



Selected Topics: Sports Medicine

MEDICATIONS USED IN U.S. EMERGENCY DEPARTMENTS FOR AN ANKLE SPRAIN: AN ANALYSIS OF THE NATIONAL HOSPITAL AMBULATORY MEDICAL CARE SURVEY

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Abstract—Background: An ankle sprain is a common musculoskeletal injury treated in the emergency department. Rest, ice, compression, and elevation is the preferred method for managing the symptoms after an ankle sprain. However, many patients receive a medication, such as a nonsteroidal anti-inflammatory drug (NSAID) or an opioid. **Objectives:** We sought to quantify the type of medication(s) used for an ankle sprain and to examine those across age and sex. **Methods:** This was a retrospective review of the publicly available data collected through the National Hospital Ambulatory Medical Care Survey from 2006–2015. All cases with an isolated diagnosis of an ankle sprain were identified. Medication listed for each case was classified based on its detailed category and further explored across all 10 years, age, and sex. **Results:** An estimated 9,052,678 ankle sprain visits occurred in emergency departments from 2006–2015. NSAIDs (56.1%) and opioid analgesic combination (28.4%) were the 2 most common medications. Regardless of the type, most medications were prescribed at discharge. The use of NSAIDs appears to have increased while opioid analgesic combinations decreased in 2010. NSAIDs were the most common medication identified with each age cohort; however, there was no apparent trend in medication for sex. **Conclusions:** NSAIDs are the most common medication used for ankle sprain visits to the ED. Nevertheless, an opioid is also used at a relatively high rate for this injury.

These findings provide awareness and opportunity to focus on strategies for reduction of opioid use. © 2019 Elsevier Inc. All rights reserved.

Keywords—nonsteroidal anti-inflammatory drugs; opioids; sports medicine

INTRODUCTION

An ankle sprain causes acute pain, swelling, and a loss of range of motion. These symptoms lead individuals to seek treatment at an emergency department (ED) (1). Current practice guidelines recommend that an acute ankle sprain should be managed conservatively with rest, ice, compression, and elevation (RICE) and supplemented with either supervised physical rehabilitation or home-based exercises (2–4).

Experts have suggested that pharmacological interventions may be used for pain management after an ankle sprain (3–5). Researchers have primarily focused on either oral or topical nonsteroidal anti-inflammatory drugs (NSAIDs) for pain management. Results from a meta-analysis suggest that NSAIDs are effective in reducing short-term pain relative to a placebo group after an ankle sprain (6). Despite the effectiveness of NSAIDs, others have noted that patients given an opioid in the ED report lower levels of pain at 4 h and at the 5-day follow-

Reprints are not available from the authors.

RECEIVED: 22 March 2019; FINAL SUBMISSION RECEIVED: 24 July 2019;
ACCEPTED: 7 August 2019

up (7). This clinical utility for prescribing an opioid to reduce pain may partially explain why a recent study found that 1 of 5 adults (>18 years of age) discharged from an ED with an ankle sprain filled a 3-day supply of opioids in 2015 (8). However, unlike NSAIDs, there is a significant concern for future abuse and misuse of opioids in the United States (9).

Epidemiologic studies have quantified the incidence rate for an ankle sprain across different age cohorts, sports, sex, and health care utilization patterns (10–16). Despite this work, there is limited evidence detailing the frequency and the type of medication commonly used to treat pain associated with this injury. Documenting this information is important because the peak incidence rate for ankle sprains occurs in adolescents and young adults (10). This is an age group that has been increasingly exposed to prescription opioids and who are at risk for future misuse (17,18). Therefore, understanding the patterns of pain management through medication for this common injury may help identify areas of focus for efforts to reduce opioid consumption.

The National Hospital Ambulatory Medical Care Survey (NHAMCS) is an annual survey conducted by the U.S. Centers for Disease Control and Prevention. This survey is used to retrospectively collect national-level estimates of EDs and patient-level characteristics of ED visits. The NHAMCS has been used by previous authors to examine the trend in medication across different time frames and for a variety of pathologies, such as migraines or plantar fasciitis (19–21). Thus, the NHAMCS is an ideal database to understand the type of medication being used during ED visits for an ankle sprain.

