

Interscalene Block with Liposomal Bupivacaine versus Continuous Interscalene Catheter in Primary Total Shoulder Arthroplasty

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INTRODUCTION:
Multimodal pain regimens in total shoulder arthroplasty (TSA) now include regional anesthetic techniques. Historically, regional anesthesia for extended postoperative pain control in TSA was administered using a continuous interscalene catheter (CIC). Liposomal bupivacaine is used for its potential for similar pain control and fewer complications compared to indwelling catheters. We evaluated the efficacy of interscalene liposomal bupivacaine (LB) compared to a CIC in postoperative pain control for patient undergoing TSA.

METHODS:

This was a retrospective cohort study at a tertiary care academic medical center including consecutive patients undergoing primary anatomic or reverse total shoulder arthroplasty from 2016 to 2020 who received either single-shot LB or CIC for perioperative pain control. Perioperative and outcomes variables were collected. The primary outcome was postoperative pain control, while secondary outcomes healthcare utilization.

RESULTS:

565 patients were included, with 242 in the CIC cohort and 323 in the LB cohort. Demographics including gender ($p=0.99$) and race ($p=0.81$) were similar between the cohorts. The LB cohort had significantly lower mean pain scores at 24 hours (3.3 vs. 2.2, $p<0.001$) and 36 hours (3.4 vs. 2.8, $p<0.001$) postoperatively. The CIC cohort also showed a higher percentage of patients experiencing a 9 or 10 pain postoperatively (28.9% vs. 17.3%, $p=0.001$) while the LB cohort had a significantly greater proportion of opioid-free patients (31.9% vs. 9.5%, $p<0.001$). Additionally, a greater proportion of CIC patients required opioid escalation to patient-controlled analgesia (7.0% vs. 1.9%, $p=0.002$). The CIC cohort also experienced a greater length of stay (2.3 vs. 2.1 days, $p=0.01$) and more 30- ED visits (5% vs. 1.9%, $p=0.038$).

DISCUSSION AND CONCLUSION:

LB demonstrated lower mean pain scores at 24- and 36-hours postoperatively, and lower rates of severe postoperative pain. Additionally, LB patients showed significantly higher rates of opioid-free pain regimens. These results suggest that as part of a multimodal pain regimen in primary shoulder arthroplasty, LB may provide greater reductions in pain and opioid use when compared to CIC.