Preoperative Nerve Blocks for Hip Fracture Patients: A Pilot Randomized Trial

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Purpose: Hip fracture is common in older people; >95% are treated with surgery. Pain after hip fracture is substantial, but opioids are associated with significant adverse effects in older patients. Regional anesthesia may reduce opiiod use while providing adequate pain management. Our objective was to determine how preoperative femoral nerve block (FNB) affects pre- and early postoperative outcomes: (1) daily pain levels, (2) opioid use, and (3) mobilization day 1 postoperatively.

Methods: The study design was a randomized allocation of 73 participants (~2:1 FNB:control); this allocation allowed group comparison and potential subanalyses within the FNB group (n = 50) to determine if patients with cognitive impairment could be treated with preoperative FNB. Patients aged ≥65 years, ambulatory pre-hip fracture, Mini Mental Status Examination (MMSE) score ≥13, and able to provide direct or proxy consent were included. Those admitted >30 hours after injury or with regular use of opiates prefracture were excluded. The FNB group received FNB preoperatively using a standardized protocol. The control group received usual care.

Demographic and medical data, opioid use (in oral morphine equivalents), and pain at rest and with activity were collected preoperatively. Pain and opioid use were collected postoperatively as was the number of participants mobilized day 1 postoperatively. We compared group outcomes using linear mixed modeling for continuous and $\chi 2$ tests for categorical variables.

Results: Overall, 73 participants were enrolled (25 Control: 48 FNB). The FNB group was slightly older (mean [standard deviation (SD)] 80.1 [8.7] vs 76.2 [9.2]; P = 0.09) and had more males (21 [42%] vs 5 [22%]; P = 0.09) than the control group. The mean MMSE score for both groups was >24 (P = 0.35 for group comparison), suggesting minimal cognitive impairment of participants. Both groups reported similar pain at rest (p=0.17) and activity (p=0.21), with significant reductions in pain over time (p<0.001 for both). Opioid consumption was nonsignificantly higher and more variable in the control group preoperatively (median [25, 75 quartile] 10.6 [0, 398] vs 7.5 [0, 125]; P = 0.26) and postoperatively (13.1 [0, 950] vs 10.0 [0, 260]; P =0.31). 41 (85%) of FNB participants mobilized on day 1 versus 16 (73%) of control participants (P = 0.21)

Conclusion: Preoperative FNB did not change reported pain between groups with pain reducing over time in both groups. Although not significantly different, opioid consumption was more variable in the control group and more FNB patients successfully mobilized on day 1 postoperatively. Participants with cognitive impairment were not enrolled due to difficulty in obtaining proxy consent. A definitive randomized trial would be feasible and add valuable information about pain management following hip fracture.