




In reply: Regional anesthesia techniques for surgical anesthesia in breast cancer procedures

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To the Editor,

We read with great interest the letter by Dr. Sethuraman,^[1] which commented on our recent article describing the results of a historical cohort study to compare patients undergoing breast cancer surgery before vs during the COVID-19 pandemic.^[2] Patients in the pre-pandemic cohort all had their surgery under general anesthesia (GA) (106/106), while 78/104 patients in the intrapandemic cohort had their surgery solely under paravertebral blocks (PVBs) and sedation. We found that time to readiness for hospital discharge was significantly lower in patients who received PVBs (119 min vs 191 min; $P < 0.001$) as was the incidence of postoperative nausea and vomiting (3% vs 11%; $P = 0.03$) and postanesthesia care unit durations of stay (29 min vs 46 min; $P < 0.001$).

Dr. Sethuraman states that PVB alone would be inadequate for all breast cancer procedures because PVBs do not cover supraclavicular nerves, pectoral nerves, or other brachial plexus nerves. Dr. Sethuraman is correct when he states that supraclavicular nerves and pectoral nerves are not covered by PVBs. Nevertheless, the territories innervated by these specific nerves are not in the surgical area when conducting a partial, a radical, or a total mastectomy.^[3] The area covered by the

supraclavicular nerves is high up in the thorax, far from the breast.^[4,5] As for the pectoral nerves, the breast is anterior to the pectoral muscle.^[4,5] Perioperatively, some pectoral contractions may occur because of cautery, but the possible associated discomfort felt by patients is easily alleviated with minimal sedation. In our experience, there is no need to perform a PECS block or a cervical plexus block in addition to PVB for mastectomy as the latter produces more than satisfactory surgical conditions.^[2,3] Moreover, these blocks would often necessitate a change in positioning (either from sitting or ventral to dorsal) and large doses of local anesthetic, making such procedures undesirable for patients and anesthesiologists. We would further add that in our regular practice, we also perform breast reductions, breast augmentations, mastopexies, and breast expander changes solely under PVB and sedation, with excellent surgical conditions and patient satisfaction. Moreover, patients who return for a subsequent breast surgery demand PVBs. Lastly, as for the brachial plexus nerves, PVBs can be easily performed at the T1–T2 level, which covers part of the brachial plexus to block the axilla region. Again, this approach provides more than satisfactory surgical conditions for procedures in the axillary territory.

Dr. Sethuraman also challenged our statement concerning our increased efficiency, claiming we regularly completed up to eight mastectomies a day in a single operating room (OR). We would take this opportunity to add that with the support of the OR personnel, we were able to find additional strategies to increase this number even more. If we could have thoroughly analyzed the OR time consumption and increased efficiency in our study, we would have. Nevertheless, early on in the process, we quickly came to

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the conclusion that analyzing such data would be challenging considering the major heterogeneity between surgical cases, surgeon practice, booking changes, and induction room use among other things—and by the lack of available data to analyze. We would be more than happy to read about such data in a future peer-reviewed article, but we considered that providing readers with a statement about our increased efficiency with a relatable number of patients per day would help share our experience even if we were not able to conduct a proper cost-efficiency analysis.

Lastly, for the calculations in Table 2, in both cohorts, we divided our patients between GA and regional anesthesia, and calculated the percentages on the basis of the corresponding denominators: 24 for GA and 80 for regional anesthesia. We are grateful to Dr. Sethuraman for drawing attention to the inadvertent insertion in two instances of the denominators for the entire pre-pandemic and post-pandemic cohorts, regardless of anesthetic modality, instead of those reflecting patients receiving a particular anesthetic modality. This evidently occurred during the process of editing and production of our article; it should correctly read 5/24 (21%) for GA with PVB and 78/80 (98%) for paravertebral blocks under the “regional anesthesia and sedation” category. The block failure rate was 3/80 (4%). A corresponding correction appears in this issue of the *Journal*.^[6]

We would like to thank Dr. Sethuraman for his comments on our study. While no study is perfect, our historical cohort study has inherent limitations as discussed in the original article. A prospective study design might provide additional answers to Dr. Sethuraman’s questions; nevertheless, we believe that our results provide interesting answers and insights. We agree that further research is needed, and we invite Dr. Sethuraman to contribute other studies to help answer some of the outstanding questions.

Conflicts of interest The authors of this study do not have any conflicts of interest to declare.

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