

The Effect of Multidisciplinary Education on Rebound Pain: A Retrospective Study in Primary Total Knee Arthroplasty Patients



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Background

- Regional anesthesia has been shown to decrease acute pain and post-operative opioid consumption ¹
- 40-50% of patients with single-shot nerve blocks report “rebound pain,” defined as acute worsening of pain with a pain rating score of $\geq 7/10$ within 24 hours of receiving a nerve block ^{2, 3}
- Severe acute pain associated with chronic post-surgical pain and increased opioid consumption ⁴
- Postoperative patient education and preemptively treating rebound pain may decrease pain severity

Aim

- To assess the impact of a multidisciplinary educational intervention aimed at reducing rebound pain (RP) in patients undergoing a primary total knee arthroplasty (TKA) who received a preoperative or intraoperative single shot adductor canal nerve block (ACB)

Methods

Educational intervention

- In-person evening rounds with orthopedic surgery resident, patient's nurse, and anesthesia resident on the acute pain service to that patient's nerve block will wear off and patient will require pain medication to prevent rebound pain
- Anesthesia resident provided education to the patient about pain plan after the rounding

Retrospective cohort study

- Inclusion criteria: primary TKA (CPT code 27447), received a preoperative or intraoperative single shot ACB, not day surgery
- Educational intervention group: March 2019 – March 2020
- Non-intervention (control) group: January 2017 – June 2018
- Variables: age, BMI, sex, ASA status, home opioid use in the last 30 days prior to surgery, type of intraoperative anesthetic, pericapsular injection received, intraoperative remifentanyl use, and length of surgery
- Primary outcome: maximum pain score in the first 6-24 hours after ACB
- Secondary outcomes: mean pain score and incidence of RP 6-24 hours after ACB, postoperative opioid consumption, length of stay

Table 1. Demographics

	Non-Intervention	Educational Intervention	P-value
Total, n	133	271	
Age, mean (SD)	67.9 (8.8)	67.2 (9.7)	0.513
BMI, mean (SD)	31.7 (5.6)	32 (6)	0.701
Sex, n (%)			
Female	92 (69.2)	167 (61.6)	0.137
Male	41 (30.8)	104 (38.4)	
ASA, n (%)			
2	57 (42.9)	63 (22.9)	
3	74 (55.6)	206 (76.0)	
4	2 (1.5)	3 (1.1)	
3 or 4	76 (57.1)	209 (77.1)	< 0.001*
Pre-op opioid use (within 30 days)	24 (18.0)	42 (15.5)	0.515
Anesthesia type			0.923
General	45 (33.8)	93 (34.3)	
Neuraxial	88 (66.2)	178 (65.7)	
Pericapsular injection, n (%)	116 (87.2)	239 (88.2)	0.778
Intraoperative remifentanyl, n (%)	4 (3.0)	7 (2.6)	0.756
Length of surgery, mean (SD)	1.9 (0.5)	1.8 (0.5)	0.003*
Intervention documented, n (%)	n/a	194 (71.6)	

Results

Figure 1. Maximum and mean pain scores 6-24 hours post ACB were not significantly different between groups

