Receipt of Substance Use Counseling Among Ambulatory Patients Prescribed Opioids in the United States

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ABSTRACT

BACKGROUND: As opioid-related overdose deaths climb in the U.S., risk reduction measures are increasingly important. One such measure recommended involves provision of proactive substance use counseling regarding the risks of opioid analgesics. This is particularly important in patients at increased risk of overdose, such as those with substance use disorders (SUD) or those receiving concomitant medications that further increase the overdose risk (eg, benzodiazepines, gabapentinoids, or Z-hypnotics). However, previous research regarding the likelihood that such counseling is provided during outpatient prescriber visits is lacking.

OBJECTIVES: To determine the percentage of U.S. ambulatory care visits in which patients taking prescription opioids received substance use counseling, and whether counseling was more common in patients with concomitant GABAergic medication(s) (benzodiazepine, gabapentinoid or Z-hypnotic) or substance use disorder (SUD) diagnosis.

METHODS: A cross-sectional analysis was conducted of all patients aged ⩾18 years identified as having a prescription opioid on their medication list within the 2014-2015 National Ambulatory Medical Care Survey data.

RESULTS: Among 162.7 million visits in which patients were taking opioid medication(s), substance use counseling was provided in 2.4%. During visits for patients receiving opioid(s) plus GABAergic(s), substance use counseling was marginally more common (3.1% versus 2.0%, $P < .0001$). Substance use counseling was also more common among visits for patients taking opioid(s) with SUD (18.9% versus 1.5%, $P < .0001$). Among visits in which a patient was diagnosed with SUD and taking opioid(s) plus GABAergic(s), counseling was more common (23.1% versus 1.4%, $P < .0001$) compared to patients taking opioid(s) plus GABAergic(s) without SUD.

CONCLUSIONS: Among national ambulatory care visits in the United States, substance use counseling is provided infrequently for patients taking opioids, even when significant risk factors are present. Increasing patient education may help reduce opioid-related overdose mortality.

KEYWORDS:opioid overdose, gabapentinoid, benzodiazepine, Z-hypnotic, patient counseling, NAMCS

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Introduction

Annual drug overdose deaths in the United States (U.S.) have nearly doubled over the past decade.[1] Though most opioid-related overdose (ORO) deaths are attributed to illicit opioids, prescription opioids remain a major contributor, linked to approximately 5 deaths/100,000 population in 2016-2017, with increasing prevalence since 2013. While anyone taking opioids is at risk of ORO and death, certain factors significantly increase this risk, including substance use disorder (SUD) diagnosis and concomitant use of interacting medications, such as GABAergic central nervous system (CNS) depressants including benzodiazepines, gabapentinoids and Z-hypnotics, (collectively abbreviated GABAergics hereafter).[2-6]

The Centers for Disease Control and Prevention (CDC) opioid prescribing guideline recommends clinicians assess overdose risk factors and discuss ORO risks with patients, both

before starting and regularly during therapy, and periodic education has been shown to significantly reduce OROs.[7,8] Though studies are not available to support effectiveness of this education and counseling, the CDC notes that many patients are uneducated about the risks of opioids and clinicians should explicitly counsel regarding safety.[7] Because of this, the CDC recommends clinicians discuss 11 counseling points with patients receiving opioid therapy, four of which are directly related to risk of potentially fatal respiratory depression from opioids alone or in combination with other agents, and the potential development of lifelong opioid use disorder (OUD). Furthermore, for patients with a diagnosed OUD best practices for OUD treatment include provision of behavioral therapy (eg, direct physician advice, referral to therapy, or SUD counseling).[8,9]

Despite these recommendations, little is known regarding provision of substance use counseling in ambulatory care settings. The purpose of this analysis was to determine the percentage of U.S. ambulatory care visits in which patients receiving prescription opioids were provided such counseling, and whether counseling was more likely in patients at increased risk due to concomitant GABAergic medication use or SUD diagnosis.

Methods

This cross-sectional analysis utilized data from the National Ambulatory Medical Care Survey (NAMCS), an annual, national probability sampling of non-federally-funded, ambulatory care visits.[10] Estimates of all U.S. ambulatory visits are obtained by extrapolating sample data using assigned visit weights. NAMCS collects physician and patient demographics and clinical information specific to visits, including ⩽8 diagnoses identified by the provider during the visit, based on International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes, and ⩽30 medications, classified by Multum codes. Furthermore, the survey assesses health education interventions provided during each visit. When this study began, 2015 represented the most recent NAMCS data available, and prior to 2014 the survey format differed substantially (particularly, documenting fewer diagnoses and medications per patient), so 2014-2015 data was utilized.

