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## Chronic Pain

(Abstracts and Case Report/Series)

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# Perioperative Regional Anesthesia on Persistent Opioid Use and Chronic Pain After Noncardiac Surgery: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

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## Introduction:

A growing body of evidence suggests that surgery, and the perioperative period, is a common time where patients become dependent on opioids. In a large analysis (n=36,177) of patients undergoing either a minor or major surgical procedure, the incidence of new prolonged opioid use was 5.9% and 6.5%, respectively — this is in contrast to a 0.4% incidence in a non-surgical cohort<sup>1</sup>. Further, poor pain control postoperatively appears to be a risk factor for prolonged opioid use after surgery, as well as for the development of chronic post-surgical pain<sup>1-4</sup>. Regional anesthesia is an effective strategy for improved perioperative pain control, however, it is unclear on whether it improves long-term pain outcomes such as chronic post-surgical pain and prolonged opioid use after surgery. Thus, this systematic review and meta-analysis sought to evaluate the effects of regional anesthesia on these outcomes.

## Methods:

A systematic search was conducted in MEDLINE, EMBASE, Cochrane CENTRAL, and CINHALL for randomized controlled trials of adult patients (≥18 years of age) undergoing elective noncardiac surgeries that received any regional anesthesia technique or control at any point during the perioperative period. Neuraxial techniques (i.e., spinal and epidural anesthesia) were included if they were not administered as the primary modality for intraoperative anesthesia. Conversely, if a neuraxial technique was used for all patients, studies would only be considered if the intervention arm also received an additional regional block. Two independent reviewers screened database search results and extracted data in duplicate. Conflicts regarding eligibility for inclusion and/or discrepancies in the data were resolved through discussion and consensus, mediated by a third reviewer. Primary outcomes were: (1) prolonged opioid use after surgery (continued opioid use ≥2 months post-surgery); (2) chronic post-surgical pain (pain ≥3 months post-surgery). Secondary outcomes included postoperative analgesic consumption, breakthrough pain (requiring additional analgesia), acute pain scores, and adverse events. A random-effects meta-analysis was conducted if ≥2 studies reported on these specified outcomes. The reviewers assessed methodologic quality for pooled outcomes according to the Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) guidelines<sup>5</sup>.

## Results:

A total of 8,893 articles were identified in the systematic search, with 73 included for full-text appraisal. Twenty-nine studies (n=4,523) met eligibility criteria to be included into the review. Pooled estimates indicated that regional anesthesia had a significant effect on reducing prolonged opioid use (odds ratio [OR] 0.43, 95% CI 0.20 to 0.95, p=0.04, 5 studies, I<sup>2</sup> 0%, GRADE moderate quality) and chronic pain at three (OR 0.55, 95% CI 0.42 to 0.71, p<0.00001, 10 studies, I<sup>2</sup> 0%, GRADE high quality) and six months (OR 0.64, 95% CI 0.46 to 0.90, p=0.01, 12 studies, I<sup>2</sup> 46%, GRADE high quality) after surgery. The significance of this effect was lost in the pooled analysis at 12 months post-surgery (OR 0.37, 0.12 to 1.13, p=0.08, 5 studies, I<sup>2</sup> 68%, GRADE moderate

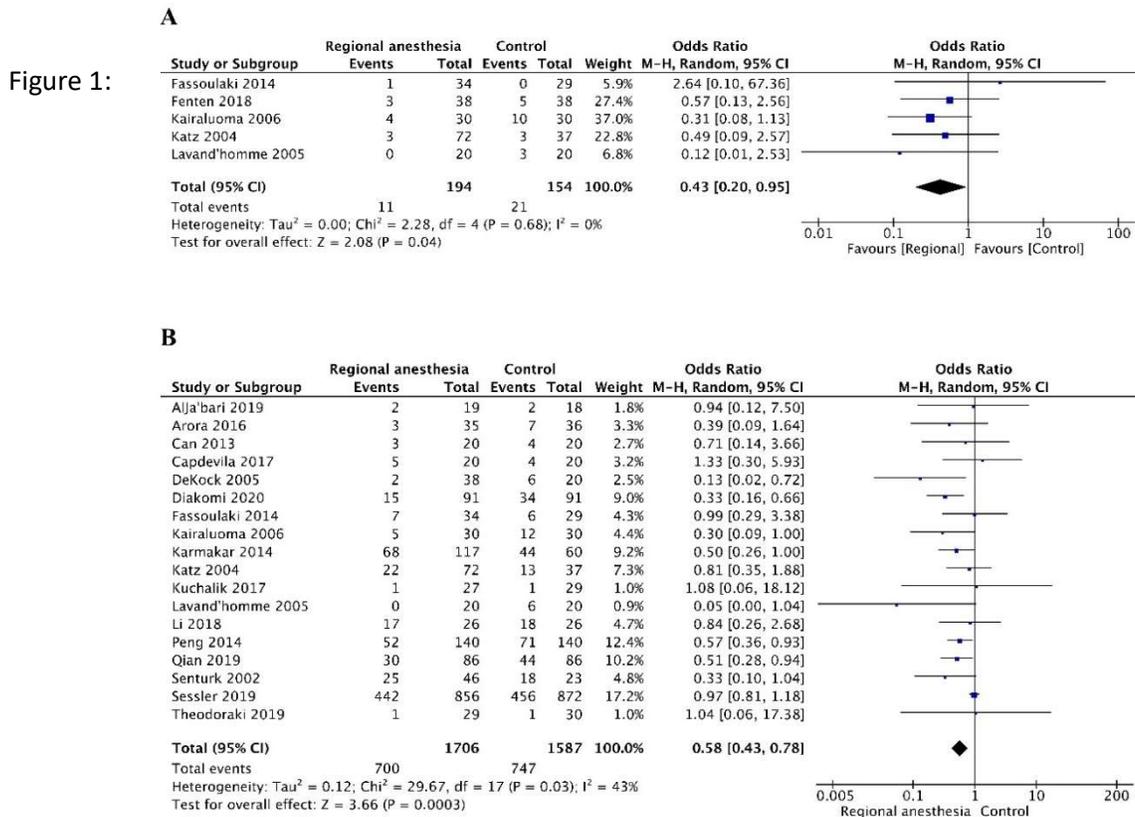
quality).