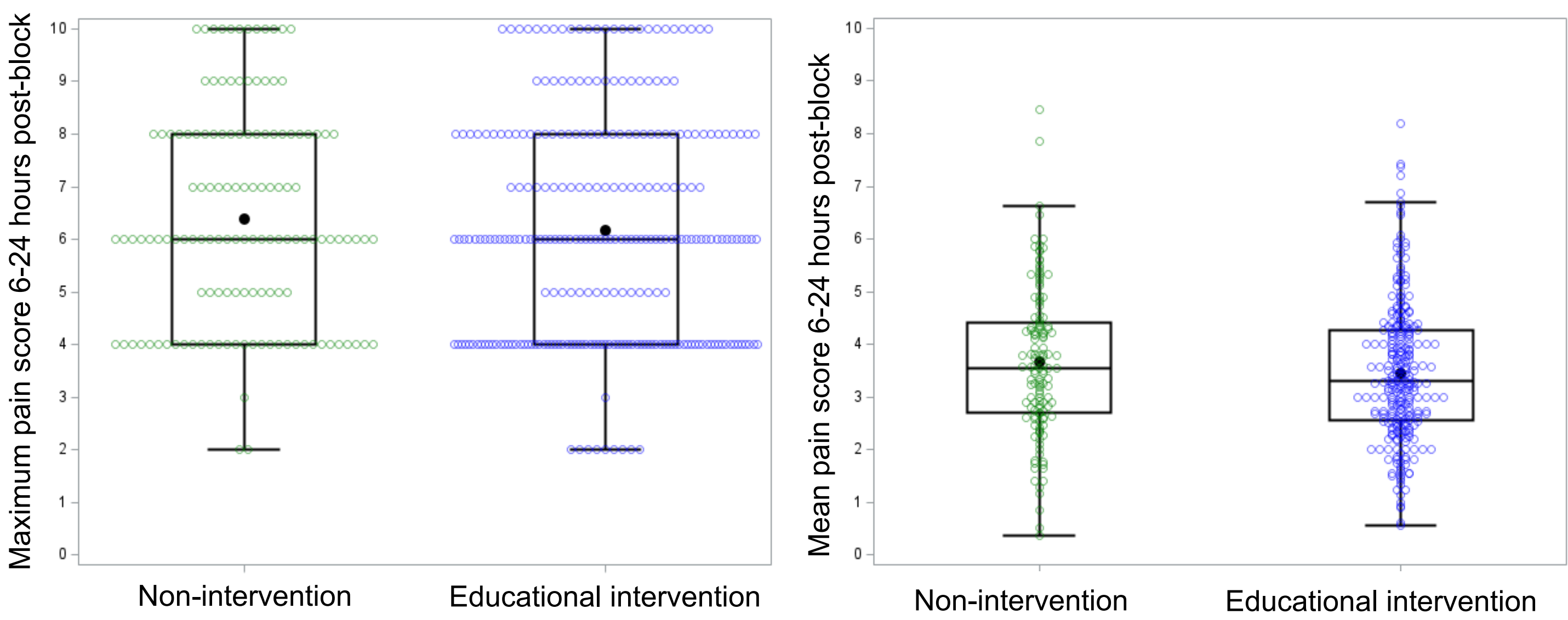


Figure 2. Incidence of rebound pain was not significantly different between groups