All sampled patients aged ⩾18 years with ⩾1 opioid medication documented on their outpatient medication list in the NAMCS (newly prescribed or continued therapy) were included. Patients were further characterized by: concurrent use of ⩾1 GABAergic medication, presence of SUD or alcohol use disorder (AUD) diagnosis, and receipt of substance use counseling during the visit. Appendix 1 lists the specific alphanumeric Multum drug and ICD-9-CM diagnosis codes assessed. For AUD/SUD diagnoses, there was also a specific NAMCS indicator utilized to identify these diagnoses. Receipt of substance use counseling was identified by selection of 'substance abuse counseling' within the 'health education/counseling' section or inclusion of the corresponding ICD-9-CM (V654.2, 'Counseling, substance use'). The variable of 'substance abuse counseling' within the NAMCS is to be selected when education about drugs or drug use is ordered or provided by the clinician. Both the unique variable and ICD-9-CM codes were included to supplement one another in order to fully capture the records of interest. However, in the data obtained, all visits that included this ICD-9-CM diagnosis code also ended up being positively coded for the unique substance abuse counseling variable collected by NAMCS as well, so inclusion of the ICD-9-CM code did not yield any additional instances of counseling.

The primary outcome of the study was whether GABAergic use or comorbid SUD/AUD diagnosis was associated with greater likelihood of substance use counseling. Annualized data was compared to assess for differences across years. Chi-square tests were utilized to evaluate differences in percentages. A multivariable logistic regression model was used to identify predictors of receipt of substance use counseling, adjusting for the following covariates: age, race, ethnicity, sex, SUD, AUD, liver disease, renal disease, and >1 GABAergic medication. Pre-specified subgroup analyses were conducted, stratified by year. Analyses were conducted using JMP® 13 (SAS Corp., Cary, NC).

Results

Among 162.7 million office visits in which patients were taking an opioid medication, substance use counseling was provided in 4 million (2.4%) of these visits. During visits for patients receiving an opioid plus GABAergic medication, substance use counseling was marginally more common versus those taking an opioid alone (3.1% versus 2.0%, $P < .0001$). This was primarily due to a difference in visits involving concomitant benzodiazepines (4.7% versus 1.7%, $P < .0001$), as substance use counseling was only slightly more common in patients taking gabapentin (2.8% versus 2.4%, $P < .0001$), while Z-hypnotics (0.2% versus 2.6%, $P < .0001$) and pregabalin (0% versus 2.5%, $P < .0001$) were associated with less provision of substance use counseling (Table 1).

Substance use counseling was more common among visits for patients taking opioids with known SUD (18.9% versus 1.5%, $P < .0001$) or AUD (7.9% versus 2.4%, $P < .0001$), compared to visits for patients without either diagnosis. Furthermore, among visits in which a patient was diagnosed with SUD and taking opioid(s) plus GABAergic medication(s), counseling was more common (23.1% versus 1.4%, $P < .0001$) compared to patients taking opioid(s) plus GABAergic(s) without SUD. This increase was driven by patients receiving benzodiazepines (27.3% versus 2.1%, $P < .0001$) or gabapentin (12.3% versus 1.9%, $P < .0001$).

Across the annualized data, there were small increases from 2014 to 2015 in the percentage of substance use counseling among office visits for patients taking an opioid (1.3% versus 3.5%, $P < .0001$), opioid plus GABAergic medication (1.0% versus 4.9%, $P < .0001$), or opioid with comorbid SUD diagnosis (17.6% versus 19.7%, $P < .0001$).

Based on the results of the logistic regression, SUD diagnosis was the strongest predictor of substance use counseling [OR (95% CI) = 13.42 (13.39-13.45)]. Among covariates, age >65

Table 1. Substance use disorder counseling prevalence.

