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Utilizing Buprenorphine in the Emergency Department after Overdose

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Abstract

The United States is currently in the midst of an opioid epidemic. Barriers to treatment in the emergency department can lead to missed opportunities for helping prevent overdose and relapse in individuals with opioid use disorder. The administration of buprenorphine in the emergency department can potentially lead to better treatment outcomes for these individuals.

The Opioid Epidemic

The United States is in the midst of an opioid misuse epidemic. There has been a steady and dramatic increase in opioid-related overdose deaths in the United States over the past 10 years, with more than 42 000 overdose deaths in 2016ⁱ. A 2016 report estimated that about 11.8 million people aged 12 years or older had misused opioids in the previous year [1]. Both prescription opioid use and heroin use have also increased in the United States. In 2016, an estimated 626 000 people had a heroin use disorder and an estimated 2.1 million people had a prescription drug use disorder [1]. This rise in prescription opioid misuse and heroin misuse has led to an increase in opioid-related deaths and overdose. This increase has also led to a strain in emergency departments (EDs). From July 2016 to September 2017, visits for opioid-related overdoses rose 30% in the United Statesⁱⁱ. Recent data show that many opioid overdose victims will have a repeat overdose event after ED admittance without outpatient treatment [2]. Current treatment referral procedures from the ED are insufficient, with only 37% of ED referrals leading to treatment engagement at 30 days post the initial encounter with a simple referral to outpatient treatment [3].

As recently reported in the *New York Times*ⁱⁱⁱ, there is a growing interest in the use of buprenorphine, a partial μ -opioid agonist, in the ED setting for the treatment of opioid addiction. It is our opinion that the use of buprenorphine in the ED after opioid overdose may lead to better treatment retention and lower risk of repeat overdose.

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ⁱResources

www.hhs.gov/opioids/about-the-epidemic/index.html

ⁱⁱwww.cdc.gov/vitalsigns/opioid-overdoses/index.html

ⁱⁱⁱwww.nytimes.com/2018/08/18/health/opioid-addiction-treatment.html

Buprenorphine and Buprenorphine/Naloxone

Buprenorphine is a partial μ -opioid agonist that is approved by the FDA for the treatment of opioid use disorder (OUD). It has been shown to reduce withdrawal during opioid abstinence and reduce the risk of overdose [4]. As a partial agonist at the μ -opioid receptor, buprenorphine has lower risk of overdose than other full agonists, such as methadone or oxycodone [4]. The approval of buprenorphine by the FDA for office-based treatment; the passage of the Drug Abuse Treatment Act of 2000 (DATA 2000) that allows qualified physicians to prescribe buprenorphine^{iv}; and support from the National Institute on Drug Abuse allowed for buprenorphine to be used to treat OUDs in an office-based setting. By contrast, methadone can only be dispensed in a federally regulated methadone clinic. This, in turn, expanded the access to treatment for opioid dependence [5]. However, while buprenorphine has a lower abuse potential than other opioids, there are concerns about its misuse and diversion [6].

Because of these concerns, buprenorphine has now been made available in several formulations including the addition of a buprenorphine/naloxone combination. In 2003, a combination of buprenorphine with the opioid antagonist naloxone (Suboxone[®]) was marketed for the treatment of opioid dependence. This combination tablet was created to help reduce the misuse and abuse of buprenorphine through intravenous use and was to be administered sublingually (applied under the tongue). The addition of naloxone deters misuse because if taken in another route such as via injection, naloxone can precipitate withdrawal symptoms in opioid-dependent individuals. Furthermore, a film form of buprenorphine/naloxone was licensed in the United States in 2010. The film also deters misuse as its form makes it least likely to be taken in an unprescribed route such as intravenously or through snorting [7]. The FDA has recently approved the buprenorphine/naloxone combination film Cassipa[®] for treatment of opioid dependence^v. Both Cassipa and Suboxone have FDA approval for name brand as well as generic forms^{v,vi}.

