The Long-term Effect of Intraoperative Hip Fracture Injections (HiFI) on Function and Patient Reported Outcomes: A Randomized Controlled Trial

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INTRODUCTION: We sought to determine whether a multimodal hip fracture injection (HiFI) given to the fracture site at the time of surgery effected pain, narcotic usage, length of stay (LOS), or ambulation following hip fracture repair. Secondarily, we sought to evaluate if the HiFI affected patient outcomes following discharge from the hospital.

METHODS: This prospective, single-blind, randomized controlled trial included 184 patients treated with operative fixation of hip fractures. Patients were randomized to receive either a HiFI as a hematoma block and peri-incisional injection at the end of the procedure (bupivacaine, morphine sulfate and ketorolac injection) or no injection. Primary outcome measures included inpatient pain scores, American Pain Society Patient Outcome Questionnaire (APS-POQ), morphine milligram equivalents (MME), ambulation, and LOS. Secondary outcome measures included outpatient APS-POQ and Short Musculoskeletal Function Assessment (SMFA) at six weeks after surgery.

RESULTS:

Seventy-five patients were in the treatment group and 109 in the control group. Patients in the HiFI group had a significant reduction in pain and narcotic usage compared to the control group on post-operative day (POD) 0 ($p<0.01$). Patients in the control group had a significantly harder time falling asleep, staying asleep, and experienced increased drowsiness on POD 1 ($p<0.01$). Patient ambulation distance was greater on POD2 ($p<0.01$) and POD 3 ($p<0.05$) in the HiFI group. The control group had significantly more major complications ($p<0.05$). At six-weeks post-op, patients in the treatment group reported significantly less pain, better ambulatory function, less insomnia, less depression, and better satisfaction than the control group as measured by the APS-POQ. The SMFA bothersome index was also significantly lower for patients in the HiFI group, $p<0.05$.

DISCUSSION AND CONCLUSION: Peri-operative HiFI not only improved pain management and ambulation of hip fracture patients while in the hospital, but also led to durable changes in patients' overall pain and health related quality of life following discharge.