OPIOID ± GABAERGIC MEDICATION				
EXPOSURE (OPIOID + GABAERGIC MEDICATION)[A]	%	REFERENCE (OPIOID WITHOUT GABAERGIC MEDICATION)	%	*P*-VALUE
⩾1 GABAergic (N = 63.1 million)	3.1	No GABAergic (N = 99.6 million)	2.0	<.0001
Benzodiazepine (N = 38.8 million)	4.7	No benzodiazepine (N = 123.9 million)	1.7	<.0001
Z-Hypnotic (N = 12.6 million)	0.2	No Z-hypnotic (N = 150.1 million)	2.6	<.0001
Pregabalin (N = 5.0 million)	0.0	No pregabalin (N = 157.7 million)	2.5	<.0001
Gabapentin (N = 22.4 million)	2.8	No gabapentin (N = 140.3 million)	2.4	<.0001
OPIOID ± SUD OR AUD DIAGNOSIS				
EXPOSURE (OPIOID + SUD/AUD DIAGNOSIS)	%	REFERENCE (OPIOID WITHOUT SUD/AUD DIAGNOSIS)	%	P-VALUE
SUD diagnosis (N = 8.5 million)	18.9	No SUD diagnosis (N = 154.2 million)	1.5	<.0001
AUD diagnosis (N = 1.8 million)	7.9	No AUD diagnosis (N = 160.9 million)	2.4	<.0001
OPIOID + GABAERGIC MEDICATION ± SUD DIAGNOSIS				
EXPOSURE (OPIOID + GABAERGIC MEDICATION + SUD DIAGNOSIS)	%	REFERENCE (OPIOID + GABAERGIC MEDICATION WITHOUT SUD DIAGNOSIS)	%	*P*-VALUE
Any GABAergic + SUD (N = 4.9 million)	23.1	Any GABAergic + no SUD (N = 58.2 million)	1.4	<.0001
Benzodiazepine + SUD (N = 4.0 million)	27.3	Benzodiazepine + no SUD (N = 34.8 million)	2.1	<.0001
Z-Hypnotic + SUD (N = 0.4 million)	3.7	Z-Hypnotic + no SUD (N = 12.1 million)	0.1	<.0001
Pregabalin + SUD (N = 0.3 million)	0.0	Pregabalin + no SUD (N = 4.7 million)	0.0	–
Gabapentin + SUD (N = 1.8 million)	12.3	Gabapentin + no SUD (N = 20.6 million)	1.9	<.0001

[a]GABAergic for the purposes of this study refers to a benzodiazepine, Z-hypnotic, gabapentin, or pregabalin.
Abbreviations: SUD, substance use disorder; AUD, alcohol use disorder.

years [6.73 (6.70-6.76)], Hispanic ethnicity [2.16 (2.16-2.17)], male sex [2.01 (2.00-2.01)], liver disease [1.60 (1.58-1.62)], >1 GABAergic [1.49 (1.49-1.50)], and alcohol abuse [1.10 (1.10-1.11)] were also significant predictors.

Discussion

In this national study, substance use counseling was provided in only a small percentage of office visits among patients taking opioid medications. The highest prevalence of substance use counseling was among visits for patients with known SUD, which was anticipated. However, given that most long-term opioid use begins with acute treatment, dependency may develop with relatively short-duration opioid use, and high-dose or extended-duration opioid use increases ORO risk, harm reduction measures such as substance use counseling should not be limited to patients with a known SUD.[11] Even in high risk patients with both SUD diagnosis and concomitant GABAergic medications, counseling was provided in under one-quarter of office visits nationwide. This represents a significant opportunity, as patient education may reduce ORO risk and increase engagement in SUD treatment. Every patient encounter serves as an opportunity to assess, identify, and discuss SUD diagnosis while evaluating appropriateness of maintenance therapy with these medications.

Substance use counseling was more common among patients who also received GABAergic medications, but still infrequent at less than 5% for each drug class studied. Not surprisingly, substance use counseling was more likely with concomitant benzodiazepine use versus other GABAergics, as risks of concomitant benzodiazepines and opioids are more widely studied and publicized. However, reports of gabapentin and pregabalin abuse are increasing, and evidence indicates concomitant use significantly increases ORO risk.[5-6,12] While the likelihood of substance use counseling did slightly increase with concomitant gabapentin use, it did not with pregabalin. This is surprising given that pregabalin is classified as a controlled substance by the Drug Enforcement Administration, while gabapentin is not.

Limitations

The cross-sectional design of the NAMCS captures a single patient visit, rather than longitudinal patient follow-up; accordingly, patients may have received substance use counseling at previous or subsequent visits. Additionally, our study only assessed data from 2014-15. Wider dissemination of ORO risk information may lead to increased substance use counseling in subsequent NAMCS data. A pre-specified number of medications and diagnoses are collected for each visit and most diagnoses are provided as administrative codes only; therefore, some diagnoses or medications for a patient could have been missed. Furthermore, medication doses are not specified. While it is possible that substance use counseling could be underreported, this is unlikely given the inclusion of a discrete survey field specifically assessing the provision of substance use counseling. Statistically significant findings should be interpreted with caution given the large sample size, as even small effect sizes resulted in statistically significant differences between groups. Finally, specific recommendations for substance use counseling format and frequency are not available as a guide for optimal care.

Conclusion

Among national ambulatory care visits in the United States, substance use counseling is provided infrequently for patients taking opioids, even when significant risk factors for opioid-related overdose are present. Given the alarming rate of opioid-related overdose deaths, providers should consider the preventive value of such opioid risk mitigation measures. Initiatives aimed at increasing patient education may be beneficial measures to help reduce opioid-related overdose mortality.

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Authors' Contributions

All authors contributed to study design, data interpretation, and manuscript revision.

KRR was primarily responsible for statistical analysis and data collection.

KEE wrote the first draft of the manuscript and all authors have contributed to and approved the final manuscript.

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Supplemental material

Supplemental material for this article is available online.

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