**Discussion:**

Findings from this review provides moderate quality evidence demonstrating that regional anesthesia can decrease prolonged opioid use after surgery and reduce chronic post-surgical pain up to 6-months after surgery. This represents the first step in approaching the use of regional anesthesia as a strategy to improve long-term patient outcomes and reducing opioid use past the postoperative period. However, further randomized controlled trials that explore long-term analgesia outcomes following regional anesthetic use are needed to increase confidence in these conclusions.

**References:**

1. Brummett CM, Waljee JF, Goesling J, et al. New Persistent Opioid Use After Minor and Major Surgical Procedures in US Adults. *JAMA Surgery*. 2017;152(6). doi:10.1001/jamasurg.2017.0504
2. Katz J, Seltzer Z. Transition from acute to chronic postsurgical pain: risk factors and protective factors. *Expert Review of Neurotherapeutics*. 2009;9(5). doi:10.1586/ern.09.20
3. Clarke H, Soneji N, Ko DT, Yun L, Wijeyesundera DN. Rates and risk factors for prolonged opioid use after major surgery: population based cohort study. *BMJ*. 2014;348(feb11 3). doi:10.1136/bmj.g1251
4. Gilron I, Vandekerckhof E, Katz J, Kehlet H, Carley M. Evaluating the Association Between Acute and Chronic Pain After Surgery. *The Clinical Journal of Pain*. 2017;33(7). doi:10.1097/AJP.0000000000000443
5. Guyatt G, Oxman AD, Akl EA, et al. GRADE guidelines: 1. Introduction - GRADE evidence profiles and summary of findings tables. *Journal of Clinical Epidemiology*. 2011;64(4):383-394. doi:10.1016/j.jclinepi.2010.04.026



**Figure 1.** Forest plots of prolonged opioid use (A) and chronic pain (B) pooled across timepoints 3-, 6-, and 12-months following surgery.

# Prescription Opioids and Cannabis Co-Use: An Exploratory, Population-Based Analysis of the NHANES from 2009 to 2018

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## Introduction:

Cannabis and cannabinoids continue to gain popularity as adjuncts or alternatives to opioids in chronic pain management, with evolving evidence of effectiveness.<sup>1</sup> However, co-use with opioids may worsen symptoms of anxiety, depression, and substance misuse.<sup>2</sup> Cohort studies and ecological studies investigating the relationship between cannabis use and opioid use have been mixed in their findings, and little is known about co-use patterns at the population level.<sup>3,4</sup> This present study was conducted to investigate the association between opioid use and concurrent cannabis use in a nationally representative cohort.

## Methods:

A cross-sectional analysis of adults in the USA was undertaken using data from the National Health and Examination Survey (NHANES) from 2009–2018. Opioid use was the primary exposure, defined by the presence of a prescription for at least one opioid agent in the 30 days prior to survey administration. The outcome of interest was self-reported cannabis use in the same period. Multivariate logistic regression was used to adjust for sociodemographic and health-related covariates, and survey sample weights were included in modelling. Opioid users were further subclassified as short-term opioid users (prescription active for less than 90 days) or chronic opioid users (90 or more days) in a secondary analysis.

## Results:

A total 10,928 survey respondents were included in analyses, representing 110 million adults in the USA aged 20–59. In this weighted cohort, 5.6% reported an active opioid prescription. Amongst recent opioid users, 18.4% reported recent cannabis use. After adjustment for covariates, opioid users were significantly less likely to have recently used cannabis (aOR 0.70, 95% CI 0.51–0.96,  $p < 0.05$ ). When opioid users were further subclassified by duration of prescription, chronic users did not appear to differ from short-term users in terms of recent cannabis use (aOR 1.25, 95% CI 0.78–2.01,  $p = 0.35$ ).

## Discussion:

Recent prescription opioid use was associated with decreased odds of cannabis use in this nationally representative cohort. Our findings provide evidence against existing concerns that use of either cannabis or prescription opioids may promote use of the other. Further study is needed to identify factors related to opioid and cannabis co-use for chronic pain.

## References:

1. Wang L, Hong PJ, May C, et al. (2021) Medical cannabis or cannabinoids for chronic non-cancer and cancer related pain: a systematic review and meta-analysis of randomised clinical trials. *BMJ*. 374: n1034. <https://doi.org/10.1136/bmj.n1034>

2. Rogers AH, Bakhshaie J, Buckner JD, et al. (2019) Opioid and cannabis co-use among adults with chronic pain: relations to substance misuse, mental health, and pain experience. *J Addict Med.* 13(4): 287–294. <https://doi.org/10.1097/ADM.0000000000000493>
3. Lake S, Walsh Z, Kerr T, et al. (2019) Frequency of cannabis and illicit opioid use among people who use drugs and report chronic pain: a longitudinal analysis. *PLoS Med.* 16(11): e1002967. <https://doi.org/10.1371/journal.pmed.1002967>
4. Olfson M, Wall MM, Liu SM, et al. (2017) Cannabis use and risk of prescription opioid use disorder in the United States. *Am J Psych.* 175(1): 47–53. <https://doi.org/10.1176/appi.ajp.2017.17040413>