Axillary Nerve Blocks Increase Cost of Care and Do Not Decrease Postoperative ED Visits or Opioid Prescription Following CMC Arthroplasty

Patrick Burroughs, Daniel Griffin, Joyce En-Hua Wang, Madison Thompson, Michael William Kessler¹ ¹Dept of Ortho Surgery

INTRODUCTION:

Osteoarthritis affecting the first Carpometacarpal (CMC) joint is common in the US population, and is increasingly treated surgically with CMC arthroplasty. Regional nerve blocks are increasingly used for analgesia in upper extremity surgery, as they are thought to decrease postoperative pain and nausea as well as shorten time in the postoperative recovery unit. The effect of an axillary nerve block on postoperative emergency department (ED) visits and opioid prescriptions has not been studied in a large nationally-representative population undergoing CMC arthroplasty.

Our hypothesis was that perioperative axillary nerve blocks will decrease opioid prescriptions and postoperative ED visits following CMC arthroplasty.

METHODS: Using a HIPAA-compliant nationwide database containing 165 million patients, patients who underwent first CMC arthroplasty and those who received a perioperative axillary nerve block were identified using Current Procedural Terminology codes. These patients were matched 1 : 1 on the basis of age, gender, and Elixhauser Comorbidity Index. These groups were followed postoperatively, and the incidence of ED visits and postoperative opioid prescriptions (measured as milligram morphine equivalent – MME) was recorded. Statistics included Welch's T-test, Fisher's Exact test, and Mann-Whitney U test for analysis of non-parametric data, where appropriate.

RESULTS: 168,214 patients who underwent CMC arthroplasty between 2010 and 2022 were matched, yielding two cohorts of 9,375 patients (76.6% female, age 61.3 ± 8.4 years). There was a significantly increased cost of the episode of care in patients who received an axillary nerve block: \$2,698.00 (Q1 \$1,975.00 - Q3 \$7,622.00) vs. \$1,538.00 (Q1 \$715.00 - Q3 \$3,031.00); (p < 0.0001). When comparing patients who received an axillary nerve block to those who did not, patients with a block had significantly more ED visits in the seven days following surgery 203 (2.2%) vs. 162 (1.7%); (p = 0.0343) and increased opioid prescriptions (MME per day: 79.2 \pm 60.7 vs. 77.0 \pm 64.3; p = 0.0015) in the fourteen days following surgery.

DISCUSSION AND CONCLUSION:

Perioperative axillary nerve blocks are increasingly utilized in patients undergoing first CMC arthroplasty. When comparing matched, nationally representative cohorts of patients who received an axillary nerve block to those who did not receive a block, there was a significant increase in cost of care, no decrease in postoperative opioid prescriptions, and a statistically significant increase in ED visits in the immediate postoperative period.