The purpose of this article is to describe the percentage of ED visits for an ankle sprain that had a medication given in the ED or prescribed at discharge between 2006–2015. In addition, we sought to quantify the types of medication and the year-to-year rates. Finally, we aimed to examine the type of medication within each age cohort and sex.

MATERIALS AND METHODS

Study Design

We performed a secondary analysis of data collected through the NHAMCS. The NHAMCS began using the Multum Lexicon Drug Database in 2006 to identify all prescription and nonprescription drugs available in the United States. Therefore, we analyzed the publicly available data from 2006–2015 to maintain consistency in the coding of variables. This study was exempt from the institutional review board because the NHAMCS consists of only deidentified data.

Information regarding the design and estimation procedures for the NHAMCS has been previously published (22). Briefly, the NHAMCS is designed to retrospectively collect data from visits to the ED during a randomly selected 4-week reporting period. This is accomplished by identifying selected hospitals within 112 geographic regions determined from the 1985–1994 National Health Interview Surveys. From this, approximately 480 different hospitals are selected which consists of general, nonfederal, and short-stay ambulatory care units. Retrospective data from medical records for each sample visit are entered into the NHAMCS by a field representative of the U.S. Census Bureau. Data extracted from each medical record include information detailing the patient demographic information, the reason for the visit, vital signs, causes(s) of injury, medical diagnosis, procedures provided, medications prescribed, and the providers consulted.

Selection of Participants

We combined annual data sets from 2006–2015 and queried to identify all cases with a discharge diagnosis of an ankle sprain (*International Classification of Diseases, Ninth Revision* codes 845.00–845.09) as the first-listed diagnosis (DIAG1). These codes were selected because they are used to represent an unspecified ankle sprain and the various types (lateral, medial, and syndesmotic).

The NHAMCS allows for up to 5 separate *International Classification of Diseases, Ninth Revision* codes related to the discharge diagnosis for each encounter. To reduce the possibility of other copathologies influencing the results, we restricted our analysis to exclude those cases that were identified as having any additional discharge diagnosis listed (DIAG2–DIAG5).

Identification of Medication

Once all cases with an isolated discharge diagnosis were selected, we queried the combined dataset to identify the annual percentage of cases that had a medication (MED) listed and the number of medications (NUMMED).

Next, we used the detailed category (RX1V3C1) of the first medication to classify the type of medication administered. The first medication was classified using the following labels: 1) nonopioid analgesics (e.g., acetaminophen): ‘059 – CNS; analgesics; miscellaneous analgesics’; 2) opioid (e.g., morphine, hydromorphone): ‘060 – CNS; analgesic; narcotic’; 3) NSAID (e.g., ibuprofen, ketorolac): ‘061 – CNS; analgesics; NSAID’; 4) opioid analgesic combination (e.g., acetaminophen-hydrocodone, acetaminophen-oxycodone): ‘191 – CNS; analgesic; narcotic analgesic combinations.’ All

other remaining medications were grouped and considered 'other' (e.g., penicillin). With the first medication classified, we examined the overall frequency and the annual percentage rate for each type.

Additional analyses were performed to examine when (GPMED1) each type of medication was administered as well as its distribution within each age cohort (AGER) and sex (SEX).

Statistical Analysis

National weighted estimates were calculated using the sample visit weight, which reflects the sample ratio at each stage of the survey design. The sample weights are adjusted and set by the NCHS based on the survey nonresponse rate, geographic region, and type of hospital ownership. By doing this, an unbiased national estimate of the ED visit occurrences and characteristics is created. Because of the complexity of the sample design, sampling errors were calculated using SAS PROC SURVEYFREQ from SAS software (version 9.4; SAS Institute, Cary, NC), which takes into account the clustered nature of the sample.

Both unweighted counts and national weighted estimates along with the 95% confidence intervals were extracted for demographic information of the entire sample. Frequency data and 95% confidence intervals for the category of the medication was extracted and examined across all 10 years and the time it was administered as well as within each age cohort and sex. In addition, the frequency of medication was examined annually from 2006–2015.

