Gabapentinoid use, potential misuse, and associated risk factors among U.S. adult cancer survivors: A retrospective cohort study

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INTRODUCTION

- Gabapentinoids, including gabapentin and pregabalin, are commonly prescribed to treat pain and other off-label conditions in cancer survivors.
- Most relevant studies focused on single indications and gabapentinoid use in general populations.[1]
- Only one study using survey data analyzed gabapentinoid use in cancer up to 2015.[2]
- Recent patterns and potential misuse of gabapentinoids in cancer survivors remain unclear.

OBJECTIVES

- To assess gabapentinoid use, potential misuse, and associated risk factors in U.S. adult cancer survivors.

METHODS

Data source and study settings

- A retrospective cohort study using Merative™ MarketScan® data from 2014 to 2022
- ≥18 years old cancer survivors with malignant neoplasm diagnosis and continuous enrollment

Study outcomes and analyses

- Trends and patterns of gabapentinoid use
  - Potential misuse: ≥3 outpatient prescriptions exceeding maximum daily dose
  - Potential overuse: daily dose and calendar quarter
  - Concomitant use with opioids in MME
  - Across five types of cancer
  - Misuse among users with high-dose opioids
- Compare characteristics between gabapentinoids and active comparator-duloxetine
- Identify determinants of gabapentinoid misuse using multivariable logistic regressions

RESULTS

Gabapentinoid use among 3,203,638 cancer survivors

- Gabapentin: 224,045 (7%); 3.1%-7% (2015-2021)
- Pregabalin: 40,182 (1.3%); ~1% (2015-2021)
- Higher in five cancer types (e.g., breast, lung)
- Concomitant use with opioids: 47%-53%
- Potential misuse: 2.6%-3.2%; Higher in opioid dosage ≥50 MME

Multivariable analysis of gabapentinoid misuse

- Potential risk factors: regions, Medicare coverage, opioid use ≥50 MME, neurological and mental disorders

