# Preoperative Gabapentinoid Use Is Associated with Increased Postoperative Complications Following Laparoscopic Cholecystectomy

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## Preoperative gabapentinoid exposure was associated with higher rates of several recorded diagnoses through 180 days after cholecystectomy.

7,300 matched patients 3,650 per cohort Observational associations

## BACKGROUND & METHODS

- Gabapentinoids are used in multimodal analgesia amid safety concerns.[1–3]
- Objective: compare recorded outcomes after laparoscopic cholecystectomy by preoperative exposure.

### TriNetX Database

One healthcare organization
CPT 47562 or 47563

**BEFORE MATCHING**

**3,650 exposed / 135,680 controls**

**1:1 PROPENSITY SCORE MATCHING**

**3,650 patients in each cohort**

### Exposure and outcome windows

Gabapentinoid record (ATC N02BF)

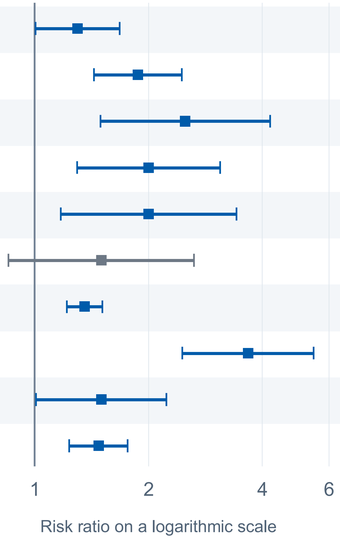



Prior outcomes included. Follow-up starts on surgery day.

## RESULTS AFTER MATCHING

### Recorded outcomes, day 0–180 (n = 3,650 per cohort)

| Outcome | Exposed n (%) | Control n (%) | RR (95% CI) |
|---|---|---|---|
| **Respiratory failure** | 130 (3.6%) | 100 (2.7%) | 1.30 (1.01–1.68) |
| **Acute kidney injury** | 150 (4.1%) | 80 (2.2%) | 1.88 (1.44–2.45) |
| Altered mental status | 50 (1.4%) | 20 (0.5%) | 2.50 (1.49–4.19) |
| Dementia | 60 (1.6%) | 30 (0.8%) | 2.00 (1.29–3.09) |
| Repeated falls | 40 (1.1%) | 20 (0.5%) | 2.00 (1.17–3.41) |
| Memory loss | 30 (0.8%) | 20 (0.5%) | 1.50 (0.85–2.64) |
| Anxiety-related diagnoses* | 650 (17.8%) | 480 (13.2%) | 1.35 (1.22–1.51) |
| Depression | 110 (3.0%) | 30 (0.8%) | 3.67 (2.46–5.48) |
| Opioid-related disorders | 60 (1.6%) | 40 (1.1%) | 1.50 (1.01–2.23) |
| Chest pain | 280 (7.7%) | 190 (5.2%) | 1.47 (1.23–1.76) |




Logarithmic scale. Squares show risk ratios. Lines show 95% confidence intervals.

* ICD-10-CM F40–F48 includes anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders.

**MATCHING BALANCE** All 18 listed covariates had post-match standardized differences ≤0.055.

## INTERPRETATION

- **Depression:** largest relative association (RR 3.67), with rates of 3.0% versus 0.8%.
- **Memory loss:** no statistically significant difference.
- Preoperative exposure may be a risk marker that warrants further study.

## LIMITATIONS

- Prior diagnoses were included. Outcomes may reflect existing disease.
- Residual confounding, including treatment indication, limits causal inference.
- Exposure records do not establish dose or adherence.
- One healthcare organization. Ten outcomes, with no multiplicity adjustment reported.

## REFERENCES

1. Verret M et al. Anesthesiology. 2020;133(2):265–279.
2. Cavalcante AN et al. Anesth Analg. 2017;125(1):141–146.
3. Froehlich KA et al. J Perianesth Nurs. 2024;39(1):132–141.