RESULTS

Demographic information is listed in [Table 1](#). Between 2006–2015, an estimated 9,053,000 isolated ankle sprain visits occurred in EDs across the United States. The majority of these visits were for ages 25–44 years (33.5%) and were for females (54.7%), white patients (63.1%), and were in the Southern United States (36.6%).

Medication was given in the ED or prescribed at discharge in 75.5% of ankle sprain visits with an annual rate that ranged from 72.5–79.9% ([Figure 1](#)). A single (48.9%) medication was most commonly administered ([Table 2](#)).

Frequency data for the type of medication are listed in [Table 3](#), and when it was administered is shown in [Table 4](#). NSAIDs (56.1%) were the most common medication, with the majority prescribed at discharge (54.3%). Opioid analgesic combinations and opioids accounted for an estimated 28.4% and 6.2%, respectively. Both medications were primarily prescribed at discharge ([Table 4](#)).

From 2009–2010, the percentage of NSAIDs increased from 51.3% to 64.0% ([Figure 2](#)). At the same time, opioid analgesic combinations decreased from 35.1% to 23.6%.

Age

The percentage of ED visits with medication range from 75.2% to 81.5% for 15–72 years of age ([Figure 3](#)). In contrast, this percentage was only 64.4% for visits <15 years of age and 56.3% for visits >75 years of age.

Table 1. Demographic Information for Ankle Sprain Visits in Emergency Departments Between 2006–2015 in the United States

Demographic Information	Unweighted Frequency	Weighted Frequency	Percentage (95% CI)
Age (y)			
<15	446	1,994,000	22.0 (19.6–24.4)
15–24	659	2,670,000	29.5 (27.3–31.6)
25–44	712	3,035,000	33.5 (30.8–36.2)
45–64	286	1,112,000	12.3 (10.0–14.4)
65–74	30	96,000	1.0 (0.5–1.6)
≥75	31	147,000	1.6 (0.9–2.2)
Sex			
Female	1158	4,959,000	54.7 (52.0–57.4)
Male	1006	4,094,000	45.3 (42.5–47.9)
Race			
White only	1233	5,084,000	63.1 (59.0–67.1)
Black/African American only	324	1,468,000	18.2 (15.1–21.3)
Asian only	33	95,000	1.2 (0.5–1.7)
Native Hawaiian/other Pacific Islander only	7	30,000	0.4 (0.0–0.7)
American Indian/Alaska Native only	8	50,000	0.6 (0.0–1.3)
>1 race	11	55,000	0.7 (0.1–1.2)
Blank	255	1,272,000	15.8 (12.4–19.1)
Geographic region			
Northeast	547	1,873,000	20.7 (17.2–24.1)
Midwest	553	2,175,000	24.0 (19.8–28.2)
South	694	3,3187,000	36.6 (31.3–41.9)
West	370	1,688,000	18.6 (14.8–22.4)

CI = confidence interval.

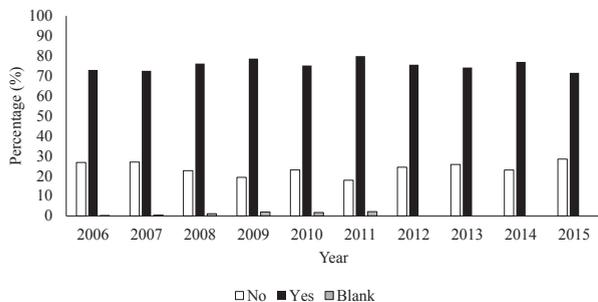


Figure 1. Annual Percentage of Medication for Ankle Sprain Visits to Emergency Departments in the United States

A list of the percentage of medications within each age category is provided in Table 5. NSAIDs were the most common medication within each age category. Relative to the age group for visits <15 years of age, NSAIDs decreased 25% and opioid analgesic combinations increased for visits ≥15 years of age.

Sex

The estimated percentage of females and males receiving a medication across all 10 years was 74.1% and 76.4%, respectively. The distribution of medication among females and males was similar (Table 6).

DISCUSSION

An ankle sprain causes acute pain, swelling, and a loss of range of motion. Many patients with an ankle sprain present to the ED to seek relief of their symptoms. We found that medication was given in the ED or prescribed at discharge in 75% of ED visits for an isolated ankle sprain between 2006–2015 in the United States. Using the National Electronic Injury Surveillance System database,

Table 2. Weighted Frequency and Percentage (95% CI) for the Total Number of Medication Administered for an Ankle Sprain Between 2006–2015

n	Unweighted Frequency	Weighted Frequency	Percentage (95% CI)
0	539	2,213,000	24.4 (21.5–27.3)
1	1082	4,435,000	48.9 (45.8–52.0)
2	415	1,775,000	19.6 (16.9–22.3)
3	93	447,000	4.9 (3.5–6.3)
4	27	134,000	1.4 (0.4–2.3)
5	3	18,000	0.2 (0.0–0.4)
6	3	28,000	0.3 (0.0–0.8)
7	2	2000	0.02 (0.0–0.0)

CI = confidence interval.

Table 3. Weighted Frequency and Percentage (95% CI) for the Type of Medication for Ankle Sprains Visits to Emergency Departments in the United States Between 2006–2015

Classification	Unweighted Frequency	Weighted Frequency	Percentage (95% CI)
Opioid	97	422,000	6.2 (4.6–8.1)
Opioid analgesic combination	454	1,939,000	28.4 (24.7–32.1)
Nonopioid analgesic	132	473,000	6.9 (4.6–8.1)
NSAID	890	3,820,000	56.1 (52.2–59.9)
Other	41	155,000	2.3 (1.2–3.2)

CI = confidence interval; NSAID = nonsteroidal anti-inflammatory drug. Missing unweighted frequency: n = 550.

Shah et al. found that the percentage of ED encounters with medication varied (0.87–9.48%) based on the type of ankle sprain (16). The difference between the rates previously reported and those estimated in the current study might be related to the methodology of the 2 surveys (NHAMCS vs. National Electronic Injury Surveillance System) or what was considered a medication in both studies. For example, it is not clear if a medication recorded by Shah et al. was required to be a controlled substance or if the medication had to be given in the ED, prescribed at discharge, or both (16). In contrast, we included all medications regardless of when they were given.

Our analysis of the data demonstrated that an NSAID (56.1%) was the most common medication (Table 3). This finding is consistent with the current practice guidelines for the conservative management of an ankle sprain (3,5). Despite this recommendation, there are a few concerns that need to be considered when prescribing these medications after an acute injury. First, NSAIDs are associated with significant adverse events, such as gastrointestinal bleeding. A meta-analysis of primarily young adults with an acute ankle sprain found that NSAIDs resulted in a greater reduction of short-term pain without any adverse events (6). However, older adults can be more susceptible to the adverse events associated with NSAIDs (23). Therefore, it may be acceptable to prescribe other medications within certain age populations. Second, researchers have suggested that NSAIDs can increase the risk for further chronic joint injury because some level of inflammation is beneficial during the healing process (2,24). In turn, other approaches to managing pain and inflammation including RICE and rehabilitation can be used to aid in the healing process. Nevertheless, NSAIDs should continue to be used in combination with rehabilitation until more prospective studies can be performed to understand their effect on long-term recovery.

Table 4. Weighted Frequency and Percentage (95% CI) for When Medication was Administered for Ankle Sprain Visits to Emergency Departments in the United States Between 2006–2015

Time Administered	Unweighted Frequency	Weighted Frequency	Percentage (95% CI)
Opioid			
Given in ED	38	168,000	39.9 (27.6–53.5)
Prescribed at discharge	45	206,000	48.9 (35.0–62.9)
In ED and at discharge	13	44,000	10.5 (4.7–21.8)
Blank	1	3000	0.7 (0.1–4.8)
Opioid analgesic combination			
Given in ED	96	407,000	21.0 (16.5–26.4)
Prescribed at discharge	238	1,019,000	52.6 (46.0–59.0)
In ED and at discharge	115	498,000	25.7 (20.7–31.4)
Blank	5	14,000	0.7 (0.2–2.4)
Nonopioid analgesic			
Given in ED	37	163,000	34.5 (23.8–47.0)
Prescribed at discharge	83	268,000	56.6 (43.4–68.9)
In ED and at discharge	11	29,000	6.2 (3.0–12.2)
Blank	1	13,000	2.7 (0.4–16.8)
NSAID			
Given in ED	212	873,000	22.8 (17.9–28.7)
Prescribed at discharge	464	2,076,000	54.3 (48.8–59.7)
In ED and at discharge	203	840,000	22.0 (18.2–26.3)
Blank	11	31,000	0.8 (0.4–1.7)
Other			
Given in ED	14	78,000	50.3 (30.2–70.4)
Prescribed at discharge	21	64,000	41.5 (23.6–62.0)
In ED and at discharge	3	3000	1.9 (0.4–8.3)
Blank	3	10,000	6.3 (2.9–45.4)

