UAMS Journal Club

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Use of Buprenorphine to Treat Opioid Use Disorder in the ED

Clinical Bottom Line

The emergency department is a frequent clinical environment where individuals present under the influence of opioids, seeking resources/treatment for opioid dependence and withdrawal. Buprenorphine works as a partial agonist of the mu receptor and can be beneficial in augmenting withdrawal symptoms in patients looking to stop using street opioid narcotics. High doses appear to be safe.

Background

The opioid epidemic is strongly impacting the emergency department. Data from the CDC shows that there has been a 30% increase in visits for opioid overdose from July 2016 – September 2017 and that people specifically coming to the ED for assistance with opiate withdrawal is over 1%. Addiction is a chronic, relapsing disease, and a strongly stigmatized one. People who present to the ED for other chronic disease like diabetes and asthma are stabilized with medications and handed off for outpatient care. Individuals with opioid use disorder (OUD) do best with a similar treatment plan. Although much attention has focused on treatment of patients with opioid overdose, opioid withdrawal is a high-risk period that is associated with elevated mortality after discharge. More than half of patients who died from an opioid overdose were noted to have had a medical visit in the year before their death

Paper 1:

D'Onofrio, G., O'Connor, P. G., Pantalon, M. V., Chawarski, M. C., Busch, S. H., Owens, P. H., Bernstein, S. L., & Fiellin, D. A. (2015). Emergency department–initiated buprenorphine/naloxone treatment for opioid dependence. *JAMA*, *313*(16), 1636. https://doi.org/10.1001/jama.2015.3474

Pubmed link: https://pubmed.ncbi.nlm.nih.gov/25919527/

PICO Question

Is Buprenorphine superior to current ED management for treatment of opioid dependance?

P – ED in Connecticut with patients >18 years of age who are current opioid users seeking treatment for opioid dependance

I – buprenorphine/naloxone + Motivational interview + referral to primary care for 10 week follow up,

C – Motivational interview + facilitated referral to community based treatment services , referral to treatment

O – Primary: enrollment in and receiving addiction treatment 30 days after randomization

Secondary: self reported days of illicit opioid use, urine testing for illicit opioids, HIV risk, use of in-patient addiction treatment services

The Basics

This was a randomized clinical trial involving 329 opioid dependent patients, data was collected from an urban teaching hospital in Connecticut from 4/7/09 – 6/25/13 and was published in 2015. The study contained 3 groups: referral to treatment, Motivational interview + facilitated referral to community based treatment services , and buprenorphine/naloxone + Motivational interview + referral to primary care for 10 week follow up. Patients were randomly assigned to one of these three groups after being screened in the emergency department and enrolled. The primary outcome was enrollment in and receiving addiction treatment 30 days after randomization. Secondary outcomes included self-reported days of illicit opioid use, urine testing for illicit opioids, HIV risk, use of in-patient addiction treatment services and were also measured 30 days after initial ED visit and intervention.

Inclusion Criteria

- >18 years of age, during select times when research associates were present, had self-reported use of nonmedical use of prescription opioids or any heroin use in the last 30 days
- Urine sample testing positive for opioids
- MINI score 3+
- Provided signed consent

Exclusion Criteria

- Non-English speaking, critically ill, unable to communicate due to dementia or psychosis, suicidal, in police custody, < 18 years old
- Enrolled in formal addiction treatment
- Had medical or psychiatric condition that required hospitalization
- Required opioid medication for pain control

Primary Outcome

Enrollment in and receiving addiction treatment 30 days after randomization

Secondary Outcome

Self-reported days of illicit opioid use, urine testing for illicit opioids, HIV risk, use of in-patient addiction treatment services

Results

There was statistically significant increase in primary outcome in patients in the buprenorphine group compared to the other two interventions, reduction in self-reported opioid use, and decreased use of inpatient addition treatment services but did not significantly decrease rates of urine samples that tested positive for opioids or HIV risk.

