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BRIEF REPORT

Constipation Prophylaxis Is Rare for Adults Prescribed Outpatient Opioid Therapy From U.S. Emergency Departments

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Abstract

Objectives: Constipation is a common and potentially serious side effect of oral opioids. Accordingly, most clinical guidelines suggest routine use of laxatives to prevent opioid-induced constipation. The objective was to characterize emergency provider prescribing of laxatives to prevent constipation among adults initiating outpatient opioid treatment.

Methods: National Hospital Ambulatory Medical Care Survey (NHAMCS) data from 2010 were analyzed. Among visits by individuals aged 18 years and older discharged from the emergency department (ED) with opioid prescriptions, the authors estimated the survey-weighted proportion of visits in which laxatives were also prescribed. A subgroup analysis was conducted for individuals aged 65 years and older, as the potential risks associated with opioid-induced constipation are greater among older individuals. To examine a group expected to be prescribed laxative medication and confirm that NHAMCS captures prescriptions for these medications, the authors estimated the proportion of visits by individuals discharged with prescriptions for laxatives among those who presented with constipation.

Results: Among visits in 2010 by adults aged 18 years and older discharged from the ED with opioid prescriptions, 0.9% (95% confidence interval [CI] = 0.7% to 1.3%, estimated total n = 191,203 out of 21,075,050) received prescriptions for laxatives. Among the subset of visits by adults aged 65 years and older, 1.0% (95% CI = 0.5% to 2.0%, estimated total n = 18,681 out of 1,904,411) received prescriptions for laxatives. In comparison, among visits by individuals aged 18 years and older with constipation as a reason for visit, 42% received prescriptions for laxatives.

Conclusions: In this nationally representative sample, laxatives were not routinely prescribed to adults discharged from the ED with prescriptions for opioid pain medications. Routine prescribing of laxatives for ED visits may improve the safety and effectiveness of outpatient opioid pain management.

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Pain is the most common reason for emergency department (ED) visits.[1] The majority of patients who present with pain are discharged home, and many require outpatient analgesic treatment. Providing effective and safe outpatient pain care for these discharged ED patients is an important priority. Opioids are the recommended treatment for acute moderate or severe pain and are the most commonly prescribed analgesic medications from U.S. EDs.[2] Opioids provide effective short-term analgesia, but side effects can lead to discontinuation of the opioid and can prompt additional medical care. Constipation is one of the most common side effects of opioid therapy, with approximately 20% of older adult patients reporting moderate or severe constipation in the first week of treatment.[3] Opioid-induced constipation is associated with missed work, lower health-related quality of life, and increased health care utilization.[4]

A recent study of cancer patients initiating opioid treatment demonstrated reduced opioid-induced constipation in the first week of treatment with laxative prophylaxis (34%) compared to no laxative prophylaxis

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(55%).[5] The American Pain Society guidelines on the chronic use of opioids recommend "routinely considering initiation of a bowel regimen before the development of constipation" when initiating opioids or increasing the dose.[6] The American Geriatrics Society guidelines for older adults recommend "clinicians should anticipate, assess for, and identify potential opioid-associated adverse effects."[7] Routine use of laxatives to prevent opioid-induced constipation has also been identified as a quality-of-care measure by the National Quality Forum.[8] Despite the frequency with which opioids are prescribed by emergency providers, the coprescription of laxatives to prevent constipation in ED patients discharged with opioid prescriptions has not been described.

We sought to determine whether emergency physicians (EPs) routinely prescribe laxatives to prevent constipation among adults initiating outpatient opioid treatment, with a planned subgroup analysis of visits by patients aged 65 years and older. We hypothesized that laxatives are given infrequently.

METHODS

Study Design

This was a retrospective cohort study using data from the National Hospital Ambulatory Medical Care Survey (NHAMCS). As the NHAMCS is a fully deidentified national data set, no institutional review board approval is required.

