I trauma centers were enrolled in a prospective, randomized study to compare mean postoperative visual analog scale (VAS) score and morphine milligram equivalents (MME) between LB (n = 25) and saline (n = 28). Patients underwent a uniform postoperative pain regimen. A second cohort using identical inclusion/exclusion criteria was performed to collect postoperative VAS scores and MME after treatment with an injection cocktail of ropivacaine combined with epinephrine, clonidine, and ketorolac (n = 22). Interval mean VAS scores and MME at 24, 48, and 72 hours postoperatively were compared between the 3 groups using analysis of variance, with differences (P<0.05) further analyzed between individual groups using t tests.

Results: At 24 hours, mean VAS score was lowest in the cocktail (1.75, 95% CI [confidence interval] 0.86-2.64), followed by LB (2.81, 95% CI 1.9-3.71), and saline control (3.9, 95% CI 3.03-4.77) (P = 0.0035). There was no difference in mean VAS score at 48 hours (2.84 [1.65-4.02] vs 3.44 [2.45-4.42] vs 3.74 [2.98-4.51], P = 0.39) and 72 hours (2.47 [1.27-3.67] vs 2.97 [2.06-3.88] vs 3.32 [2.21-4.42], P = 0.52). Mean MME was similar between the groups. There was no difference in mean MME at 24 (40.11 [23.92-56.31] vs 39.6 [20.79-58.4] vs 49.75 [37.43-62.07], P = 0.55), 48 (15.3 [5.97-24.62] vs 13.31 [7.59-19.03] vs 13.75 [7.61-19.89], P = 0.9158), or 72 hours (14.09 [5.71-22.47] vs 8.13 [-2.34-18.59] vs 13.43 [-2.05-28.91], P = 0.75).

Conclusion: The use of a local injection cocktail improves pain control within the first 24 hours when compared to both placebo and LB. Beyond 24 hours, it may have similar effect to LB. This suggests that a prospective randomized trial should be conducted to assess the efficacy of these injections in improving pain control over longer periods of time and if this results in less complication.

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See the meeting website for complete listing of authors' disclosure information. Schedule and presenters subject to change.