

CORRESPONDENCE

Open Access



Erector spinae plane block versus paravertebral block in breast surgeries

Raghuraman M. Sethuraman*

Abstract

This article (Correspondence) is in response to the recently published study by Elewa et al. in *BMC Anesthesiology* that compared the erector spinae plane block (ESPB) versus paravertebral block (PVB) regarding postoperative analgesic consumption following breast surgeries. I greatly appreciate the authors for publishing this study which is one among a very few studies available on this topic. I wish to present my reflections on this article as well as add a few more points on this topic.

Keywords: Erector spinae plane block, Paravertebral block, Modified radical mastectomy

Dear Editor,

I read with great interest the recently published study that compared the erector spinae plane block (ESPB) vs paravertebral block (PVB) for modified radical mastectomy (MRM) procedures [1]. I congratulate Elewa et al. [1] for this wonderful study that is one among the very few studies comparing these 2 regional techniques in breast surgeries and wish to add a few more points.

Elewa et al. [1] concluded that ESPB and PVB were equally effective in reducing morphine consumption and stated in the discussion section that this “potentially stems from its ease of performance with no major technical difficulties compared with the PVB and the widespread cutaneous sensory block by the ESPB may represent another mechanistic explanation of the present findings”. However, I believe that both these techniques provide almost similar sensory coverage for breast surgeries as observed in the current study by Elewa et al. [1]. PVB does not cover supraclavicular nerves, pectoral nerves, or other brachial plexus nerves [2]. ESPB, which

is considered a technical modification of PVB (“Back-door” entry to PVB [3]), also does not cover these nerves if performed at the mid-thoracic level as is commonly practiced for breast surgeries. The exact mechanism of action of ESPB is still “elusive” [3] because of its complexities that involve multidirectional spread of the injectate [4]. The main advantage of ESPB is that it is easier to perform and safer when compared to PVB, hence; does not require much expertise. However, Elewa et al. [1] incorrectly stated that “ESPB can be utilized in low-resourced facilities” as the resources (ultrasound machine, probes, needles) required are the same for both and only the level of expertise required is lesser for ESPB.

Although a few previous studies concluded that both ESPB and PVB were equally effective as mentioned by Elewa et al. [1], Swisher et al. [5] observed that PVB was superior to ESPB in non-mastectomy breast surgeries. Swisher et al. [5] stated that the reasons for the different conclusions between their study and the previous study by Gürkan et al. [6] (published in 2020 not in 2017 as stated by Elewa et al. [1]) were mainly the type of surgeries, block technique, volume and concentration of local anesthetic used. Swisher et al. [3] specifically stated the PVB technique adopted by Gürkan et al. [6] appeared to be “more lateral” rather than just lateral to the lamina at the level of the transverse process. Another study (retrospective) by Aoyama et al. [7] also observed that ESPB

This comment refers to the article available at: <https://doi.org/10.1186/s12871-022-01724-3>.

*Correspondence: draghuram70@gmail.com

Department of Anesthesiology, Sree Balaji Medical College & Hospital, BIHER, #7, Works Road, New Colony, Chromepet, Chennai 600044, India



© The Author(s) 2022. **Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>. The Creative Commons Public Domain Dedication waiver (<http://creativecommons.org/publicdomain/zero/1.0/>) applies to the data made available in this article, unless otherwise stated in a credit line to the data.

was associated with lesser dermatomal coverage besides lack of consistent sensory blockade when compared to PVB in breast surgeries.

Elewa et al. [1] mentioned in the discussion section that there were no significant differences between the ESPB and PVB for postoperative analgesia in breast surgeries as per a recent systematic review and meta-analysis and cited reference # 26 for that. However, that referenced study by Schnabel et al. [8] included only PVB and was published in 2010 hence, no possibility of comparing it with ESPB, as this technique was described only in 2016. Elewa et al. [1] could have cited the meta-analysis by Weng et al. [9], published in 2021, for that statement.

Abbreviations

ESPB: Erector spinae plane block; PVB: Paravertebral block; MRM: Modified radical mastectomy.

Acknowledgements

Nil.

Author's contributions

Raghuraman M Sethuraman—This author [only one] helped to critically analyze the article published and other related references and drafted the manuscript as a “Correspondence” category. The author read and approved the final manuscript.

Funding

None.

Availability of data and materials

Not applicable.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Competing interests

None.

Received: 22 September 2022 Accepted: 16 December 2022

Published online: 28 December 2022

References

1. Elewa AM, Faisal M, Sjöberg F, et al. Comparison between erector spinae plane block and paravertebral block regarding postoperative analgesic consumption following breast surgery: a randomized controlled study. *BMC Anesthesiol*. 2022;22:189. <https://doi.org/10.1186/s12871-022-01724-3>.
2. Woodworth GE, Ivie RMJ, Nelson SM, Walker CM, Maniker RB. Perioperative breast analgesia: a qualitative review of anatomy and regional techniques. *Reg Anesth Pain Med*. 2017;42(5):609–31. <https://doi.org/10.1097/AAP.0000000000000641>. PMID: 28820803.
3. Gadsden J. The erector spinae plane block: the case of the elusive mechanism of action. *Can J Anesth/J Can Anesth*. 2021;68:288–92. <https://doi.org/10.1007/s12630-020-01876-1>.
4. Chin KJ, El-Boghdady K. Mechanisms of action of the erector spinae plane (ESP) block: a narrative review. *Can J Anesth/J Can Anesth*. 2021;68:387–408. <https://doi.org/10.1007/s12630-020-01875-2>.

5. Swisher MW, Wallace AM, Sztain JF, Said ET, Khatibi B, Abanobi M, et al. Erector spinae plane versus paravertebral nerve blocks for postoperative analgesia after breast surgery: a randomized clinical trial. *Reg Anesth Pain Med*. 2020;45:260–6.
6. Gürkan Y, Aksu C, Kuş A, et al. Erector spinae plane block and thoracic paravertebral block for breast surgery compared to IV-morphine: a randomized controlled trial. *J Clin Anesth*. 2020;59:84–8.
7. Aoyama Y, Sakura S, Tsuchiya R, Wittayapairoj A, Saito Y. Erector spinae plane block and paravertebral block for breast surgery: a retrospective propensity-matched noninferiority trial. *J Pain Res*. 2020;23(13):2367–76. <https://doi.org/10.2147/JPR.S265015>. PMID:33061552;PMCID:PMC7520143.
8. Schnabel A, Reichl SU, Kranke P, Pogatzki-Zahn EM, Zahn PK. Efficacy and safety of paravertebral blocks in breast surgery: a meta-analysis of randomized controlled trials. *Br J Anaesth*. 2010;105:842–52.
9. Weng WT, Wang CJ, Li CY, Wen HW, Liu YC. Erector spinae plane block similar to paravertebral block for perioperative pain control in breast surgery: a meta-analysis study. *Pain Physician*. 2021;24(3):203–13.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions

