

Associations between Cannabis Use and Post-Thyroidectomy Opioid Pain Management

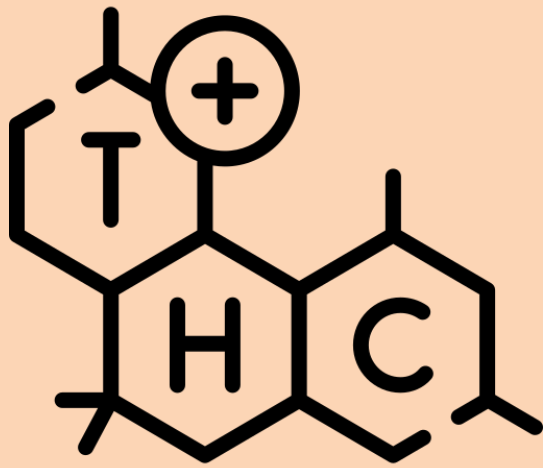
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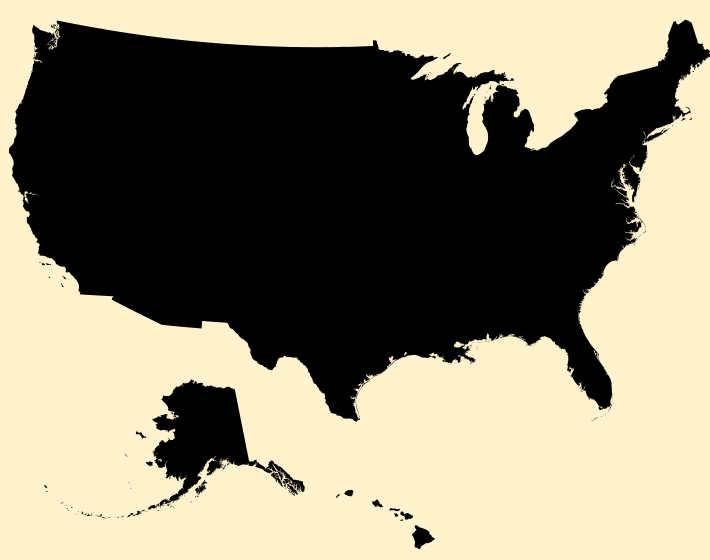
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Cannabis has over 42M users in the US, often for chronic pain. Its use can affect perioperative pain management.



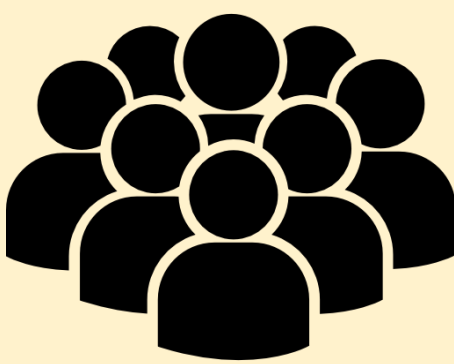
Pain is most common post-thyroidectomy complaint. It remains unclear if cannabis use changes postoperative analgesia needs.

Does cannabis dependence/abuse (CDA) affect post-thyroidectomy opioid prescription & healthcare utilization?



TriNetX US Network: 118M patients, 66 health organizations, HIPAA-compliant, de-identified data

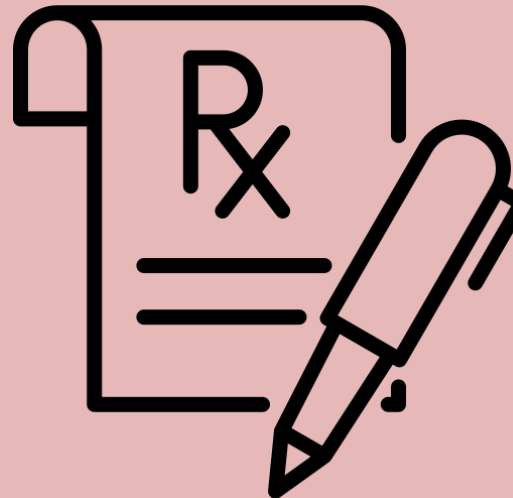
Adults ≥18, partial/total thyroidectomy (2010–2024)