Treating Patients with OUD in the ED

While EDs across the United States provide daily high-quality acute care to those in need, they are increasingly becoming overcrowded from being frequently used as an entry point for people seeking care for non-urgent and/or chronic medical conditions. This is particularly true for vulnerable populations with limited resources, including many individuals with OUD. Situated on the front lines of the national opioid crisis, EDs treat opioid overdoses and the complications of OUD and addiction daily. These complications can include conditions such as skin infections from injection of opioids and withdrawal symptoms such as nausea, vomiting, and diarrhea. Despite being involved with opioid abuse patients frequently, there are many challenges in an emergency care setting that providers face to truly help those who struggle with addiction. Currently, the primary option available to the patients who present to the ED and request assistance with opioid abuse is a referral to outpatient addiction treatment services [3]. Given the rapid pace of a typical ED, providers

^{iv}www.deadiversion.usdoj.gov/pubs/docs/dwp_buprenorphine.htm

^vwww.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm619864.htm

^{vi}www.fda.gov/newsevents/newsroom/pressannouncements/ucm610807.htm

may not have time to provide opioid counseling, assist in helping patients with engaging in care in an inpatient or outpatient treatment center, or be able to customize resources to the patient's specific needs related to his or her current substance use disorder^{vii}. The transition of care from the ED to a substance abuse treatment center is a high-risk time for patients, and coordinated care is essential to limit the potential for opioid withdrawal and relapse. While there is considerable attention focused on the opioid epidemic itself, there has been less emphasis on establishing best practices for treatment of OUD in an ED setting or for transitioning patients with OUD from the ED to appropriate substance abuse services such as inpatient rehabilitation centers or outpatient medication-assisted therapy centers [8].

Traditionally, providers in the ED have treated the symptoms of the patient's presenting complaint but have not attempted to initiate long-term treatment for OUD. A 2015 study by D'Onofrio *et al.* [3] showed that when patients in the ED were given buprenorphine in conjunction with a brief intervention and an outpatient referral, the number of patients who continued to engage in substance abuse treatment was significantly higher than for those who were only given a referral or had a brief intervention and a referral. In our opinion, initiating substance abuse treatment with medications such as buprenorphine in the ED setting, a fairly new concept, can help prevent future relapse.

Use of Buprenorphine in ED to Prevent Opioid Relapse

Before arrival in the ED after an opioid overdose, patients are most often treated by emergency medical services or bystanders with the opioid antagonist naloxone. Naloxone blocks the effects of opioids on the brain and may restore breathing within 2–8 min. While administration of naloxone can be lifesaving if administered early enough after an overdose, long-term treatment for OUD is needed as relapse rates and repeat overdose rates remain high [9]. Patients who are fortunate enough to survive an overdose are often in opioid withdrawal due to the effects of naloxone and thus are often not amenable to referrals for substance abuse treatment. Administration of buprenorphine offers an opportunity to reduce symptoms of opioid withdrawal in an emergency care setting that not only should make patients feel better (less symptoms of withdrawal) but also should offer patients some protection against an immediate repeat overdose if they were to leave the ED and choose to use opioids again.

However, there are potential barriers to ED initiated buprenorphine after opioid overdose. First, most ED physicians do not have the required Drug Enforcement Administration waiver to prescribe buprenorphine. Furthermore, there are concerns that using buprenorphine in the ED will dramatically increase ED visits due to the lack of outpatient buprenorphine providers. In addition, apart from opioid misuse, treatment of comorbidities such as chronic pain and psychiatric illness also need evaluation and post-ED treatment in such patients. A resolution of these issues will require a more direct connection between ED and outpatient treatment for opioid addiction. Moreover, before using buprenorphine in patients with OUD in the ED setting, pertinent questions will need to be addressed. These questions include: what percentage of patients who survive opioid overdose are willing to initiate

^{vii}www.aha.org/system/files/content/17/project-assert-case-study.pdf

buprenorphine in the ED; what doses and formulations achieve the best follow-up treatment engagement; and what is the timeline needed for outpatient follow-up visits post opioid overdose? However, despite these barriers and remaining questions, we believe that ED-initiated buprenorphine treatment post opioid overdose provides a potential novel method to potentially break the cycle of repeat opioid overdose and death.

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