Figure 1. Gabapentinoid use in cancer survivors, 2015-2021

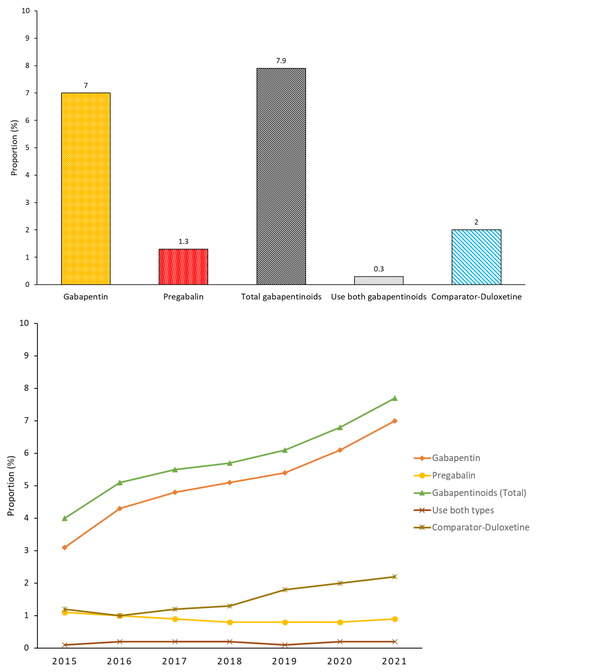


Figure 2. Gabapentinoid misuse, 2015-2021

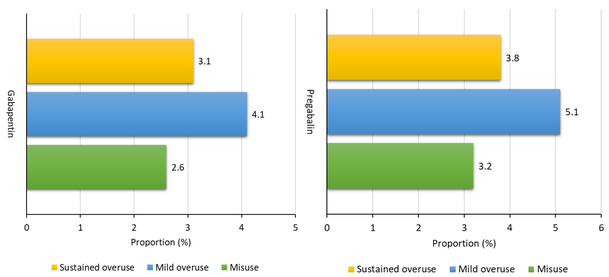


Figure 3. Concomitant use of gabapentin with opioids

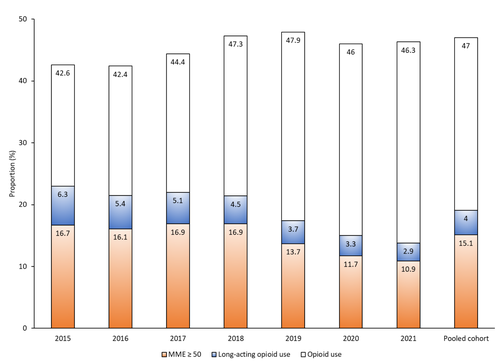


Figure 4. Gabapentinoid use in specific cancer types

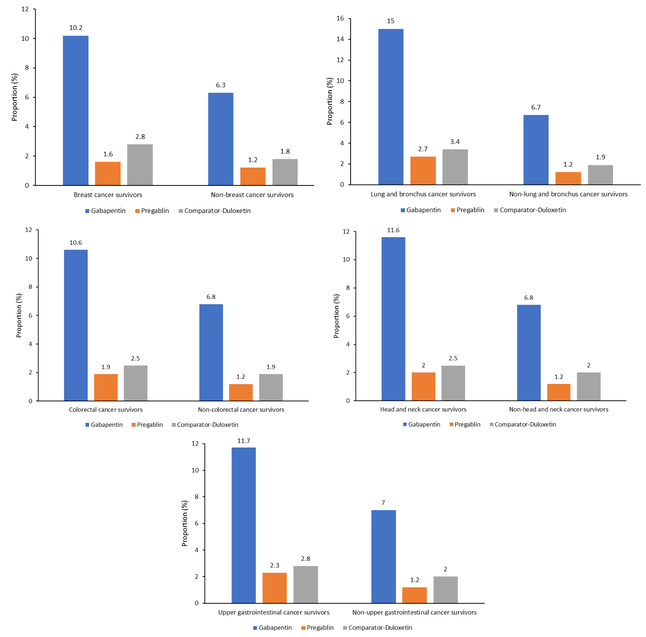


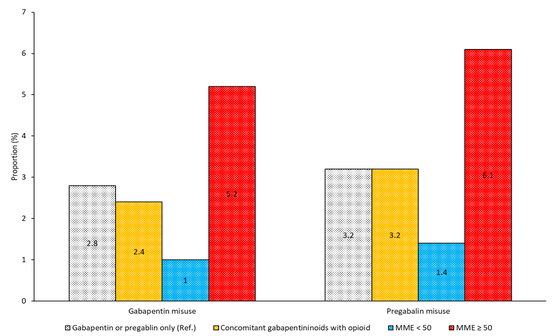
Table 1. Selected sociodemographic and clinical characteristics

	Gabapentin (n=224,045)	Comparator-Duloxetine (n=63,313)	*p*-value	Pregabalin (n=40,182)	Comparator-Duloxetine (n=63,313)	*p*-value
Age, mean year (SD)	63 (13)	62 (13)	<0.0001	63 (13)	62 (13)	<0.0001
Sex, male	38.9	30.1	<0.0001	41.5	30.1	<0.0001
Anti-neoplastic therapies	27.5	22.3	<0.0001	25	22.3	<0.0001
Chemotherapy	17.8	13.6	<0.0001	16.5	13.6	<0.0001
Opioid use	47	42.9	<0.0001	52.7	42.9	<0.0001
Head and neck cancer surgeries	2.4	1.5	<0.0001	2.1	1.5	<0.0001
Oncology specialty visit	25.8	22.1	<0.0001	24.5	22.1	<0.0001
CCI, mean (SD)	3.9 (3.3)	3.5 (3.1)	<0.0001	4.1 (3.3)	3.5 (3.1)	<0.0001
Circulatory system diseases	63.2	61.7	<0.0001	67.1	61.7	<0.0001

Table 2. Selected multivariable analysis of gabapentinoid misuse

	Gabapentin misuse	Pregabalin misuse
	Adjusted OR, 95% CI	**Adjusted OR, 95% CI**
Age	1.011 (1.007-1.015)	1.001 (0.992-1.009)
Region		
Northeast	Reference	Reference
Mid-West	8.97 (7.72-10.42)	4.12 (3.22-5.26)
South	2.15 (1.84-2.50)	0.98 (0.77-1.26)
West	15.35 (13.17-17.89)	6.42 (4.98-8.27)
Unknown	2.80 (1.13-6.92)	NA
Health insurance coverage		
Commercial	Reference	Reference
Supplementary Medicare	3.32 (2.97-3.71)	2.06 (1.64-2.58)
Oncology specialty visit	1.55 (1.44-1.67)	1.51 (1.29-1.75)
Opioid use		
No opioid use/ MME = 0	Reference	Reference
MME >= 50	1.90 (1.77-2.04)	1.87 (1.61-2.16)
Diabetic neuropathy	1.46 (1.34-1.59)	1.10 (0.92-1.32)
Migraine	1.14 (1.01-1.28)	1.00 (0.79-1.26)
Depression	1.17 (1.08-1.26)	0.90 (0.77-1.05)
Opioid use order	1.27 (1.07-1.51)	1.43 (1.08-1.89)

Figure 5. Gabapentinoid misuse among opioid users



DISCUSSION

- Increased gabapentin and stable pregabalin uses were consistent with findings in U.S. general populations.[2]
- Observed misuses in U.S. cancer survivors with commercial health insurance were higher than that observed in Texas Medicaid samples (0.2%).[3]
- High concomitant opioid use with gabapentinoids (~50%) indicated needs for both medications to manage cancer pain and other conditions like anxiety.[4]
- As expected, five cancer types with high prevalence of pain all had higher gabapentinoid use.
- High opioid misuse for ≥50 MME suggests individuals experiences more severe or persistent pain.
- Post-hoc analyses found that large cities like Los Angeles contribute to high misuses of gabapentinoids in West or Midwest regions (6-15 ORs).

Conclusions

- This study described gabapentinoid use and potential misuse among U.S. adult cancer survivors
- Potential risk factors associated gabapentinoid misuse were identified (e.g., older age, specific regions, and high opioid doses).

References

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Abbreviations

CCI, Charlson Comorbidity Index; CI, confidence interval; OR, odds ratio; MME, Morphine Milligram Equivalents; NA, not available; SD, standard deviation.