Journal of Comprehensive Surgery

Letter to the Editor

DOI: 10.51271/JOCS-0071

Rebound pain: the silent complication

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Cite this article as: Çataroğlu CK. Rebound pain: the silent complication. *J Compr Surg.* 2026;4(1):21-22.

Received: 20.10.2025 ◆ **Accepted**: 04.11.2025 ◆ **Published**: 24.02.2026

Keywords: Peripheral nerve block, regional anesthesia, rebound pain

Dear Editor,

Regional anesthesia constitutes a significant portion of daily anesthesia practice. Regional anesthesia encompasses both neuraxial techniques and peripheral nerve blocks. In recent years, there has been a noticeable shift from neuraxial techniques toward the use of peripheral nerve blocks.

Regional anesthesia techniques are known to provide effective postoperative pain control, reduce perioperative opioid consumption, and shorten hospital length of stay. Owing to these advantages, regional anesthesia has become an essential component of multimodal anesthesia and analgesia strategies.[1]

However, in recent years, a clinical phenomenon known as rebound pain has been described, which can negatively affect patient comfort following regional anesthesia. This phenomenon, which occurs after the resolution of the nerve block, has emerged as a clinically relevant problem that may diminish some of the analgesic benefits offered by these techniques.[2]

Rebound pain is characterized as a burning and dull pain that emerges once the nerve block wears off. It has been most commonly reported within 12 to 24 hours after block resolution. The pain may occur at rest or during movement and can last up to 2 hours. Its intensity has been reported to reach 7 or higher on a 10-Point Pain Scale. The incidence varies depending on patient populations, surgical procedures, and block techniques, with reports as high as 50%. Female sex, younger age, and orthopedic procedures such as shoulder and knee surgeries have been identified as risk factors for the development of rebound pain. Moreover, techniques involving blockade of areas with dense nerve distribution, such as the brachial plexus and popliteal fossa, have also been associated with increased risk.[3-5]

Although the pathophysiology of rebound pain has not been fully elucidated, several mechanisms have been proposed, including central sensitization, peripheral hyperalgesia, increased inflammatory mediators, and abrupt offset of local anesthetic effect. Additional factors, such as the pro-inflammatory effects of local anesthetics, mechanical nerve injury, and abnormal spontaneous C-fiber activity, may also play a role.[3,4]

Proactive analgesic strategies should be considered for the effective prevention and management of rebound pain. Initiating systemic analgesics before the expected resolution of the block is recommended to prevent or reduce the severity of rebound pain. Rather than relying on a single analgesic agent, a multimodal analgesia approach-combining nonsteroidal anti-inflammatory drugs, opioids, and acetaminophen-is preferred.[6] In the literature, the addition of adjuvant agents such as dexamethasone and dexmedetomidine to perineural local anesthetics has been shown to be beneficial. Furthermore, systemic administration of dexamethasone, in addition to perineural use, may prolong the duration of the block and reduce the incidence of rebound pain.[7]

The use of peripheral nerve block catheters has also been reported as an alternative approach for some surgical populations. In a study using perineural catheters for interscalene block, both the incidence and severity of rebound pain were reduced.[8] This effect may be attributed to the prolonged maintenance of sensory blockade, allowing enough time for tissue healing and attenuation of the inflammatory response. Moreover, the gradual tapering of continuous local anesthetic infusion may prevent the abrupt resolution of the block, thereby minimizing rebound pain. Although the placement and follow-up of perineural catheters can be challenging, they should be considered-particularly in patients at high risk for rebound pain-to improve postoperative comfort.

In conclusion, rebound pain is an important clinical issue that should not be overlooked in the era of widespread use of peripheral nerve blocks. Increasing anesthesiologists' awareness, providing appropriate preoperative patient counseling, and planning suitable analgesic strategies can help mitigate the negative impact of this complication. Moreover, future studies are warranted to better understand rebound pain and to optimize preventive strategies.

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ETHICAL DECLARATIONS

Informed Consent

Written informed consent was obtained from the patient for the publication of this correspondence and any related clinical details.

Peer Review Process

This letter was externally peer-reviewed.

Conflict of Interest

The authors declare no conflicts of interest.

Financial Disclosure

No financial support was received for the preparation or publication of this letter.

Author Contributions

The author is solely responsible for the conception, data collection, analysis, and writing of this manuscript.

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