CI = confidence interval; ED = emergency department; NSAID = nonsteroidal anti-inflammatory drug.

Analgesics accounted for the remaining portion of the medications. Nonopioid analgesics were found to account for only 6% of medication (Table 3). Experts have recommended nonopioid analgesics for minimizing pain vs. opioids; therefore, this rate may seem low. However, many prescribers likely encourage their patients to take nonopioid analgesics in the form of over-the-counter medications. Unfortunately, this is not reflected in the results and may explain the low rate of nonopioid analgesics compared with other medications. For example, 28% of medications were an opioid analgesic combination with the majority (52%) prescribed at

discharge (Table 4). This trend is supported by Delgado et al. who found that 25.1% of patients (>18 years of age) discharged from the ED with an ankle sprain filled a 3-day supply of opioids (8). Opioid analgesic combinations are effective at minimizing pain after an ankle sprain (7). However, the well-known consequences associated with these addictive medications may outweigh their treatment benefit (9). Previous research demonstrating the value of nonpharmacologic interventions for pain management, such as cryotherapy or joint mobilizations underscores this concern (25–30).

The consumption of prescription opioids increased each year from 1999–2011 in the United States (31).

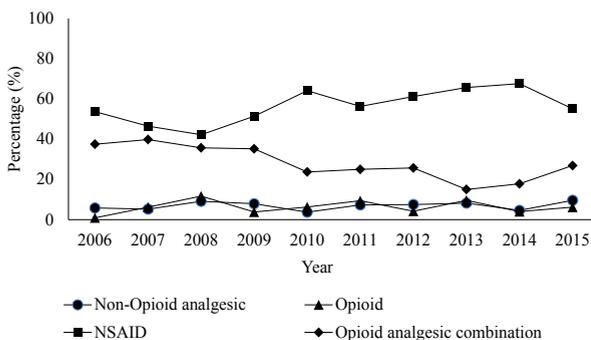


Figure 2. Annual Distribution of Medication for Ankle Sprain Visits to Emergency Departments in the United States. Annual unweighted counts were all <30 other than NSAID (2006 to 2015) and Opioid analgesic combination (2006 to 2012).

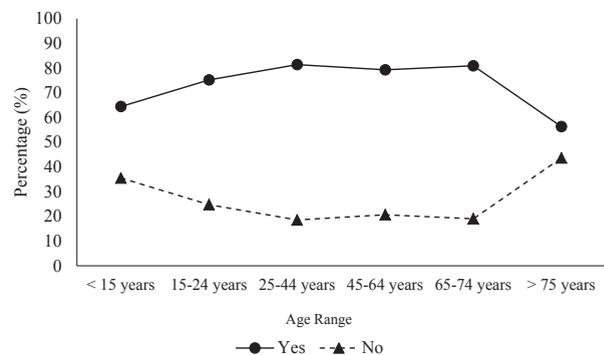


Figure 3. Percentage of Ankle Sprain Visits Receiving Medication within each Age Group.

