Risk Factors Associated with Opioid Analgesic Prescribing in a Cross Section of 19 U.S. Emergency Departments

Prescribing Opioids Safely in the Emergency Department (POSED) Study Group*

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Introduction

- ED Opioid prescribing has escalated in the past decade
- Little is known about the recipients, quantities prescribed or diagnoses associated with for prescribing
- Emergency physicians (EPs) care for patients with a variety of pain etiologies, frequently without the benefit of an established patient-doctor relationship
- EPs are among the top prescribers of opioid analgesics in patients < 40
- Previous estimates are based on big data (e.g. NHACMS)
- More information is needed on rates of ED opioid pain reliever (OPR) prescribing and types of medications prescribed

Objectives

1. Describe and catalog the demographics and general clinical characteristics of a sample of ED patients receiving OPR at discharge
2. Identify the common diagnoses associated with ED OPR prescribing
3. Characterize the quantity and dose of OPR prescribed by EPs

Methods

- This is a retrospective cohort study of all patients evaluated in 19 hospital EDs over 1 week in October 15-21, 2012.
- Hospitals varied geographically but were predominantly academic urban EDs:
  - University of Colorado, Denver
  - University of Pennsylvania
  - Baystate Medical Center
  - Yale University
  - UMC Souther Nevada
  - Kaiser South Sacramento
  - Cooper Medical School at Rowan
  - Denver Health Medical Center
  - New York University
  - Hartford Hospital
  - Beth Israel Deaconess
  - Northwester Memorial
  - Kaiser San Jose
  - Tufts Medical Center
  - Boston Medical Centre
  - Rhode Island Hospital
  - Case Western Reserve
  - Emory/Grady
  - Orlando Health
- Electronic reports listing all patients aged 18-90 treated during the study week were generated and visits in which the patient was discharged with an OPR (excluding tramadol) were manually abstracted for detailed analysis.
- A standardized chart abstraction: chief complaint, demographics, allergen to non narcotic, discharge diagnosis, pain scores, and opioid prescription details
- Descriptive statistics were generated
- Institutional Review Board approval was obtained at each site

References

Menchine MD, Axeen S, Plantmason L, Seabury S. Strength and dose of opioids prescribed from US emergency departments compared to office practices: implications for emergencydepartment safe-prescribing guidelines. Ann Emerg Med 2014;64(4):S1.
Pletcher MJ, Kertesz SG, Kohn MA, Gonzales R. Trends in opioid prescribing by race/ethnicity for patients seeking care in US emergency departments. JAMA. 2008 Jan 2;299(1):70-8.
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Results

Table 1: Most common chief complaints and diagnosis in patients discharged with an OPR.

Chief Complaints (%)	D/C Diagnosis (%)
Traumatic Extremity Pain (14.2)	Musculoskeletal Back Pain (10.2)
Abdominal Pain (12.5)	Abdominal Pain (10.1)
Back Pain (10.1)	Extremity Fracture (7.1)
Atraumatic Extremity Pain (9.0)	Extremity Sprain (6.5)
MVC (6.8)	Dental (6.2)
Dental (5.9)	Other extremity pain (5.8)
Fall (4.5)	Nephrolithiasis (4.5)
Flank Pain (4.5)	Skin Contusion (3.9)
Chest Pain (3.3)	Chest Pain non cardiac (3.3)
Headache (3.0)	Closed Head Injury (3.0)

Table 2: Predictors of receiving an OPR prescription among those discharged from the emergency department*

