American Journal of Emergency Medicine 37 (2019) 730–732

Contents lists available at ScienceDirect

American Journal of Emergency Medicine

journal homepage: www.elsevier.com/locate/ajem

Brief Report

Preference for opioids in emergency department patients with acute musculoskeletal pain

Cooper Swenson *, Nishant Prashar, Alyssa Mangino, Henry C. Thode, PhD, Adam J. Singer, MD

Stony Brook University Hospital, Stony Brook, NY, United States of America

ARTICLE INFO

Article history:
Received 12 November 2018
Received in revised form 28 December 2018
Accepted 28 December 2018

Keywords:
Opioid
Preference
Pain

ABSTRACT

Background: Public awareness of the opioid epidemic is increasing nationally, emphasizing the need to develop methods to reduce opioid use. We determined patient preference for analgesics before and after a brief educational intervention informing them of the risks and benefits of opioids versus non-steroidal anti-inflammatory drugs (NSAID's). We hypothesized 50% of patients would prefer opioids pre-intervention and that this would be reduced by the intervention by at least 15%.

Methods: Study Design—Before and after study. Setting—Suburban ED with annual census of 110,000. Patients—English-speaking adult ED patients with acute musculoskeletal pain. Interventions—An anonymous survey was administered by an investigator not involved in the patient's clinical care prior to physician evaluation, before and after a video describing the risks and benefits of opioids versus NSAID's. Patients were asked if they desired analgesics. Data Analysis—Descriptive statistics were used to summarize the data. Univariate analysis and logistic regression were used to predict patient demographics and pain characteristics associated with desire for analgesics.

Results: Of all 94 patients, 48 (51% [95% CI 41–62%]) desired an analgesic pre-intervention. Of these 48 patients, 10 (11% [5–19%]) specifically preferred an opioid. Of the 10 patients who preferred an opioid pre-intervention, one had no preference for analgesic post-intervention.

Conclusions: Many adult ED patients with acute musculoskeletal pain do not desire any analgesics and few specifically prefer opioids. This knowledge can prove helpful to ED physicians across the country in discussing pain management options with patients as we attempt to combat the opioid epidemic.

© 2018 Elsevier Inc. All rights reserved.

1. Introduction

The opioid epidemic is a well-known problem, especially in the field of emergency medicine [1-4]. At the same time, patient satisfaction is becoming increasingly important in the healthcare system [5,6]. The goal of this study is to assess patients' preference for opioids as an analgesic and the effect of a short educational intervention, informing them of the efficacy for their type of pain (acute musculoskeletal pain) and major adverse effects, on this preference. If patient preference decreases after receiving information about these drugs, this could provide a practical approach to decrease the number of prescription opioids prescribed while at the same time maintaining patient satisfaction.

2. Methods

2.1. Study design

The study was a paired-comparison survey of patient preference for opioid analgesics before and after a brief educational intervention. Institutional review board (IRB) approval was obtained with waiver of written informed consent. Verbal consent was obtained prior to enrollment.

2.2. Study setting

The research site was the emergency department of a large, academic, suburban, tertiary care hospital with an annual census of 110,000 patients. Data was gathered during June and July of both 2017 and 2018.

2.3. Screening

All the following inclusion criteria were met for a patient to be eligible to enroll: triage chief complaint of musculoskeletal pain with onset of one week or less; age 18–65; English-speaking; alert and oriented;

* Corresponding author at: Department of Emergency Medicine, HSC L4-080, 8350 SUNY, Stony Brook, NY 11794-8350, United States of America.
E-mail addresses: Cooper.Swenson@stonybrookmedicine.edu (C. Swenson), Nishant.Prashar@stonybrookmedicine.edu (N. Prashar), Alyssa.Mangino@stonybrookmedicine.edu (A. Mangino), Henry.Thode@stonybrookmedicine.edu (H.C. Thode), Adam.Singer@stonybrookmedicine.edu (A.J. Singer).

https://doi.org/10.1016/j.ajem.2018.12.057
0735-6757/© 2018 Elsevier Inc. All rights reserved.

not currently on an opioid prescription; no history of extensive opioid knowledge (e.g., physician); not pregnant or breast-feeding; no allergy to NSAID's/opioids.

2.4. Protocol

The procedure for each patient involved two anonymous questionnaires and one brief educational intervention on opioid medications. Both questionnaires, as well as the educational intervention, were reviewed by a member of the psychiatry department with research expertise in the field of substance abuse, and feedback was obtained. Patients were approached about enrolling by a researcher (medical student trained in the protocol) prior to discussion of or initiation of treatment by their emergency department clinician. Upon enrolling, the patient received and filled out the first anonymous questionnaire (19 items), including demographics (age, gender, race, education level, health insurance, etc.), as well as questions relating to their chief complaint (of acute musculoskeletal pain) and preference for analgesic (if any).