Table 5. Weighted Frequency and Percentage (95% CI) for Medications Administered for an Ankle Sprain Within Each Age Range from 2006–2015

Classification	Unweighted Frequency	Weighted Frequency	Percentage (95% CI)
<15 years			
Opioid	8	42,000	3.3 (1.24–8.46)
Opioid analgesic combination	20	90,000	6.9 (3.3–10.5)
Nonopioid analgesic	46	155,000	12.2 (8.21–17.38)
NSAID	205	977,000	76.0 (69.7–82.2)
Other	5	21,000	1.6 (0.0–3.4)
15–24 years			
Opioid	28	133,000	6.6 (4.10–10.58)
Opioid analgesic combination	134	609,000	30.3 (24.1–36.4)
Nonopioid analgesic	34	107,000	5.4 (3.31–8.46)
NSAID	281	1,128,000	56.1 (50.4–61.8)
Other	12	32,000	1.6 (0.5–2.6)
25–44 years			
Opioid	37	154,000	6.3 (3.99–9.63)
Opioid analgesic combination	214	906,000	36.6 (31.1–42.0)
Nonopioid analgesic	26	118,000	4.8 (2.78–8.00)
NSAID	288	1,226,000	49.6 (43.8–55.3)
Other	13	69,000	2.7 (0.7–4.8)
45–64 years			
Opioid	21	86,000	9.7 (5.24–17.27)
Opioid analgesic combination	76	285,000	32.2 (23.0–41.4)
Nonopioid analgesic	18	59,000	6.7 (3.78–11.53)
NSAID	96	421,000	47.8 (36.0–59.5)
Other	10	32,000	3.6 (0.4–6.7)
65–74 years			
Opioid	2	2,000	2.6 (0.47–12.53)
Opioid analgesic combination	7	37,000	47.9 (21.1–74.8)
Nonopioid analgesic	1	2,000	2.1 (0.26–14.4)
NSAID	13	35,000	45.1 (17.1–73.0)
Other	1	2,000	2.2 (0.0–6.1)
>75 years			
Opioid	1	4,000	4.8 (0.65–28.58)
Opioid analgesic combination	3	13,000	15.5 (0.0–33.8)
Nonopioid analgesic	7	33,000	39.8 (18.78–65.48)
NSAID	7	33,000	39.8 (13.3–66.2)
Other	0	—	—

CI = confidence interval; ED = emergency department; NSAID = nonsteroidal anti-inflammatory drug.

There was a steady rise in the number of prescription opioid-related overdoses during the same period (32). The increased awareness over the potential harms of opioids resulted in health care administrators and policy-makers to implement guidelines to improve opioid

prescribing practices. Implementing these new guidelines has contributed to a gradual decline in the overall opioid prescribing rate in the United States (33). This appears to be reflected in our data for ankle sprain visits to the ED as illustrated by the apparent decline in opioid analgesic

Table 6. Weighted Frequency and Percentage (95% CI) for Medications Administered for an Ankle Sprain within Sex from 2006–2015

Classification	Unweighted Frequency	Weighted Frequency	Percentage (95% CI)
Female			
Opioid	55	225,000	6.2 (4.3–8.6)
Opioid analgesic combination	251	1,200,000	29.89 (24.9–34.8)
Nonopioid analgesic	71	266,000	7.3 (5.2–9.8)
NSAID	454	1,991,000	54.1 (48.8–59.3)
Other	27	96,000	2.6 (1.3–3.8)
Male			
Opioid	42	197,000	6.3 (4.1–9.5)
Opioid analgesic combination	203	839,000	26.7 (22.0–31.5)
Nonopioid analgesic	61	207,000	6.7 (4.8–9.0)
NSAID	436	1,829,000	58.4 (53.8–63.0)
Other	14	59,000	1.8 (0.3–3.4)

CI = confidence interval; NSAID = nonsteroidal anti-inflammatory drug.

combination medications and an increase in NSAIDs in 2010 (Figure 2). While progress has occurred, about 30% of medications provided in 2015 were opioid analgesic combinations. Therefore, continued work is needed in educating both patients and prescribers on the effectiveness of nonpharmacologic interventions for pain management after acute musculoskeletal injuries.