Limitations

- Significant loss to follow up
- Did not measure overdoses
- Arguments have been made that groups were not treated equally outside of the intervention given that the buprenorphine group was given 10 weeks of paid follow up and the other two groups were not
- There was no decided standardization on clinical treatment for withdrawal symptoms outside of intervention group receiving buprenorphine and there was no documented standard of measuring the extent of opioid withdrawal symptoms (ex COWS) for patients presenting to the ED/after ED intervention and because this was not studied we are unsure of how ED intervention for acute symptom management impacted the rates of follow-up for the primary outcome

Paper 2:

Herring, Andrew A., et al. "High-dose buprenorphine induction in the Emergency Department for treatment of opioid use disorder." JAMA Network Open, vol. 4, no. 7, 15 July 2021, https://doi.org/10.1001/jamanetworkopen.2021.17128.

Pubmed link: https://pubmed.ncbi.nlm.nih.gov/34264326/

PICO Question – Is high dose buprenorphine (>12 mg) induction safe and tolerable for patient with opioid use disorder presenting to an ED?

P – Patients ≥ 18 years old at a large, urban, safety net ED who received sublingual buprenorphine in the ED

I – high dose buprenorphine (defined as > 12 mg)

C – buprenorphine < 12 mg

O – vital signs, need for oxygen, precipitated withdrawal, sedation, respiratory depression, length of stay, hospitalization

The Basics

- This was a retrospective review of 391 patients who presented to a single, urban safety-net hospital in Oakland, California in 2018, with data analysis performed from April 2020 to March 2021. ED providers were trained on a new high-dose buprenorphine induction protocol, which was then implemented. The aim of this study was to study the safety and tolerability of high dose buprenorphine, which was defined as > 12 mg given in an encounter. Vital signs, precipitated withdrawal (using COWS score), adverse events, length of stay, and hospitalization were the outcomes studied and were reported with the dose of buprenorphine given.

Inclusion Criteria

- All patients who received buprenorphine at this single, urban, safety-net ED.
- ≥ 18 years old

Exclusion Criteria

- < 18 years old

Primary Outcomes (2)

- The occurrence of precipitated withdrawl
- Any other serious adverse events attributable to the buprenorphine administration

Secondary Outcome

- Signs and symptoms of withdrawal as assessed by COWS and Opioid-32 questionnaire

Results

- No naloxone was administered at any time nor was there any decreased respiratory rate with high doses of buprenorphine. The precipitated withdrawal outcomes were not associated with high doses and were present even after low doses. There were only 3 life-threatening adverse events which were determined to be unrelated to the patients' buprenorphine induction.

Limitations

- Study relied on clinical documentation, which may vary from provider to provider
- As this was a retrospective design at one single hospital, patients who returned to the ED outside of the time frame or those who presented to other hospitals were not followed up on

- Clinical assessment of withdrawal symptoms varies between providers

Paper 3

Article: Hawk, K., Hoppe, J., Ketcham, E., LaPietra, A., Moulin, A., Nelson, L., Schwarz, E., Shahid, S., Stader, D., Wilson, M. P., & D'Onofrio, G. (2021). Consensus recommendations on the treatment of opioid use disorder in the Emergency Department. *Annals of Emergency Medicine*, *78*(3), 434–442. https://doi.org/10.1016/j.annemergmed.2021.04.023

Pubmed link: https://pubmed.ncbi.nlm.nih.gov/34172303/

The basics:

American College of Emergency Physicians (ACEP) assembled a team of emergency physicians with expertise in clinical research, addiction, toxicology, and administration to examine literature and formulate unified suggestions regarding the management of opioid use disorder within the emergency department (ED).

Methods:

A rapid literature review was conducted, yielding 776 articles, from which 60 were selected based on relevance to ED treatment outcomes for opioid use disorder. These articles were independently reviewed and evaluated by panel experts, leading to the development of consensus recommendations, approved by the ACEP board of directors in January 2021.

Results:

Evidence shows that initiating buprenorphine in the ED effectively connects patients to formal addiction treatment. A trial showed that 78% of ED patients receiving buprenorphine with referral continued addiction treatment after 30 days, compared to 37% and 45% of patients with standard or facilitated referral, respectively. The buprenorphine group also significantly reduced illicit opioid use compared to the other groups. Additionally, cost-effectiveness analysis favored buprenorphine initiated within the ED over other interventions.

Limitations/Bias:

Although recommendations were established after reviewing the selected articles, individual assessments focused on evaluating each article's strength using clinical practice guidelines based on evidence was not conducted.