

## Effect of rhomboid intercostal nerve, serratus plane, and paravertebral block on quality of recovery after modified radical mastectomy: a clinical randomized controlled trial

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**Background:** Nerve blocks are one of the most important methods of postoperative analgesia in breast cancer surgery. We used a randomized controlled clinical trial to compare the effects of rhomboid intercostal nerve block(RIB), serratus plane block(SPAB), and paravertebral block(PVB) on the quality of recovery and postoperative analgesia in modified radical mastectomy.

**Methods:** 32 breast cancer surgery patients were randomized 1:1:1 into three groups. 0.375% ropivacaine 20ml for ultrasound-guided RIB(RIB group, n=44), SPAB(SPAB group, n=44) and PVB(PVB group, n=44). The primary outcome was QoR-40 scores at postoperative 24 hours. The second outcomes were postoperative numerical rating scale(NRS) scores, intraoperative sufentanil consumption, number of intraoperative users of sufentanil, postoperative tramadol and hydromorphone consumption, incidence of adverse events and average length of stay.

**Results:** The postoperative 24 hours QoR-40 scores of RIB (median: 186; interquartile range: 177, 190.5) and PVB (median: 186.5; interquartile range: 176.25, 190.5)groups had higher than SPAB group (median: 168; interquartile range: 163.25, 172) ( $P<0.001$ ). Figure 1. showed QoR-40 scores. In addition, intraoperative sufentanil consumption( $P<0.001$ ), number of intraoperative sufentanil users( $P<0.001$ ), and post-intubation NRS scores( $P=0.01$ ) of the RIB and PVB groups were significantly lower than SPAB group, but there was no statistically significant difference between the RIB and PVB groups. There was no statistically significant difference between the three groups in postoperative 2 hours NRS scores, 24 hour NRS scores, 48 hours NRS scores, postoperative tramadol consumption, adverse events, and average length of stay. Figure 2. showed postoperative NRS scores.

**Conclusion:** RIB, PVB improves the quality of postoperative recovery, reduces intraoperative opioid use, and improves early postoperative analgesia compared to SPAB. RIB may be one of the best alternatives to PVB as a fascial plane block.

**Keywords:** Rhomboid intercostal nerve block; Serratus plane block; Paravertebral block; Quality of recovery; Postoperative pain; Breast cancer surgery