	N	%	RR (95% CI) Unadjusted	Adjusted**
Age				
18-34	7865	16.4	Reference	Reference
35-49	5316	19.2	1.17 (1.09, 1.26)	1.13 (1.06, 1.22)
50-64	4115	18.4	1.12 (1.03, 1.22)	1.13 (1.05, 1.22)
65+	1948	11.1	0.68 (0.59, 0.77)	0.82 (0.71, 0.93)
Gender				
Female	10202	16.6	Reference	Reference
Male	9042	17.6	1.06 (1.00, 1.13)	1.12 (1.06, 1.19)
Region				
Northeast	11046	14.8	Reference	Reference
Midwest	1699	11.1	0.75 (0.65, 0.86)	1.01 (0.85, 1.19)
South	2224	18.8	1.27 (1.15, 1.40)	2.15 (1.78, 2.59)
West	4275	24.5	1.66 (1.54, 1.77)	1.13 (1.06, 1.21)
Race				
Black	3838	13.9	Reference	Reference
White	5485	17.7	1.28 (1.16, 1.41)	1.32 (1.20, 1.45)
Hispanic	1625	17.4	1.26 (1.10, 1.43)	1.16 (1.02, 1.32)
Asian	471	12.3	0.89 (0.68, 1.13)	0.98 (0.76, 1.24)
Missing/Other	7825	18.4	1.33 (1.22, 1.46)	1.59 (1.45, 1.74)
Day of Week				
Weekday	13043	16.1	Reference	Reference
Weekend	4863	18.8	1.17 (1.09, 1.25)	1.14 (1.07, 1.22)
Missing	1338	20.0	1.24 (1.11, 1.39)	0.94 (0.78, 1.14)
Emergency Severity Index Score				
1-2	2413	14.4	Reference	Reference
3-5	11419	19.8	1.37 (1.24, 1.52)	1.17 (1.06, 1.29)
Missing	5412	12.5	0.87 (0.77, 0.98)	1.00 (0.85, 1.18)
First Reported Pain Score				
0-6	2900	15.1	Reference	Reference
>6	4511	33.9	2.25 (2.04, 2.47)	2.21 (2.01, 2.44)
Missing	11833	11.2	0.74 (0.67, 0.82)	0.64 (0.57, 0.73)

* Note that patients for whom age and/or gender were unavailable (n=77) are not included on this table.
* Adjusted for all other variables in the table.

Results

- 27,516 patients eligible (approximately 1.4 million annual adult ED visits)
- 19,367 (70.4%) were discharged 17.1% (3,307 patients) of whom received an OPR prescription.
- ED patients discharged with an OPR:
  - Median age was 40 (IQR 29-51) years
  - 1,713 (51.8%) were female
  - 2271 (68.8%) presented on a weekday.
  - Mean Emergency Severity Index score was 3.3 (SD 0.8).
  - Mean initial pain score was 7.7 (SD 2.4).
  - Allergies to non-opioid analgesics reported by 271 (8.2%).
  - 27.4% reported prior use of OPR at home
- Most common opioids prescribed:
  - oxycodone (n=1,714, 51.8%)
  - hydrocodone (n=1,346, 40.7%)
  - codeine (n=168, 5.1%).
- >99% (n=3,266) of opioids prescribed were immediate release, 90.2% (n=2,968) were combination preparations (e.g. with acetaminophen)
- Mean and median number of pills was 17.1 (SD 11.8) and 15 (IQR=12-20) respectively.
- Attending physicians were more likely to prescribe oxycodone over hydrocodone compared to NP/PA (OR 1.3 {95% CI 1.1-1.5}, p<0.001)

Discussion

- This visit level data complements studies that describe prescribing but rely on extrapolation
- ED physicians prescribe limited number of pills and immediate release combinations (Menchine et al).
- Regional and racial variations in OPR prescribing are consistent with other studies (Pletcher et al., Paulozzi et al.)
- OPR are often given, contrary to ACEP guidelines on clinical practice, for back pain.

- Limitations:
- This study was a snapshot over one week which may not reflect variations over time
- Mostly urban academic centers, which may not reflect community hospitals
- Retrospective chart review can not infer reasons for or appropriateness of prescribing
- Manual data abstraction not verified
- Unable to reliably compare patients discharged with OPR vs. without OPR

Conclusion

- EDs prescribe OPRs to 17% of discharged patients, but with small pill counts and predominantly immediate release formulations.