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Commentary: Liposomal bupivacaine intercostal nerve block. All that is gold does not glitter

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CENTRAL MESSAGE

Enhanced recovery protocols should include preemptive intercostal nerve blockade as part of the overall management of postoperative thoracic pain. Using generic bupivacaine may be equally effective as extended-release liposomal bupivacaine.

Postoperative thoracic pain (PTP) is a frequently valid concern, with up to 50% of patients describing PTP for more than 12 months.[1] Untreated, PTP may cause decreased mobility, pulmonary morbidities, and chronicity.[2] This may result in longer hospital stays and higher healthcare costs.

The pathophysiology of PTP is multifactorial, although intercostal nerve stimulation is certainly the main culprit. Other contributing factors include intercostal neuroma, rib fracture, costochondritis, and psychologic influences.[3-5] However, the exact mechanism of PTP is still largely unknown.[6]

Numerous studies have touted the benefits of thoracoscopic surgery compared with conventional thoracotomy regarding PTP-related outcomes.[7,8] Remarkably, thoracoscopy has been associated with rates of chronic pain of 22% to 63%, comparable to thoracotomy.[9,10]

Preemptive analgesia is known to reduce PTP.[11,12] Different modalities have been used, including patient-controlled analgesia, intrapleural analgesia, cryoanalgesia, thoracic epidural block, paravertebral block, intercostal nerve blockade (INB), and others.[13] Each of these has unique advantages and inherent risks. For example, opioids and epidural catheters may induce respiratory, hemodynamic, urinary, and gastrointestinal disturbances.[10]

INB allows faster recovery and less narcotic use.[14] Local anesthetics are effective, safe, and cheap. Liposome-embedded bupivacaine (LEB) was developed to prolong the duration of action from 12 hours to approximately 3 days.[15] It is delivered through a proprietary foam-based system and costs up to 100 times the price of nonliposomal bupivacaine (NLB) (~$3 per dose).[16]

Weksler and colleagues[17] present a randomized controlled trial (RCT) of preemptive INB for minimally invasive lung resection with LEB versus NLB. Both groups had similar postoperative opioid requirement, length of stay, and complications. The article concludes that because there was no difference in pain mitigation, the cheaper NLB should be used. The study is statistically sound, despite its shortcomings of early termination and poor accrual. However, one must ask whether this is a fair conclusion based on a negative trial of only 50 patients. Be that as it may, a second RCT comparing LEB and NLB in sternotomy was also negative,[18] and it is not clear that this agent is advantageous even in other specialties.

Many issues in our field remain controversial because of a paucity of RCTs, and the investigators are commended for undertaking this study. The concept of the article is simple but useful and may serve as an impetus for surgeons to reassess their analgesic regimens. Nevertheless, one wonders why there was no benefit from this often-flaunted drug. Is it that after the initial few hours the benefit of an extended-release anesthetic is less important? Is it that the drug

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may not always have the longer duration effect that is advertised? Is it that thoracoscopic surgery decreases pain in such a way that LEB is less effective? Or is it that the advantages of LEB are not clinically important?

Of course, one must remember that intercostal nociception likely represents only a fraction of the entire perioperative noxious experience. It is more effective to develop comprehensive enhanced recovery protocols and clinical care pathways that include perioperative education and preemptive analgesia to truly improve clinical outcomes and cut costs.

Finally, it is not always the newer, more expensive medicine that offers the best salve for an affliction. When tempted to overlook a tried and true drug simply because it is old and cheap, one may wish to remember the whimsical words of J.R.R. Tolkien.

"All that is gold does not glitter,
Not all those who wander are lost;
The old that is strong does not wither,
Deep roots are not reached by the frost."[19]

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