CDA vs non-CDA, matched 1:1 on demographics, health, substance use, and healthcare utilization. Outcome: Opioid/non-opioid prescriptions at 0-2, 2-6 and 6-12 weeks

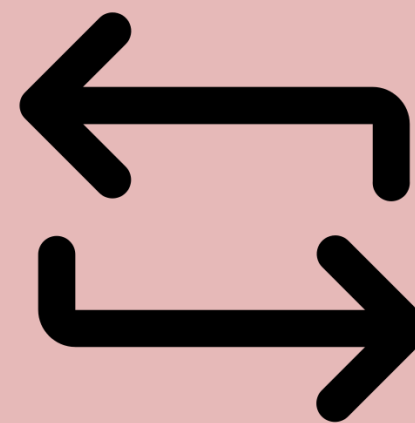
Patients with CDA experienced:

Lower prescribing rates at 0–2 weeks for opioids (except fentanyl) and non-opioids.



Decreased postoperative follow-up rate at all time points.

No significant difference in ED visits between groups.



Introduction

- Cannabis: most widely used recreational drug in the U.S. (>42 million users).
- Preoperative cannabis use may increase opioid requirements, worsen postoperative pain, and lower quality of life after surgery.
- Alternative meta-analyses suggest cannabinoids may relieve chronic pain.
- Pain is the most common postoperative complaint after thyroidectomy, often managed with risk-laden opioid analgesia.

Objective: Evaluate whether a history of cannabis use disorder influences postoperative opioid prescribing patterns and healthcare utilization following thyroidectomy.

Methods and Materials

- Setting:** TriNetX US Network (118m patients, 66 HCOs, deidentified EMR data)
- Population:** Adults (≥18 years) who underwent partial or total thyroidectomy (Jan 2010–Aug 2024).
- Exposure:** Diagnosis of cannabis dependence or abuse (CDA) in the year before surgery.
- Cohorts:** CDA vs. no CDA; 1:1 propensity score matched for age, sex, race/ethnicity, pain and mental health diagnoses, substance use, pre-op analgesics, and healthcare utilization prior to surgery.
- Outcomes:**
 - Primary: Postoperative opioid prescriptions at 0–2, 2–6, and 6–12 weeks.
 - Secondary: Prescriptions for non-opioids/NSAIDs, ED Visits, and postoperative O/P follow-up.
- Analysis:** Risk ratios (RR), 95% CI; statistical significance at p<0.05.

Results

Table 1. Pre-Matched Cohort Characteristics

Characteristic – n (%)	CDA (n=837)	No CDA (n=136,029)	p-value
Age at index (mean ± SD)	44.5 ± 14.0	50.8 ± 16.5	<0.001
Female	519 (62.0)	102,838 (75.6)	<0.001
Black or African American	264 (31.5)	18,364 (13.5)	<0.001
White	448 (53.5)	89,235 (65.6)	<0.001
Hispanic or Latino	75 (9.0)	13,331 (9.8)	0.429
Diabetes mellitus	177 (21.2)	18,500 (13.6)	<0.001
Hypertensive diseases	402 (48.0)	44,073 (32.4)	<0.001
Mood disorders	450 (53.8)	19,316 (14.2)	<0.001
Nicotine dependence	470 (56.2)	11,562 (8.5)	<0.001
Alcohol-related disorders	167 (19.9)	2,040 (1.5)	<0.001
Opioid-related disorders	98 (11.7)	952 (0.7)	<0.001
Anxiety disorders	442 (52.8)	23,669 (17.4)	<0.001
Pain diagnosis	290 (34.6)	14,419 (10.6)	<0.001

