

# Effects of Erector Spinae Plane Block and Postoperative Opioid Consumption: A Quality Improvement Study on Narcotic Use in Patients Undergoing Breast Surgery Following Nerve Block Intervention



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## Introduction

- The intricate innervation of the breast and intraoperative tissue disruption contribute to acute or chronic pain a patient may experience postoperatively (Woodworth et al., 2017).
- Although there are multiple analgesic interventions available, pain management after breast surgery remains difficult to achieve (Woodworth et al., 2017).
- Due to a current opioid epidemic that has resulted in the death of 64,000 people, medical institutions have decided to decrease postoperative opioid use and increase multimodal pain modalities (Jones et al., 2018).
- The ESPB has been a successful analgesic intervention for thoracic surgery. There has been a recent implementation of the ESPB for pain management after breast surgery to decrease the amount of opioid necessary for analgesia.
- The purpose of this Quality Improvement study was to examine current research and review the postoperative analgesic effect of ESPB through the amount of opioid consumption, as well as to evaluate the effectiveness and applicability of the findings to SRNA education and practice.

## Methods

- Eligibility Criteria for Literature Review:**
- A recruitment email was sent to all students in the Nurse Anesthesia Program at Union University in Jackson, Tennessee to request volunteers to participate in the implementation process.
  - The recruitment email included the informed consent, a description of the study, and a secured link to an anonymous survey on Survey Monkey.
  - Students who opted to participate completed a self-paced PowerPoint presentation regarding the results obtained from current evidence on opioid use in patients that underwent breast surgery following an Erector Spinae Plane Block.
  - Once the PowerPoint presentation was completed, an anonymous, 4-question survey was completed via Survey Monkey
  - The survey was administered to SRNAs to evaluate the effectiveness and applicability of the findings to SRNA education and practice.

## Results

- Data were collected with a sample size of 12 participants from November 22, 2020 to December 5, 2020.
- The gender and cohort of the participants were not recorded because all responses were submitted anonymously.
- Analysis was performed via frequency analysis, e.g., counting the number of strongly agree, etc., for each question to determine the corresponding question's overall response.
- Data from the anonymous survey showed the results were applicable and effective to SRNA education and practice as evidenced by a Likert average score of 4.75 students that strongly agreed, 7 students that agreed, and 0.25 students that neither agreed nor disagreed.

## Discussion

- The ESPB is a new interfascial nerve block that has been a successful analgesic intervention for thoracic surgery. There has been a recent implementation of the ESPB for pain management after breast surgery to decrease the amount of opioid necessary for analgesia. Implementing the ESPB in the preoperative period may further contribute to multimodal pain modalities and decrease the current opioid crisis.
- A review of current literature indicated that the implementation of an ESPB before breast surgery resulted in adequate postoperative analgesia with a decreased opioid consumption.
- This survey reported the attitude of SRNAs about the applicability and effectiveness of implementing an ESPB to decrease opioid need for postoperative analgesia after breast surgery. Analysis of the survey results found that overall participants agreed the results of the literature review were applicable and effective to SRNA education and practice.

## Conclusion

- The main conclusion of the survey in this study showed SRNAs had a positive attitude toward the applicability and effectiveness of implementing an ESPB to decrease opioid need for postoperative analgesia after breast surgery.
- Further research is recommended along with distribution of the survey to a larger sample size to better determine the effectiveness and applicability of ESPB for breast surgery to SRNA education and practice.
- It is important to assess the attitude of SRNAs toward the implementation of ESPB before breast surgery as pain control is a focal point of clinical practice.

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## References

- Aksu, C., Kuş, A., Yörükoğlu, H. U., Tor Kılıç, C., & Gürkan, Y. (2019). Analgesic effect of the bi-level injection erector spinae plane block after breast surgery: A randomized controlled trial. *The Journal of the Turkish Society of Algology*, 31(3), 132-137. doi:10.14744/agri.2019.61687
- ElHawary, H., Abdelhamid, K., Meng, F., & Janis, J. E. (2019). Erector spinae plane block decreases pain and opioid consumption in breast surgery: Systematic review. *Plastic and Reconstructive Surgery*, 7(2011), e2525. doi:10.1097/GOX.0000000000002525
- Gürkan, Y., Aksu, C., Kus, A., Yörükoğlu, U. H., & Kılıc, C. T. (2018). Ultrasound guided erector spinae plane block reduces postoperative opioid consumption following breast surgery: A randomized controlled study. *Journal of Clinical Anesthesia*, 50, 65-68. doi:10.1016/j.jclinane.2018.06.033
- Ivanusic, J., Konishi, Y., & Barrington, M. J. (2018). A cadaveric study investigating the mechanism of action of erector spinae blockade. *Regional Anesthesia and Pain Medicine*, 43(6), 567-571. doi:10.1097/AAP.0000000000000789
- Jones, M. R., Viswanath, O., Peck, J., Kaye, A. D., Gill, J. S., & Simopoulos, T. T. (2018). A brief history of the opioid epidemic and strategies for pain medicine . *Pain and Therapy*, 7(1), 13-21. doi:10.1007/s40122-018-0097-6
- Kumar, A., Hulsey, A., Martinez-Wilson, H., Kim, J., & Gadsden, J. (2018). The use of liposomal bupivacaine in erector spinae plane block to minimize opioid consumption for breast surgery: A case report. *A&A practice*, 10(9), 239–241. doi:10.1213/XAA.0000000000000674
- Veiga, M., Costa, D., & Brazão, I. (2018). Erector spinae plane block for radical mastectomy: A new indication?. *Revista Espanola de Anestesiologia y Reanimacion*, 65(2), 112-115. doi:10.1016/j.redar.2017.08.004
- Woodworth, G. E., Ivie, R. M. J., Nelson, S. M., Walker, C. M., & Maniker, R. B. (2017). Perioperative breast analgesia: A qualitative review of anatomy and regional techniques. *Regional Anesthesia and Pain Medicine*, 42(5), 609-631. doi:10.1097/AAP.0000000000000641