Next, they received a physical copy of the brief (slightly <300 words) educational intervention on opioid medications (including efficacy and most common adverse effects), with information adapted from the literature, and care taken to write the information in layman's terms. The patient was then encouraged to follow along reading while watching a video (1 min 43 s) on an iPad provided by the researcher of the written intervention being read aloud by the researcher in a white coat to standardize the message delivery.

Finally, the patient received and filled out the second anonymous questionnaire (10 items), which again asked about analgesic preference (if any), and about any changes in opinion from before the educational intervention. No compensation was offered to participants.

2.5. Data analysis

Descriptive statistics were used to summarize the data. Univariate analysis and logistic regression were used to predict patient demographics and pain characteristics associated with desire for (a) any analgesic and (b) opioids versus other analgesics.

2.6. Sample size calculation

Assuming 50% of patients would prefer an opioid medication pre-intervention, a sample size of 94 patients would be able to detect (with 95% confidence and 80% power) a net 15% decrease in preference for opioid medication post-intervention.

3. Results

Of 130 patients approached, 94 consented and were enrolled. Patient demographics and pain characteristics are provided in table format (Table 1).

Of all 94 patients, 48 (51% [95% CI 41–62%]) desired an analgesic pre-intervention. Of these 48 patients, 19 (20% [13–30%]) had no preference, 18 (19% [12–29%]) preferred an NSAID, 10 (11% [5–19%]) preferred an opioid and one (1% [0–6%]) preferred cannabis. Post-intervention, 46 (49% [39–60%]) desired an analgesic. Of these 46 patients, 16 (17% [10–26%]) had no preference, 18 (19% [12–29%]) preferred an NSAID, 11 (12% [6–20%]) preferred an opioid and one (1% [0–6%]) preferred cannabis. Of the 10 patients who preferred an opioid pre-intervention, one had no preference for analgesic post-intervention; two patients who had no preference for an analgesic pre-intervention preferred an opioid post-intervention.

Using stepwise logistic regression with candidate variables being any factor with a univariate p value of 0.20 or less, only pain level was significantly associated with desire for any analgesic pre-intervention (OR 2.37 [95% CI 1.61–3.49] per one-point increase in the pain scale).

Table 1
Patient demographics and pain characteristics.
Numbers are n (column 2) and % (column 3) unless otherwise indicated.

Characteristic	N	%
Female	46	49
Mean age (SD)	36 (14)	–
Median age (IQR)	33 (25–48)	–
Race/Ethnicity		
White	66	70
Hispanic	14	15
African American	6	6
Asian	4	4
Mixed/other	4	4
Education		
Incomplete high school	4	4
High school/GED	36	38
College	34	36
Graduate degree	15	16
Post-graduate	5	5
Insurance		
Private	62	66
Medicaid	19	20
Workers' compensation	6	6
Medicare	1	1
None	4	4
Unspecified	2	2
Stress level		
1 (Low)	6	6
2	9	10
3	18	19
4	23	25
5	28	30
6 (High)	9	10
Unspecified	1	1
Addiction history		
No	86	91
Yes	7	7
Unspecified	1	1
Location of pain[a]		
Neck	17	18
Back	33	35
Upper extremity	29	31
Lower extremity	34	36
Anterior chest wall	3	3
Pain duration		
0–6 h	42	45
7–12 h	9	10
13–24 h	11	12
1–2 days	14	15
>2 days	15	16
Unspecified	3	3
Pain frequency		
Constant	75	80
Intermittent	18	19
Unspecified	1	1
Pain description		
Sharp	35	37
Multiple	31	33
Ache	16	17
Pressure	6	6
Burning	4	4
Other	1	1
Unspecified	1	1
Pain level		
<7[b]	36	38
7+	58	62
Mean pain level (SD)	6.9 (2.1)	–
Median pain level (IQR)	7 (6–8)	–
Pain medication prior to arrival		
Yes	25	27
Ibuprofen	18	72
Acetaminophen	4	16
Meloxicam	1	4
Naproxen	2	8

[a] Sum is >100% because pain may occur in more than one location.
[b] On a verbal numeric pain scale from 0 to 10 from none to worst.

Since there were only 10 cases with preference for opioids pre-intervention, no multivariate model could be constructed for preferring opioids versus other analgesics pre-intervention.

4. Discussion

Contrary to the hypothesis, there was no significant reduction in opioid preference post-intervention. Due to the scarcity of studies examining baseline preference of opioids, our estimation of 50% was inaccurate, and therefore our study was grossly underpowered; patient preference for opioids pre-intervention was found to be approximately 1:10, not 1:2 as suspected. While this was a significant limitation to the evaluation of an intervention in reducing preference for opioids, information collected about baseline preference for opioids in patients with acute musculoskeletal pain in this study can prove useful moving forward.

