

Rebound pain in Ambulatory Orthopedic patients with perineural catheter.

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INTRODUCTION

One side effect of peripheral nerve blocks as an analgesic technique for orthopedic surgery is the sudden onset of disproportionate pain after it ends. This phenomenon is referred to as Rebound Pain (RP). Its incidence varies based on the definition used, but it has been described as affecting 40-60% of patients. Continuous peripheral nerve blocks are believed to reduce its occurrence, but few studies mention it’s incidence.

The primary objective of this study was to assess the incidence of RP in patients undergoing orthopedic surgery who used home perineural catheters, as documented in our prospective postoperative ambulatory REDCap registry. The secondary objective was to identify factors that may be associated with rebound pain in our registry, among those that were available.

METHODS

Our institution's ethics committee approved this study. We reviewed data from our registry covering the period from January 1, 2021, to December 31, 2024. We extracted information from patients who underwent ambulatory orthopedic surgery and had a perineural catheter placed. We defined rebound pain as a patient-reported numeric rating score (NRS) for pain exceeding 7 on a scale of 0 to 10. We excluded patients with chronic pain, those who stayed in the hospital for over 24 hours, and those lost to post-discharge phone follow-up (no data on all 3 days or missing data on day 1 or/and day 2) prior to catheter removal.

RESULTS

We identified 2,348 records of patients who underwent ambulatory orthopedic surgery and had a perineural catheter. Of these, 109 were excluded due to incorrect registration or a history of chronic pain. Additionally, 997 patients were excluded due to missing data. **Of the final 1,242 patients studied, 361 had Rebound Pain (29.07%) per definition throughout 3-day follow-up.**



50th Annual Regional Anesthesiology & Acute Pain Medicine Meeting

May 1-3, 2025 | Orlando, FL



In patients undergoing Ambulatory Orthopedic Surgery, Rebound Pain incidence is lower with CPNB than reported with single-shot nerve blocks.

	Overall	Day 1	Day 2	Day 3
Total Patients (n)	1242	1242	1057	831
Patients with Rebound Pain (RP) (n)	361	167	112	82
Patient with catheters displacement (n)	159 (of which 27 had RP)	21 (of which 3 had RP)	138 (of which 24 had RP)	
Rebound Pain frequency per day (%)	29.07%	13.45%	10.60%	9.87%

The incidence decreased from day to day
Female patients experienced a higher rate of rebound pain but did not reach statistical difference
Upper-limb surgery had a higher rate than lower-limb surgery.
Younger patients experienced a higher rate of RP.

DISCUSSION

Few studies and incorrect methodology have hindered our understanding of the possible benefits of continuous peripheral nerve block on rebound pain.

This report, although retrospective, may shed light on this issue. The risk of experiencing pain greater than 7 (an operational definition of rebound pain) throughout a 60-hour ambulatory PNB reached 29.07%. This is lower than the published rebound pain frequency for single-shot blocks without adjuvants but perhaps similar to that of local anesthetic with dexamethasone as an adjuvant.

From our previous report on cuff repair surgery, this is larger than expected, most probably influenced by the large number of patients excluded. Patients with severe pain usually contact our 24hr pain phone number and are registered in REDCap. Therefor **if only patients completely loss to follow-up were excluded our incidence of RP would drop to 23%**

GENDER	Male	Female
Rebound Pain (any day)	150	211
Total (n)	564	678
Frequency	26.60%	31.12%

p-value
(Chi-Square Test) = 0.08

AGE	0-20	21-40	41-60	61+	Total
Rebound Pain (any day)	33	95	132	70	330
Total (n)	72	293	502	283	1150
Frequency	45.8%	32.4%	26.3%	24.7%	

p-value
(Chi-Square Test) <0.01

LIMB	Upper Limb	Lower Limb
Rebound Pain (any day)	163	198
Total (n)	506	736
Frequency	32.21%	26.90%

p-value
(Chi-Square Test) = 0.04

References

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