

Should We Block the Intercostobrachial Nerve: Incidence of Axillary Pain After Shoulder Surgery

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BACKGROUND

- Shoulder surgery has been performed to treat and relieve pain, but many arthroscopies have been reported to be associated with chronic postsurgical pain.
- Interscalene block → lower pain criteria scores (visual analog scale + morphine intake) [1].
- Sensory innervation of the axilla comes from the intercostobrachial (ICB) nerve.
- Axillary pain after shoulder surgery can occur even with well-working interscalene blocks [2] – potential links with anterior port placement (Image 1) [3] and can increase opioid use [4].
- Postoperative ICB nerve block performance may be difficult.

PURPOSE/AIMS/HYPOTHESIS

- Retrospective, single-institution study that seeks to find the incidence of axilla pain after shoulder surgery.
- Hypothesis: Incidence for axillary pain post-shoulder surgery will be very low, at 1-5%.

METHODS

- Chart review in EPIC on all patients who had undergone shoulder surgery at the University of Kansas Health System between 1/1/22 and 12/31/22.
- Data analyzed included date of surgery, surgical intervention, age, postoperative pain, and analgesic use.
- The primary outcome was the **presence of pain in the axilla** immediately after surgery.
- The patients were then grouped into patients with pain in the axilla and patients without.
- Patients who had a failed brachial plexus block that was repeated were excluded.
- The secondary outcome is **milligram morphine equivalent (MME) of opioids** in the PACU for patients with axilla pain and those without.