Study Setting and Population

Data from 2010 were analyzed to determine the proportion of adult visits receiving laxatives among those discharged with opioid prescriptions. The NHAMCS is an annual survey conducted to describe ambulatory care at U.S. hospitals. A detailed description of the NHAMCS is available from the National Center for Health Statistics.[9]

Study Protocol

Visits by individuals aged 18 years and older prescribed opioid pain medications at ED discharge were included in the primary analysis. To isolate visits in which laxatives were prescribed as prophylaxis[5,10] rather than treatment, visits in which constipation was listed as one of the three reasons for visit were excluded from the primary analysis. Lists of medications considered opioids and laxatives are provided in Data Supplement S1 (available as supporting information in the online version of this paper). Only oral laxatives were included under the definition of laxatives because enemas are not usually recommended or given for the prevention of constipation. Our interest was in whether patients discharged with opioids were also discharged with laxatives. Thus, opioid and laxative medications were defined as received if they were either prescribed at discharge or given in the ED and prescribed at discharge.

All estimates used the weights, strata, and primary sampling units provided by the NHAMCS to generate nationally representative estimates of the frequency of events across U.S. EDs.[9] In the primary analysis, among the group of visits in which patients were prescribed opioids at discharge, we estimate the proportion also prescribed any laxatives. Because opioid-induced constipation is a greater problem among older adults than younger adults, a subgroup analysis was performed among visits by those aged 65 years and older.

To assess whether the NHAMCS records information on laxative prescriptions, an analysis was conducted to examine the proportion of visits in which laxatives were prescribed among visit by individuals with constipation listed as one of the three reasons for visit. We also estimated the proportion prescribed docusate and the proportion prescribed either senna or bisacodyl for both those receiving opioids and those with a complaint of constipation.

Two additional sensitivity analyses were performed. First, in an attempt to isolate a group of patients likely to be initiating (as opposed to continuing) opioid treatment, we estimated the proportion of visits prescribed laxative prophylaxis among visits by individuals receiving prescriptions for the most common ED-initiated opioid medications: oxycodone, hydrocodone, or tramadol. Second, we repeated the primary analysis but excluded visits by patients with abdominal pain, which might be a contraindication for the use of laxatives.

Data Analysis

Data management was conducted using SAS 9.2 and data analysis was conducted using Stata version 11.1.

RESULTS

Of the total 34,936 visits from 350 EDs in the NHAMCS database in 2010, there were 5,291 visits by individuals aged 18 years and older without constipation that resulted in discharge from the ED with opioids. These 5,291 NHAMCS entries represent an estimated 21,075,050 ED visits nationally. A total of 483 of these visits were by adults aged 65 years and older, representing 1,904,411 ED visits nationally. Among visits by individuals aged 18 years and older discharged from the ED with opioids, 0.9% received laxatives, 0.6% received docusate, and 0.1% received either senna or bisacodyl. Among the subset of visits by adults aged 65 years and older, 1.0% received laxatives, 0.9% received docusate, and 0.0% received either senna or bisacodyl (Table 1).

Among visits by individuals aged 18 years and older with constipation as one of the three reasons for visit and which resulted in discharge, 42% (95% confidence interval [CI] = 30% to 57%) received laxatives, 19% (95% CI = 10% to 35%) received docusate, and 1.4% (95% CI = 0.2% to 8.8%) received either senna or bisacodyl. Among discharged visits by individuals aged 18 years and older presenting with constipation as the first reason for visit, 48% (95% CI = 31% to 66%) received laxatives.

Among adults discharged from the ED and receiving opioid prescriptions, oxycodone, hydrocodone, or tramadol accounted for 92% of these prescriptions. Among visits by adults aged 18 years and older prescribed one of these three opioids at discharge, 1.0% (95% CI = 0.7% to 1.3%) received laxatives. Among the subset of visits by adults aged 65 years and older

Table 1
Among ED Visits Discharged With Opioids, the Percentage of Individuals Receiving Prescriptions for any Laxative, Docusate, or Either Senna or Bisacodyl. N's are nationally representative estimates of U.S. ED visits meeting row and column criteria in 2010.

Visit Group	Prescribed Laxative	Prescribed Docusate	Prescribed Senna or Bisacodyl
Aged 18 years and older (*n* = 21,075,050)	0.9 (0.7–1.3) 191,203	0.6 (0.4–0.9) 132,308	0.1 (0.0–0.3) 22,077
Aged 65 years and older (*n* = 1,904,411)	1.0 (0.5–2.0) 18,681	0.9 (0.4–1.8) 16,934	0.0 (0.0–0.0) 0
Data are reported as % (95% CI) *n*.			

receiving any of these three medications, 1.2% (95% CI = 0.6% to 2.4%) received laxatives.

