would be a valuable goal, both to preserve the platelet donor pool and optimize the effectiveness of transfusion. However, a trial that states feasibility as an objective but only reports the intervention's effect (in a likely underpowered manner) seems unlikely to confidently inform a future definitive trial.

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Competing Interests

The authors declare no competing interests.

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This letter was sent to the corresponding author of the original article referenced above, with an invitation to submit a reply for publication. The author did not respond to the invitation.
—Evan D. Kharasch, M.D., Ph.D., Editor-in-Chief

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Pectoral Nerve Blocks for Breast Augmentation Surgery: Comment

To the Editor:

I read the recently published article on pectoral nerve blocks (PECS) for breast augmentation procedures with immense interest.[1] I greatly appreciate the authors for analyzing the efficacy of PECS blocks on breast augmentation procedures and congratulate them for publishing this wonderful study on this topic that has only a few studies in the literature. I wish to present my reflections on it.

Aarab *et al.*[1] mentioned that theirs is the first study to provide PECS blocks after general anesthesia but before surgery, thereby facilitating sensory block during surgery itself. However, to my knowledge, there are few more studies that have provided PECS blocks before the commencement of surgical procedure (breast augmentation). For instance, in a recently published study by Schuitemaker *et al.*,[2] surgery of the first breast (right-side) was started 20 min after the completion of PECS block plus serratus plane block. In another recently published study also,[3] the PECS I block was advocated before surgery. Indeed, Desroches *et al.*[3] performed the PECS I block before the induction of general anesthesia itself. In addition, they found that PECS I block is not superior to sham block for providing postoperative pain relief when the patients were made their own control too for one side *versus* the other side.[3] In contrast to these studies, a study released in December 2020 by Ciftci *et al.*[4] compared the preoperative *versus* postoperative administration of PECS I block in breast augmentation and concluded that preoperative PECS I was superior to postoperative PECS I and the control group. Furthermore, PECS blocks were performed either preoperatively or intraoperatively (after induction of general anesthesia but before surgery) in many studies according to a meta-analysis by Hussain *et al.*[5] involving various breast cancer procedures.

Aarab *et al.*[1] used the phrase "combined PECS I and PECS II blocks," which is incorrect because PECS II block includes both PECS I (a pectoral component; *i.e.*, injection between pectoralis major and minor) and an additional component (subpectoral component; *i.e.*, injection between pectoralis minor and serratus anterior).

Last but not least, the references are misquoted in a few places in the article. In the Introduction, while referring to the meta-analysis by Hussain *et al.*[5] that concluded PECS blocks were not inferior to paravertebral blocks, Aarab *et al.*[1] quoted references 17 to 20. However, these references do not match that sentence. Similarly, in the Discussion, while referring to Hussain *et al.*[5] again, Aarab *et al.*[1] mistakenly

cited the quote as coming from reference 18 instead of from reference 16. In addition, in the Results, reference 31 was quoted for French law regarding exclusion criteria. However, it should have been reference 33.

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—Evan D. Kharasch, M.D., Ph.D., Editor-in-Chief

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Pectoral Nerve Blocks for Breast Augmentation Surgery: Comment

To the Editor:

By a randomized, double-blind, dual-centered controlled trial in 73 adult female patients undergoing aesthetic breast augmentation surgery under general anesthesia, Aarab *et al.*[1] showed that compared to multimodal analgesic regimen alone, pectoral nerve blocks combined with multimodal analgesia significantly improved postoperative pain control and decreased total opioid consumption over the first 5 postoperative days. In addition to the limitations described by the authors in the discussion, however, we note several issues in the results of this study that deserve further clarification.

First, a numerical rating scale score of 3 or less is generally considered as satisfied pain control.[2] In this study, other than 0.5 h after extubation, the mean numerical rating scale scores at other time points in the early postoperative period were 3 or less, indicating that most of patients have a satisfied pain control. Patient satisfaction was very good in both groups. In this case, it is difficult for readers to determine whether early postoperative pain control improved by adding pectoral nerve blocks to multimodal analgesia should be considered clinically important.

Second, between-group differences in opioid consumption were of questionable clinical significance. Differences in milligram oral morphine equivalents were 3 mg in the first 6 h after extubation and 10.5 mg from 6 to 24 h postoperatively (total, 13.5 mg 0 to 24 h postoperatively, equivalent to about 4.5 mg of intravenous morphine).[3] Although the recommendation of 10 mg of intravenous morphine equivalents per 24 h as the minimal clinically important difference was published[4] well after the study by Aarab *et al.*[1] was designed and performed, the 4.5-mg difference is nonetheless much less. In addition, the total between-group difference from postoperative days 1 through 5 was 21-mg oral morphine equivalents. Given that duration of pectoral nerve block is limited and the total between-group difference in oral morphine consumption was very small, we question the clinical value of this opioid sparing.

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This letter was sent to the corresponding author of the original article referenced above, with an invitation to submit a reply for publication. The author did not respond to the invitation.—Evan D. Kharasch, M.D., Ph.D., Editor-in-Chief

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N-Acetylcysteine and Postoperative Atrial Fibrillation: Comment

To the Editor:

We read with interest the recent work of Amar *et al.*,[1] with the editorial by Karamnov and Muehischlegel[2] which demonstrated the feasibility and safety of an antioxidant, *N*-acetylcysteine, for the prevention of atrial fibrillation after thoracic surgery. We agree with Karamnov and Muehischlegel[2] that an anti-inflammatory approach using antioxidants reduces NADPH oxidase activity for postoperative atrial fibrillation, a plausible strategy for prophylaxis.[2] However, we have additional potential explanations for why there was no significant difference in the occurrence of postoperative atrial fibrillation in patients who did and did not receive perioperative *N*-acetylcysteine in the study of Amar *et al.*[1]

N-Acetylcysteine is an L-cysteine prodrug and glutathione precursor that, via L-cysteine conversion, helps scavenge oxygen-derived free radicals and binds metal ions into complexes, resulting in oxidative stress reduction.[3] However, as we showed in a previous study, which was done in rats and focused on the mesenteric artery, L-cysteine induces an oxygen-derived free radical, superoxide production mediated by NADPH oxidase in a high 95% oxygen condition.[4] In contrast, it does not cause redox derangement in a 50% oxygen mixture.[4] Therefore, the high oxygen exposure under one-lung ventilation during major thoracic surgery seems to cancel L-cysteine's beneficial role as a radical scavenger and to add oxidative stress. Nevertheless, we do not see any information regarding the inspiratory oxygen fraction in the work of Amar *et al.*,[1] and thus, *N*-acetylcysteine combined with a high oxygen condition during thoracic surgery may contribute to the results shown by Amar *et al.*[1] Also, previous studies indicated that a membrane-bound NADPH oxidase is the primary source of oxidative stress in human atrial fibrillation,[5] while inflammation (or cytokines) activates several subtypes of NADPH oxidase.[6] However, there are no clinically specific inhibitors of membrane-bound NADPH oxidase.

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