Figure 1. Analgesic Prescription Outcomes

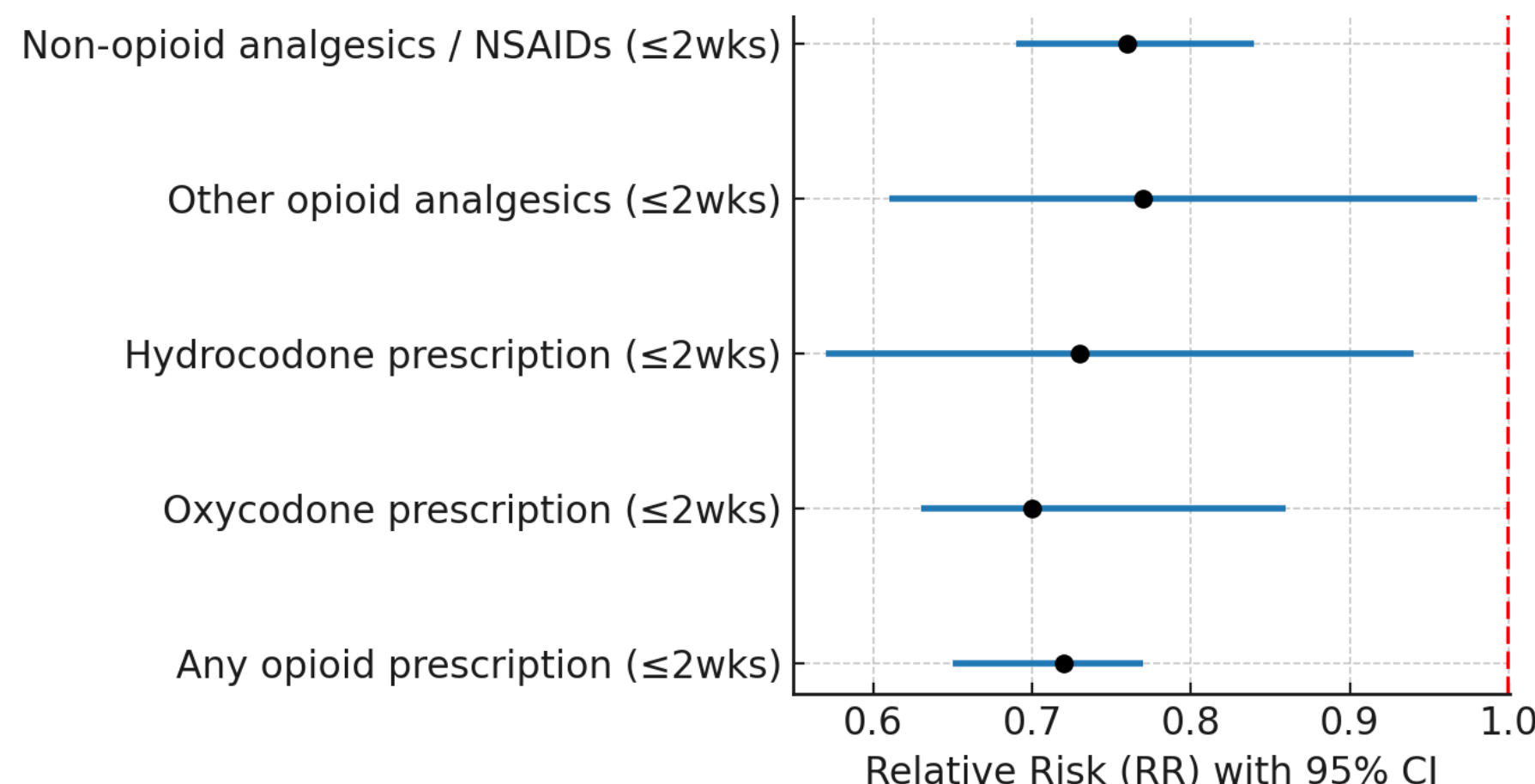


Figure 1. Analgesic prescriptions received by CDA patients compared to NCA patients within 2 weeks post-thyroidectomy. Error bars signify 95% confidence intervals.