Among visits by adults aged 18 years and older with neither abdominal pain nor constipation prescribed opioids at discharge, 0.8% (95% CI = 0.5% to 1.1%) received laxatives. Among the subset of visits by adults aged 65 years and older, 0.8% (95% CI = 0.3% to 1.7%) received laxatives.

DISCUSSION

In our analysis of a nationally representative ED sample, only 1% of adult visits discharged with opioids also received laxative prescriptions. Among the subgroup of visits aged 65 years and older, the proportion was also 1%. In contrast, approximately 40% of visits with constipation had documented evidence of laxative prescriptions. Our results illustrate a discrepancy between the clinical guidelines to provide laxative prophylaxis with opioids and clinical practice in emergency care. The same discrepancy has been described in residents of long-term care facilities.[11] Although the NHAMCS may not consistently identify all laxative prescriptions, the use of laxative prophylaxis for visits discharged with opioids was less than 1/10th that for visits for constipation. If the real proportion of constipated visits receiving laxatives is assumed to be 100%, we can infer that approximately two out of five laxative prescriptions are identified by the NHAMCS. Extrapolating this ratio to our findings for ED visits discharged with opioids, at most 2.5% of ED visits initiating opioid therapy were prescribed laxatives. This proportion is surprisingly low, given that constipation is one of the most common side effects of opioid therapy and occurs even in the first week of treatment and clinical guidelines recommend prophylaxis to prevent it.

The low prescription rate of laxatives may be clinically important. Adequate control of acute pain is associated with improved long-term function and decreased rates of persistent pain,[12] and opioid-induced constipation can lead to cessation of opioid use.[13] Thus, providing prophylaxis to prevent opioid-induced constipation may improve long-term functional outcomes for ED patients prescribed opioids. Less opioid-induced constipation could also reduce return physician visits and missed days of work and increase productivity and physical activity.[4] Reducing opioid-induced constipation could be particularly important for older adults because constipation may inhibit patients from remaining physically active during the early recovery period. Our results suggest that prospective studies are needed to better define current care and to determine which patients are most likely to benefit from prophylaxis for opioid-induced constipation or if there are patients in whom the risks of opioids outweigh the benefits.

LIMITATIONS

One limitation is in regard to the accuracy of the data. This accuracy has been challenged by two articles with findings that are contradictory to usual practice: one observed that 44% of patients diagnosed with ectopic pregnancy did not have pregnancy tests,[14] and another observed that 9% of intubated patients were sent home and 17% were sent to noncritical care units.[15] One of the explanations for data inaccuracies in the NHAMCS may be that some data are entered by local hospital staff who do not have specific training for this work.[16] An additional concern relevant to our work is that medication data fields have never been validated to capture over-the-counter medications, and it is possible that the low rate of laxative prophylaxis reflects a failure of recording rather than prescribing. Additionally, we do not have information about emergency provider recommendations for hydration or dietary changes to prevent constipation. If followed strictly, such recommendations may be sufficient to prevent constipation for some or even most patients. Further, NHAMCS does not report home medications, and thus if a patient was on a laxative at baseline, our analysis considered this a failure of prophylaxis. These limitations make it likely that the NHAMCS underestimates the prescription of laxatives. However, we observe that approximately 40% of visits with constipation received laxatives, suggesting that at least 40% of constipation medications are recorded in the NHAMCS. Further, 19% of visits with constipation were prescribed docusate, indicating that prescriptions for this first-line medication for opioid-induced constipation prophylaxis are captured at least some of the time. Our sample size was insufficient to support analyses of subgroups by region or by hospital type. However, with an estimated overall laxative prescribing rate of 1%, it is likely that rates within these subgroups are also quite low.

CONCLUSIONS

We estimate that at most 2.5% of U.S. adults discharged from the ED with opioid prescriptions are also prescribed laxatives to prevent opioid-induced constipa-

tion. Because opioid-induced constipation negatively affects pain management and quality of life, and can be safely and effectively prevented with inexpensive medications, emergency providers should give additional consideration to prescribing laxatives for patients discharged on opioids.

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Supporting Information

The following supporting information is available in the online version of this paper:

Data Supplement S1. (a) Medications considered opioids and (b) medications considered laxatives.