As discovered, most ED patients with acute musculoskeletal pain do not prefer opioids; this supports not routinely offering opioids for this type of pain, especially because multiple studies have not proven opioids to be consistently superior to other medications (e.g., NSAID's, acetaminophen) in pain relief for this specific type of pain [7,8]. Opioids have numerous side effects associated with their use, even if prescribed for a limited time in the setting of acute pain. Gastrointestinal complications, including constipation, nausea and vomiting, are frequently listed as the most worrisome side effects of opioid therapy, and play a part in influencing patients' choice between opioids [9], further encouraging communication between physician and patient.

We hope this information of baseline opioid preference can be useful in proposing similar studies moving forward. Appropriately sized studies would more successfully be able to (a) further validate and build on these measurements of baseline opioid preference and (b) determine the possibility of creating a significant reduction in analgesic preference for opioids. This knowledge is especially important as Medicine as a whole attempts to combat the opioid epidemic throughout the country, but especially for ED physicians, whom represent a source of a large number of prescriptions into our communities.

5. Limitations

Several limitations exist to this study. Our sample size of 94 patients provided insufficient power to be able to identify any significant reduction in opioid preference, given the unexpectedly low pre-intervention preference. This being a single-setting study in an area of the country very familiar with the opioid epidemic (Long Island, NY) may have led to sampling of a population with a relatively large amount of knowledge about the risks, benefits and limitations of opioids. The possibility of a selection bias is also present, as 36 of 130 (28%) patients approached declined to participate. Due to the possibly sensitive nature of the material being surveyed (desiring an opioid), it is possible a response bias was also present, although the complete anonymity of the study attempted to safeguard against this. Lastly, actual analgesic administered through the ED or upon discharge was not tracked; this information may prove useful in future studies of similar nature.

6. Conclusion

Many adult ED patients with acute musculoskeletal pain do not desire any analgesics and few specifically prefer opioids. This knowledge, in combination with the lack of consistently proven efficacy over other treatment options (e.g., NSAID's, acetaminophen) for this specific type of pain, and appreciable side effects, can prove helpful to ED physicians across the country in discussing pain management options with patients as we attempt to combat the opioid epidemic.

Financial support

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Presentations (preliminary data, prior to study conclusion)

ePoster, SAEM 18, Society for Academic Emergency Medicine, May 2018, Indianapolis, IN.

Author contributions

- CS: study design, acquisition of data, drafting of manuscript, revision of manuscript
- NP: acquisition of data
- AM: acquisition of data
- HCT: analysis and interpretation of data, statistical expertise
- AJS: study design, drafting of manuscript, revision of manuscript

Conflict of interest disclosure

- CS reports no conflict of interest.
- NP reports no conflict of interest.
- AM reports no conflict of interest.
- HCT reports no conflict of interest.
- AJS reports no conflict of interest.

References

[1] Pain & Policy Studies Group. United States of America: Consumption Data At-A-Glance. n.d. [cited 2018 September 23]; Available from: http://www.painpolicy.wisc.edu/country/profile/united-states-america.
[2] Mazer-Amirshahi M, et al. Rising opioid prescribing in adult U.S. emergency department visits: 2001-2010. Acad Emerg Med 2014;21(3):236–43.
[3] Centers for Disease Control and Prevention. Vital signs: overdoses of prescription opioid pain relievers—United States, 1999–2008. MMWR Morb Mortal Wkly Rep 2011;60(43):1487–92.
[4] Seth P, et al. Overdose deaths involving opioids, cocaine, and psychostimulants - United States, 2015–2016. MMWR Morb Mortal Wkly Rep 2018;67(12):349–58.
[5] Fenton JJ, et al. The cost of satisfaction: a national study of patient satisfaction, health care utilization, expenditures, and mortality. Arch Intern Med 2012;172(5):405–11.
[6] Isaacs CG, et al. Shared decision-making in the selection of outpatient analgesics for older individuals in the emergency department. J Am Geriatr Soc 2013;61(5):793–8.
[7] Berthelot JM, et al. Strong opioids for noncancer pain due to musculoskeletal diseases: not more effective than acetaminophen or NSAIDs. Joint Bone Spine 2015;82(6):397–401.
[8] Cantrill SV, et al. Clinical policy: critical issues in the prescribing of opioids for adult patients in the emergency department. Ann Emerg Med 2012;60(4):499–525.
[9] Gregorian Jr RS, et al. Importance of side effects in opioid treatment: a trade-off analysis with patients and physicians. J Pain 2010;11(11):1095–108.