



# Assessing Postoperative Benefits of a Nerve Block: Study Design is Critical [Letter]

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## Dear editor

By a prospective, randomized, double-blind, placebo-controlled trial including 68 female patients with elective unilateral modified radical mastectomy, Rao et al<sup>1</sup> assessed the effect of preoperative ultrasound-guided thoracic paravertebral block (TPVB) on postoperative quality of recovery and showed that TPVB enhanced the quality of recovery and improve postoperative analgesia. Although the valuable study has been actualized, there are several issues in the design and results of this study that deserve further discussion and clarification.

First, two groups used a standard multimodal postoperative analgesic regimen including regular intravenous parecoxib 40 mg every 12 h and patient-controlled intravenous analgesia (PCIA) with morphine. Furthermore, intravenous morphine 2 mg was given for rescue analgesia by the PCIA device, when pain visual analog scale (VAS) score was more than 3 cm or the patient required. Then, the quality of recovery was measured by the global QoR-40 scores at 24 h following surgery. However, we noted that postoperative pain VAS scores at rest and on movement within 12 h following surgery and AUCs of postoperative pain VAS scores over 24 h after surgery were significantly decreased in the TPVB group compared with the control group, indicating that control patients experienced more serious postoperative pain, especially in active state. The postoperative pain is not only a main item of the global QoR-40 scores, but also can significantly worsen the scoring of other items of the global QoR-40 scores, such as physical comfort, emotional status and physical independence after surgery.<sup>2</sup> Thus, we consider that the difference in the postoperative quality of recovery between groups in this study is mainly due to an inferior postoperative analgesia of control patients. The available evidence indicates that nerve blocks do not provide additional benefits on the quality of recovery, when the same adequate postoperative analgesia is achieved by a multimodal analgesic regimen in the control patients undergoing breast surgery.<sup>3,4</sup> Thus, we suggest that the primary endpoint should be measured with a comparable pain control to avoid potential bias if the study is designed to assess the benefits of a nerve block on postoperative recovery or outcomes.

Second, median of intravenous milligram morphine consumption in the first postoperative 24 h was significantly decreased in the TPVB group. However, the readers were not provided absolute decrease in 24-h intravenous milligram morphine consumption in the TPVB group compared with the control group, as performed in a previous study.<sup>5</sup> Thus, it was unclear whether absolute decrease in

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24-h intravenous milligram morphine consumption in the TPVB group exceeded the recommended minimal clinically important difference in the literature, ie, an absolute reduction of 10 mg intravenous morphine.<sup>6</sup>

Finally, this study showed that the TPVB was associated with decreased intraoperative and postoperative opioid consumptions, improved quality of recovery and postoperative analgesia, lowered incidence of postoperative nausea and vomiting, shortened length of PACU stay and enhanced patient satisfaction. These are ideal for the successful use of enhanced recovery after surgery protocols. However, this study did not observe the main quality outcomes of enhanced recovery after surgery protocols, such as the time to first ambulation, length of hospital stay, rates of transfer to acute care hospital, readmission, and others.<sup>7</sup> Because of this limitation, an important issue that this study cannot answer is whether improved postoperative quality of recovery provided by the TPVB can be really translated into the clinical benefits of patient outcomes.

## Disclosure

The authors report no conflicts of interest in this communication.

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