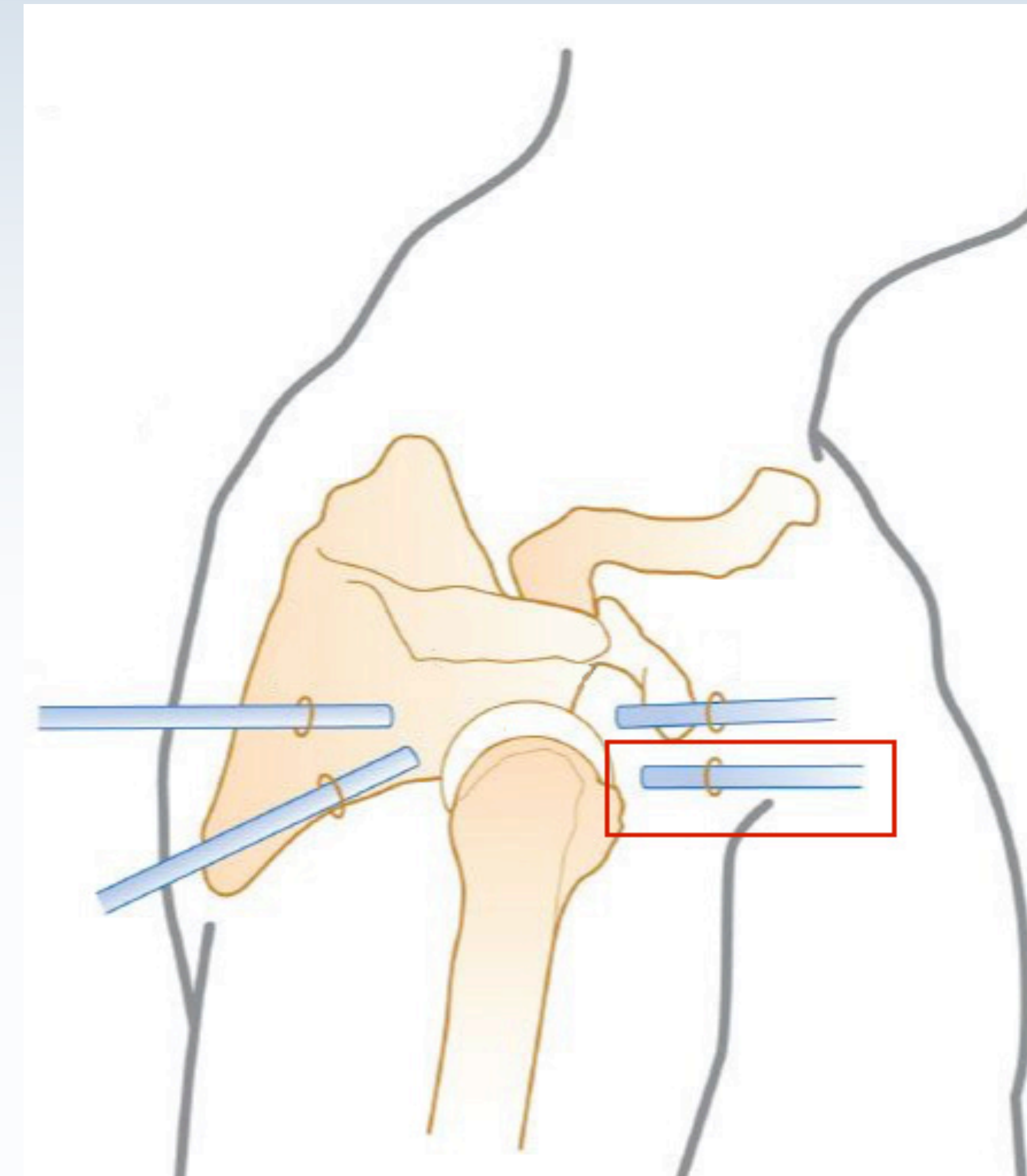


Image 1 Location of low anterior port placement

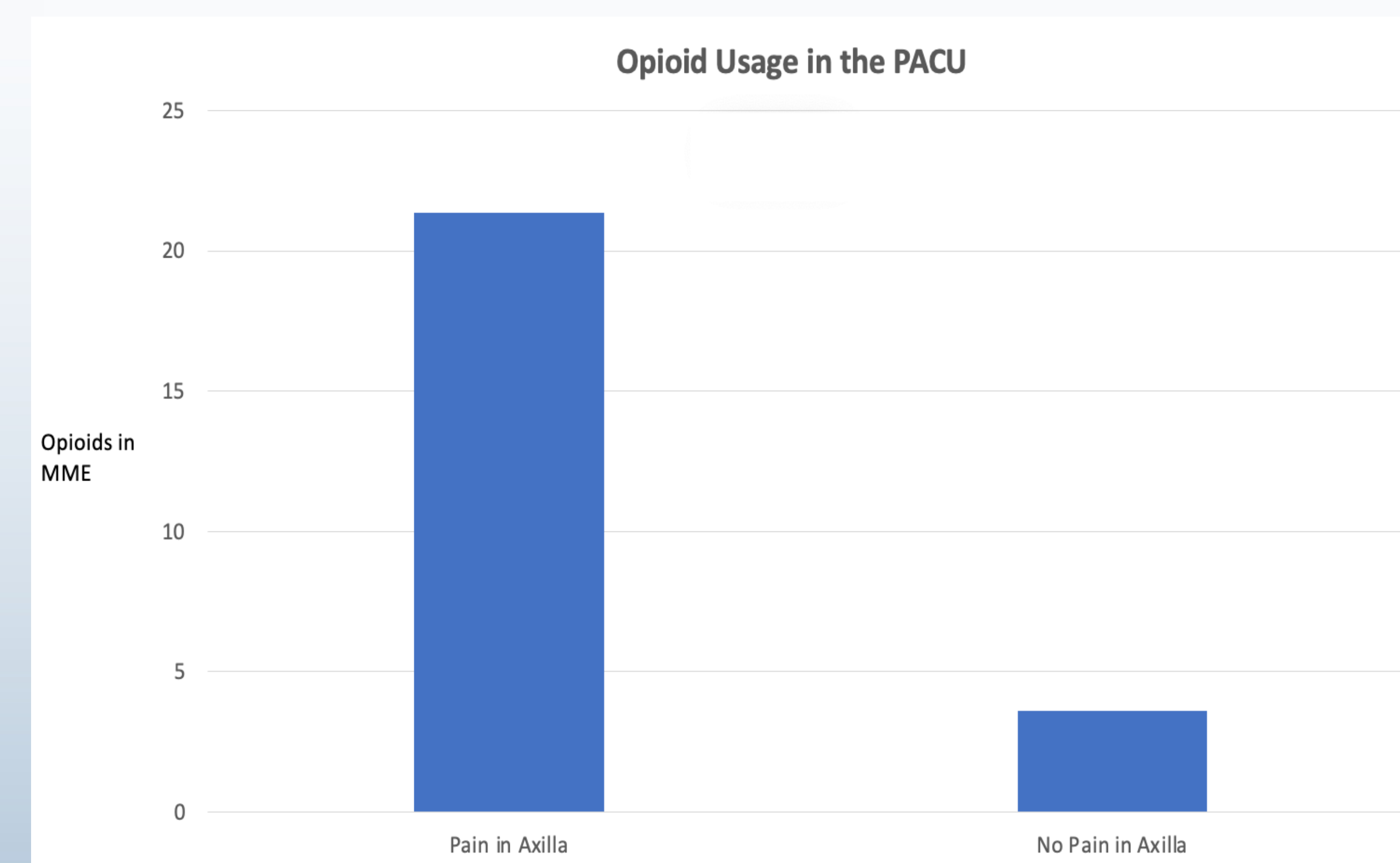


Figure 1 Opioid usage in the PACU in patients with pain in axilla after surgery and patients with no pain in axilla after surgery.

RESULTS

- Out of 147 patients, there were 11 patients with axilla pain (7.4%) in the immediate postoperative period.
- The patients who had axillary pain used a mean of 3.59 MME in the PACU while those who had axilla pain used 21.36 MME ($p < .05$) (Figure 1).

DISCUSSION

- The results indicate a 7.4% incidence of axillary pain in the immediate postoperative period after shoulder surgery.
- Does not provide an adequate justification to modify current anesthetic practice for all shoulder surgeries.
- ICB nerve block may be considered in the preoperative period if the patient is undergoing arthroscopic surgery with an anterior port placement, if the patient is opioid tolerant, has a history of opioid use disorder, or any other reason to minimize opioid use in the postoperative period.

CONCLUSION

- Higher** incidence of post-shoulder surgical axillary pain at our institution given the lack of information in literature.
- Prospective, randomized controlled trials comparing brachial plexus and ICB nerve blocks against brachial plexus blocks alone for patients undergoing shoulder surgery are needed.

REFERENCES

- Stiglitz Y, Gosselin O, Sedaghatian J, Sirveaux F, Molé D. Pain after shoulder arthroscopy: A prospective study on 231 cases. Orthopaedics & Traumatology: Surgery & Research 2011;97(3):260- 266.
- Şahin A, Baran O, Çetin MÜ, Gültekin A, Arar MC. Combined suprascapular nerve block and axillary nerve block approach vs. peri-articular infiltration analgesia for postoperative pain management following arthroscopic shoulder surgery: a randomized clinical trial. Eur Rev Med Pharmacol Sci. 2022
- Neal JM, Gurkan Y. Cutaneous blocks for the upper extremity – landmarks and nerve stimulator technique. NYSORA, Inc. <https://www.nysora.com/cutaneous-blocks-upper-extremity/>
- Martin S, Angst, J David Clark; Opioid-induced hyperalgesia: A qualitative systematic review. Anesthesiology 2006; 104:570–587