Lastly, a noteworthy observation between the type of medication and age emerged from our analysis. Specifically, 76% of all medication was for an NSAID during visits for patients <15 years of age (Table 5). This estimate for NSAIDs decreases by 25% for visits for patients >15 years of age, and the rate of opioid analgesic combinations increases by a comparable amount. These findings reflect a previous study showing the odds of receiving an opioid prescription from the ED rise every year between the ages of 10 and 23 years (34). Increased opioid prescribing to this age group is a concern because many adolescents suffering from opioid addiction report that their first exposure to opioids was through an ED (35). With the peak incidence rate for an ankle sprain between 15 and 19 years of age, the increased opioid analgesic combinations prescribed to ankle sprain patients may be putting them at risk for prolonged use. In fact, previous research has shown that ankle sprain patients prescribed a higher dose (>225 mg of morphine equivalent) of either hydrocodone or oxycodone were 6 times more likely to transition to prolonged opioid use (8). Future research and health care policymakers should continue to identify strategies to minimize the exposure to opioids in adults.

Altogether, the data presented in the current study provide further insight into opioid prescribing practices in the United States. An ankle sprain has been consistently shown to be the most common musculoskeletal injury while participating in physical activity, especially among adolescents and young adults (11,36). Levels of acute musculoskeletal pain can be elevated after an ankle sprain and warrant immediate attention. However, the use of an opioid for this should be considered carefully given the potential consequences associated with their use. Both patients and health care professionals should consider supplementing nonpharmacologic interventions (e.g., RICE or manual therapy) with NSAIDs or nonopioid analgesics as the first line of defense when managing pain after an ankle sprain. However, for patients who do warrant the need for an opioid, health care professionals should encourage them to follow-up with a physical therapist or an athletic trainer for further pain management.

Limitations

As with any study, there are certain limitations that should be considered when interpreting the results and conclu-

sions. The NHAMCS has been conducted annually for >20 years and has evolved over time by removing and adding survey items. We limited our analysis by including the last 10 years of available data to allow for consistency in the outcome variables explored. Moreover, the NHAMCS is a national-level database documenting ED visits to participating hospitals around the United States. As such, the data derived from this survey is based on weighted estimates of the information extracted from medical records. Related to this, there have been concerns regarding the ability of the NHAMCS personnel to extract all pertinent data from each medical record and enter it into the survey accurately (37).

Another limitation is centered around the number of observed cases for estimates to be calculated. The NHAMCS recommends that variables with <30 observed cases should be considered unreliable and should be taken with caution. When all 10 years were combined into a single data set, each variable explored exceeded this recommendation. However, when the data were further extrapolated into certain subcategories (e.g., year-to-year or age), there were instances when the number of observed cases dropped below 30. Therefore, these estimates should be taken with caution until more cases be collected through the NHAMCS.

CONCLUSION

NSAIDs and opioid analgesic combinations were the 2 most common medications identified. In 2010, the use of NSAIDs appeared to increase while opioid analgesic combinations decreased. Finally, opioid analgesic combination increased by approximately 25% for visits >15 years of age. Both patients and health care professions should consider supplementing nonpharmacologic interventions (e.g., RICE or manual therapy) with NSAIDs or nonopioid analgesics as the first line of defense when managing pain after an ankle sprain.

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ARTICLE SUMMARY

1. Why is this topic important?

An ankle sprain is the most common musculoskeletal injury among young adults and is often managed in the emergency department. The current standard of care for this self-limiting injury typically consists of rest, ice, compression, and elevation and physical rehabilitation. However, some patients may require pharmacologic interventions to help manage the pain caused by an ankle sprain. Nonsteroidal anti-inflammatory drugs (NSAIDs) or nonopioid analgesics are typically recommended; however, recent evidence suggests that many patients might be receiving an opioid when discharged from the emergency department. This is a significant concern given the potential harm of prescription opioids in the United States and the age at which most patients sprain their ankle.

2. What does this study attempt to show?

This study describes the prevalence rate for the type of medications associated with ankle sprain visits to emergency departments across the United States from 2006–2015.

3. What are the key findings?

NSAIDs were the most common medication associated with an ankle sprain visit to the emergency department. However, opioid analgesic combinations accounted for nearly one-third of all medications found. In addition, the use of opioid analgesic combinations increases by an estimated 25% for visits above 15 years of age.

4. How is patient care impacted?

Understanding the trend in the type of medication used to manage symptoms for an ankle sprain can inform health care providers on how to better direct nonopioid therapies and access to nonpharmacologic therapies to prevent a patient from being exposed to addictive medication, which can contribute to minimizing the effect of the current opioid crisis.