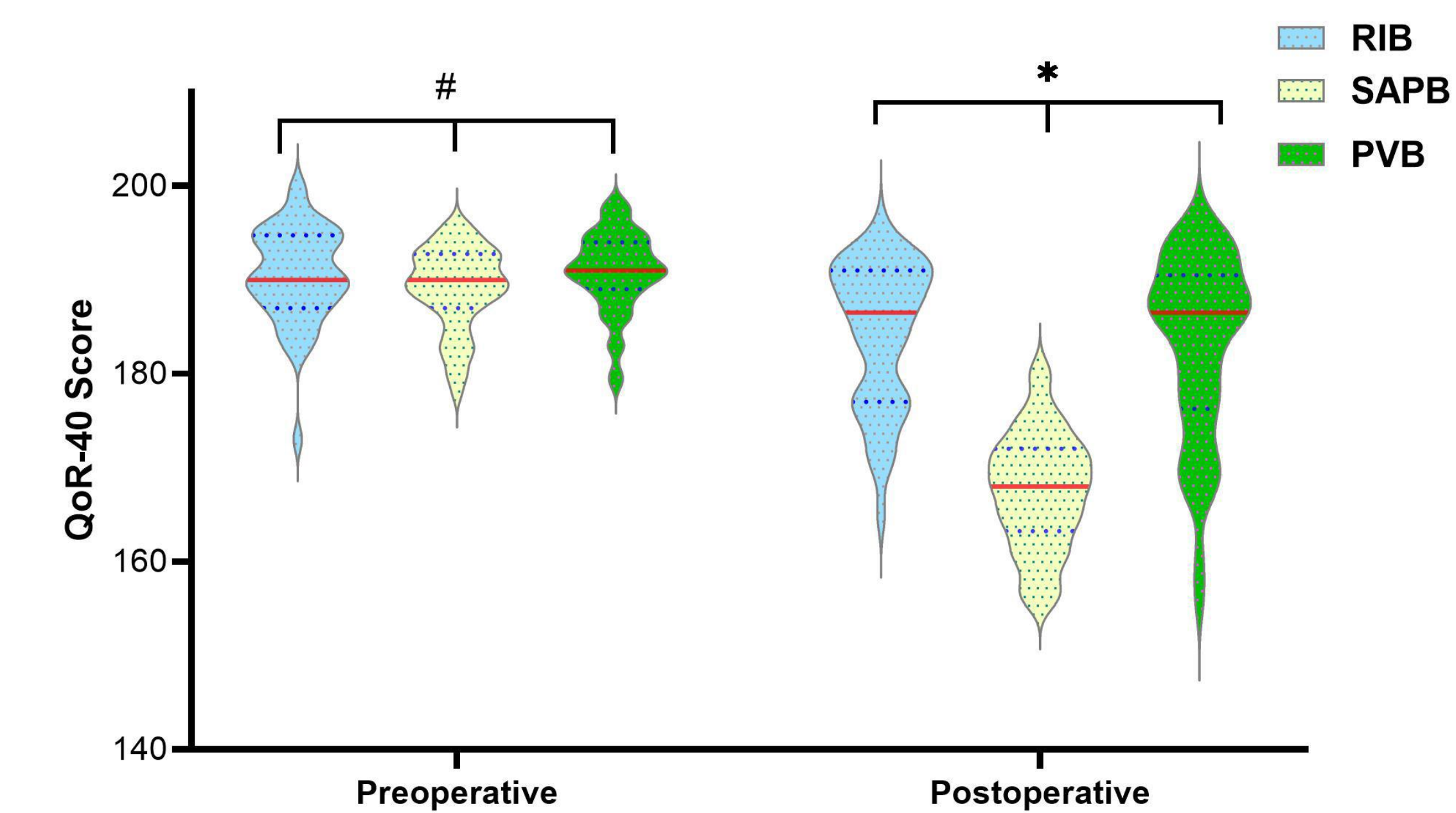


Figure 1. QoR-40 scores

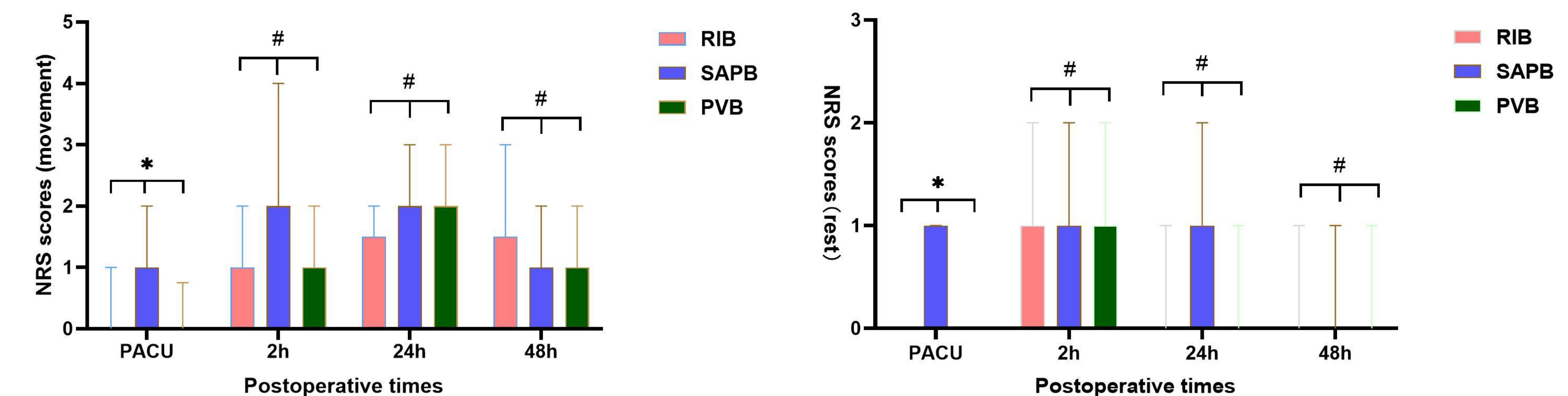


Figure 2. Postoperative 48h NRS scores