Figure 2. Follow-up Outcomes

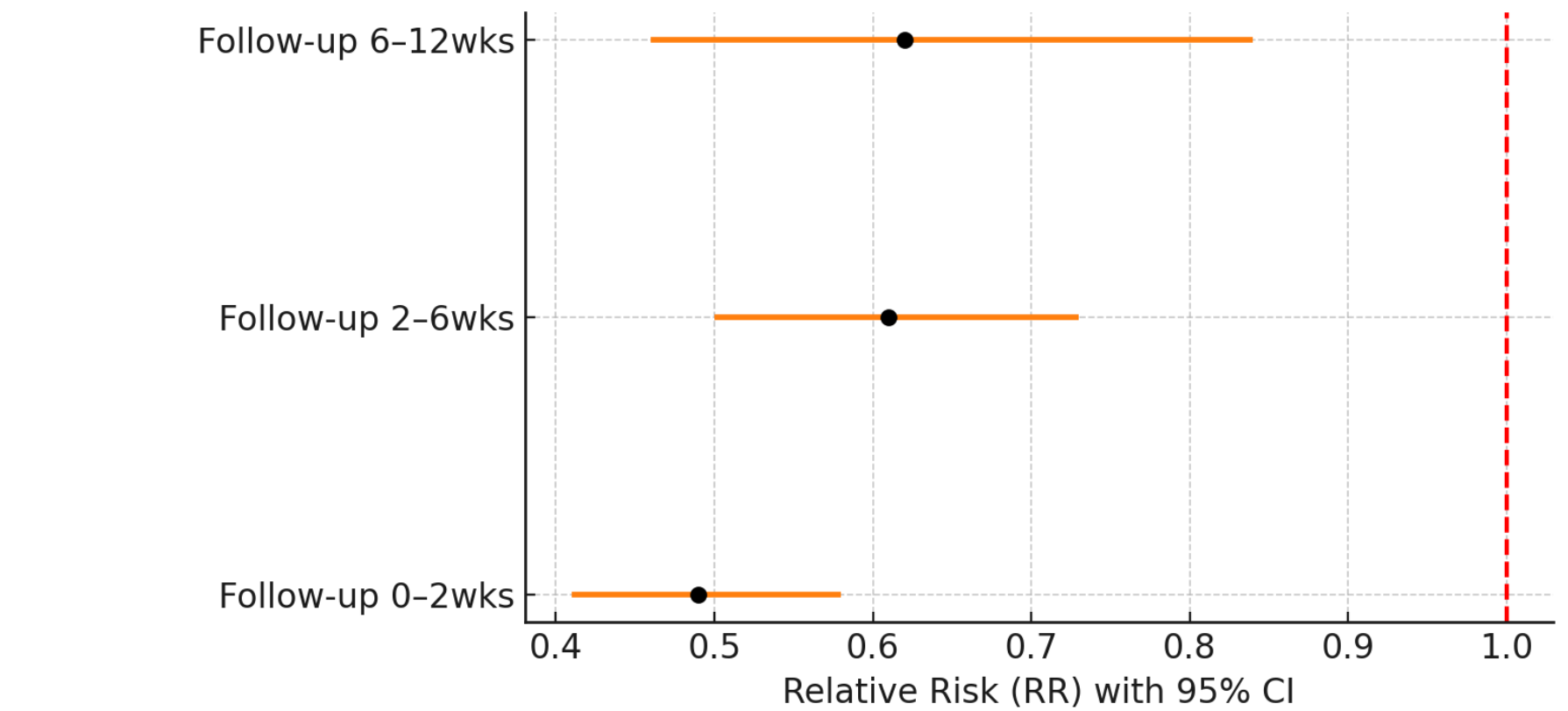


Figure 2. Adherence to follow-up visits completed by CDA patients compared to NCA patients after specified timeframes post-thyroidectomy.

Discussion

- No evidence of increased post-thyroidectomy opioid usage among patients with preoperative cannabis dependence/abuse.
- CDA patients had lower rates of opioid and non-opioid prescribing** in early postoperative period.
- Reduced postoperative follow-up among CDA patients suggests differences in postoperative care engagement for these patients.
- These patterns **may reflect varied pain management needs among cannabis users**.
- Alternatively, they **may indicate provider-level prescribing behaviors** influenced by a patient’s history of substance use disorder.
- Understanding these dynamics is important to ensure equitable, individualized pain management after thyroidectomy.**
- Limitations include TriNetX sampling of patients from large health systems that may miss patients in other populations, affecting generalizability. Outside or OTC analgesic therapies are also not collected by available EMR data, which can under-capture patient analgesic management.

References
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