The Use of Buprenorphine in the treatment of Opioid Use Disorder (OUD)

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Introduction

Per the CDC, there were 91,799 drug overdose deaths, of which 75% of these deaths involved an opioid in 2020. Furthermore, the rate of overdose deaths involving synthetic opioids (excluding methadone) increased 56% from 2019 to 2020. Synthetic opioids like fentanyl and its derivatives are easily producible, very inexpensive, and have extremely high potency. To effectively reduce use of illicit opioids, the underlying addiction disorder must be recognized first to adequately treat the disease. Treatment for opioid addiction is critical due to the high risk of mortality and significant disruption to daily functioning. Medication-assisted treatment couples medication use with counseling/therapy, is the most effective treatment for OUD and is considered first-line. Methadone has long been the medication of choice; however, buprenorphine became an alternative treatment option offering more flexible dosing schedules in the early 21st century.

Pharmacology

	Pros	Cons
Low efficacy agonist	less respiratory depression and euphoria	potentially less effective in pts with significant opiate tolerance or high potency, synthetic opiate use
High affinity	difficult to be displaced from opioid receptor	precipitated withdrawal, opiate abstinence requirement

Diagnosis

Figure 1. DSM V diagnostic criteria for opioid use disorder[3]

A problematic pattern of opioid use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period	
1.	Opioids are often taken in larger amounts or over a longer period than was intended.
2.	There is a persistent desire or unsuccessful efforts to cut down or control opioid use.
3.	A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects.
4.	Craving, or a strong desire or urge to use opioids.
5.	Recurrent opioid use resulting in a failure to fulfill major role obligations at work, school, or home.
6.	Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids.
7.	Important social, occupational, or recreational activities are given up or reduced because of opioid use.
8.	Recurrent opioid use in situations in which it is physically hazardous.
9.	Continued opioid use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
10.	A need for markedly increased amounts of opioids to achieve intoxication or desired effect **OR** markedly diminished effect with continued use of the same amount of an opioid.
11.	Characteristic opioid withdrawal syndrome **OR** same or a closely related substance is taken to relieve or avoid withdrawal symptoms.

Severity interpretation: Mild (presence of 2-3), moderate (presence of 4-5), and severe (presence of 6 or more).

Initiation of Buprenorphine

1. **Opiate abstinence required**
   a. No opiate use recommended for 24-48 hours prior to initiation.
   b. Clinical withdrawal with COWS, score >6, consider >13 if fentanyl use
2. **Formulation with Naloxone**
   a. Prevents diversion of medication via unauthorized administration (ie IV use)
   b. Diversion increases bioavailability of naloxone, precipitating withdrawal

Take-Aways

- **Medication-assisted treatment (MAT) couples medication use with counseling/therapy and is the most effective treatment for opioid use disorder that consistently boasts decreases in mortality and illicit opioid use compared to other treatment options or no treatment at all.**
- Buprenorphine is another weapon in the arsenal to combat the opioid epidemic.
- Methadone therapy is restricted to federally-designated opioid treatment programs with strict daily dosing requirements, while buprenorphine can be initiated in-office and it does not have the same daily in-person dosing requirements.
- A special DEA waiver is required prior to eligible clinicians prescribing buprenorphine for OUD. However, a temporary amendment approved in April 2021 allows non-waivered clinicians to prescribe buprenorphine to up to 30 patients at a given time.
- Mild-moderate withdrawal and recent cessation from opioid use is required prior to buprenorphine initiation to avoid buprenorphine-related precipitated withdrawal.
- Buprenorphine is often formulated with the opioid antagonist naloxone, with naloxone having minimal oral and sublingual bioavailability. Bioavailability of naloxone increases if insufflated or injected and precipitates withdrawal, preventing misuse of medication.
- Methadone is preferred over buprenorphine in pregnancy; however, the safety of buprenorphine in pregnancy is still being studied.