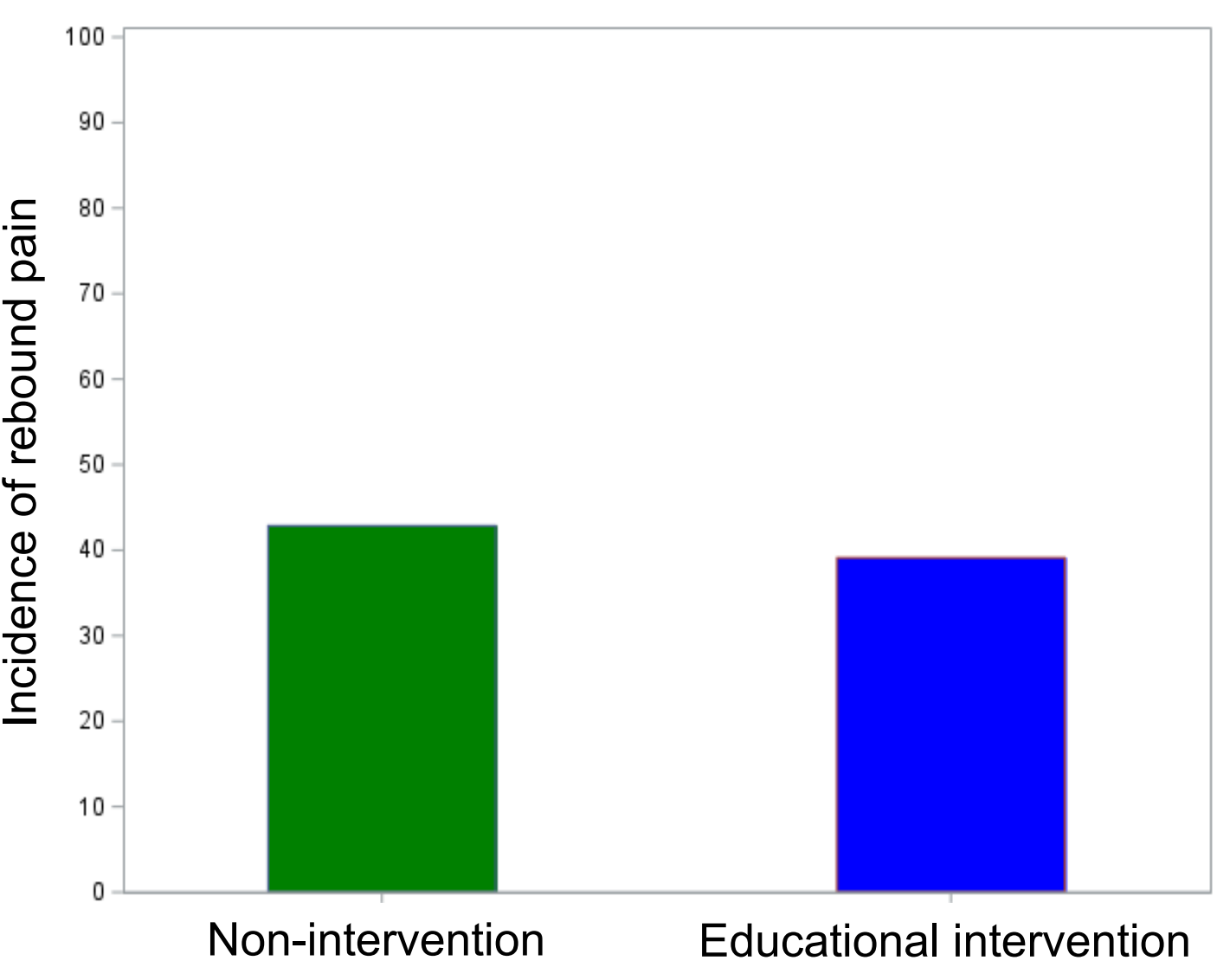
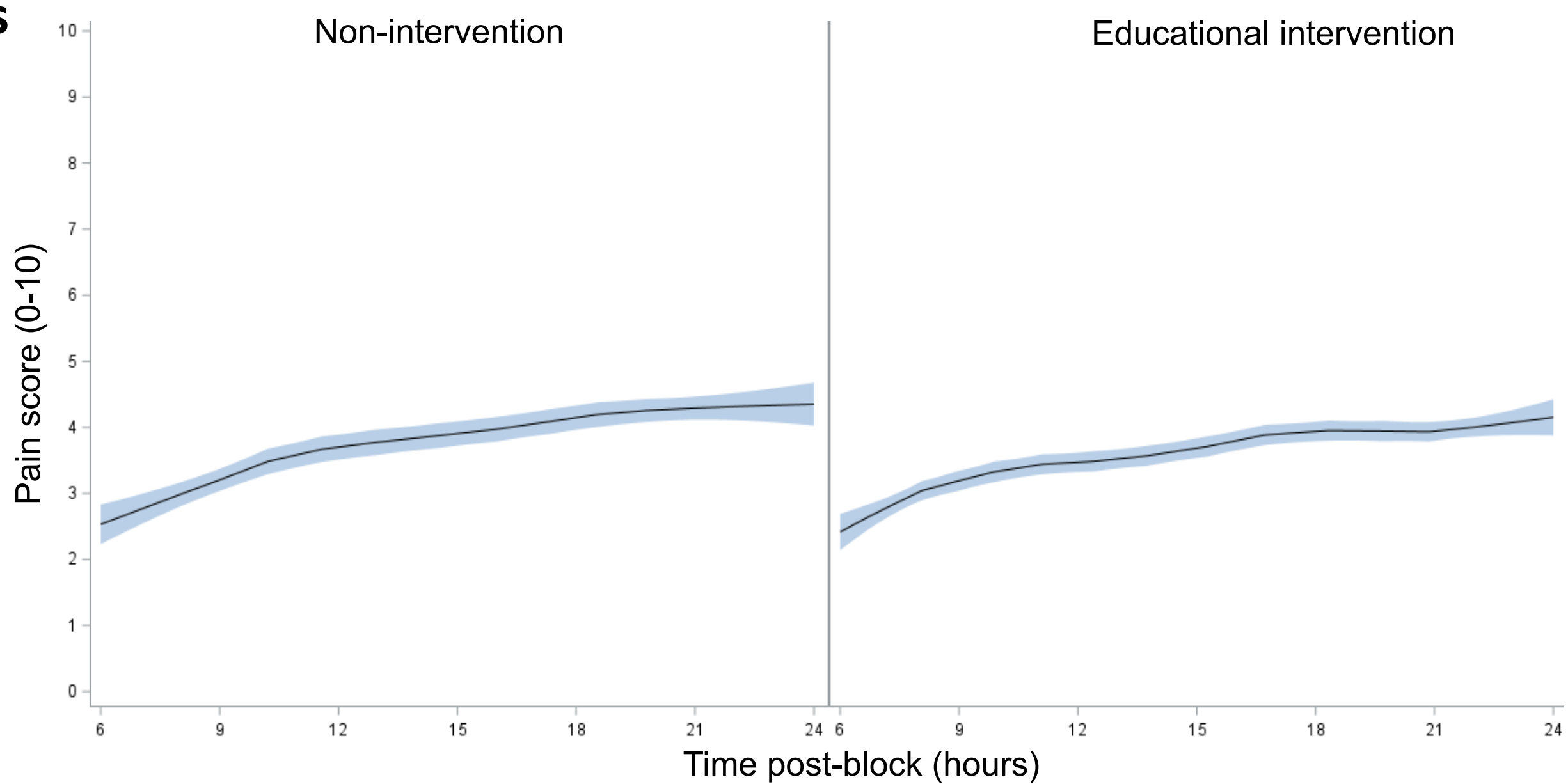


Figure 3. Overall pain trajectory appeared slightly lower between 6-24 hours, however, continues to be uptrending at 24 hours



Conclusion

- Despite a sense of improved pain control with a multidisciplinary educational intervention, there appears to be no significant difference in the maximum pain scores, mean pain scores, or incidence of rebound pain between 6-24 hours post-nerve block in patients between groups
- The overall pain trajectory appeared to be lower in the educational intervention group

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