A CASE OF FATAL OVERDOSE FOLLOWING INPATIENT DETOXIFICATION: THE PROBLEMATIC ROLE OF RAPID OPIOID AGONIST TAPERS FOR OPIOID USE DISORDER

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ABSTRACT

Background: Relapse to opioid use is common after rapid opioid withdrawal. As a result, short-term tapers of opioid agonist medications, such as buprenorphine/naloxone (trade name Suboxone), and methadone are no longer recommended by recent clinical care guidelines for the management of opioid use disorders. Nonetheless, rapid tapers are still commonplace in medically-supervised withdrawal, or detoxification, settings.

Case: We report a case of an individual with opioid use disorder who was prescribed a rapid buprenorphine/naloxone taper in a detoxification facility and who had a subsequent fatal overdose after discharge.

Discussion: The fatal outcome in this case study underscores the potential severe harms associated with use of rapid opioid agonist therapy tapers. Agonist therapy should be standard of care in all settings, including detoxification, unless other adequate long-term treatment can be assured.

Key words: **Detoxification— buprenorphine— overdose — opioid agonist therapy— taper**

INTRODUCTION

North America is in the midst of an overdose crisis. According to the Centers for Disease Control and Prevention, drug overdose deaths nearly tripled from 1999 to 2014 in the United States, with the majority of overdose deaths due to opioids.[1] The number of deaths due to illicit drug overdose increased to 922 in 2016 (78% increase from 2015) in British Columbia, Canada.[2] The greatest risk factor for fatal overdose is a history of non-fatal overdose.[3] Other major risk factors of overdose include co-ingestion of central nervous system depressants such as benzodiazepines and alcohol, use of illicit opioids, particularly when injected, and following periods of abstinence from opioids.[4] Overdose risk increases with abstinence because physiological tolerance is reduced, rendering a previously tolerated dose potentially fatal in the event of relapse to opioids. Loss of tolerance commonly occurs during incarceration, hospitalization, and medically supervised withdrawal, also known as detoxification.[4] Given the known overdose risk due to loss of tolerance after opioid detoxification, and previous research indicating that rates of short-term abstinence from detoxification alone are low (between 20 to 40%)[5], the purpose of medically supervised withdrawal in detoxification settings should be to facilitate transition to ongoing addiction care, which includes initiation of opioid agonist therapy. Recent guidelines for the treatment of opioid use disorder reflect this shift in standard of care and state that rapid opioid agonist therapy tapers are no longer recommended in the absence of ongoing addiction treatment.[6]

Despite shifting clinical care guidelines, rapid tapers of methadone or buprenorphine/naloxone over the course of several days remain a frequent practice in medical detoxification settings, where these medications are commonly prescribed to manage the acute

symptoms of withdrawal. Here we present a case of an individual who underwent a rapid taper of buprenorphine/naloxone in a medically supervised detoxification setting and suffered a subsequent fatal opioid overdose in the weeks following discharge from the facility.

CASE PRESENTATION

A 28-year-old male was admitted to an inpatient detoxification facility in Vancouver, Canada, for management of comorbid opioid and stimulant use disorders. Prior to admission, the patient was living in a shelter and supported by income assistance. His past medical history was significant for schizoaffective disorder, which was treated by a psychiatrist with medications including olanzapine, quetiapine, lorazepam, and trazodone. He had a history of attending inpatient detoxification on numerous previous occasions. He had a brief two-week period of methadone maintenance therapy two months prior, up to a maximum daily dose of 50 mg, which he had abruptly discontinued for unclear reasons.

At admission to detoxification, he reported that he had been using intravenous heroin and crystal methamphetamine for three years. He injected on average 0.3 grams of heroin daily and 0.1 grams of crystal methamphetamine three days per week. He also reported occasional smoked cannabis use. His last reported use of all substances was the day prior to presentation at the detoxification facility. Corroborating this history, his initial urine drug screen was positive for opiates, amphetamines and tetrahydrocannabinol.

The attending physician assessed the patient on the day following admission and documented multiple objective signs of withdrawal, including frequent yawning, piloerection, and dilated pupils at 6 mm diameter. A plan for buprenorphine/naloxone taper was initiated to

manage the acute symptoms of withdrawal. An initial dose of buprenorphine/naloxone 8mg/2mg was to be tapered by 2/0.5 mg to discontinuation over four days. The patient was also prescribed trazodone, clonidine, quetiapine and dimenhydrinate as needed to treat any residual opioid withdrawal symptoms. The patient was discharged from the detoxification facility back to a shelter following completion of the 4-day buprenorphine/naloxone taper.

Three weeks later, the patient was found by a bystander in a public bathroom in downtown Vancouver unresponsive and without a pulse. The records from emergency rescue services noted that there was a needle in the right antecubital fossa when he was found. Cardiopulmonary resuscitation was initiated at the scene, as well as administration of intramuscular naloxone at a dose of 0.4 mg and a second dose of 0.8 mg. Following this, the patient had a return of spontaneous respiration. He was then transferred to a local hospital where he was incubated and ventilated and admitted to the intensive care unit (ICU). His urine drug screen on arrival at the hospital was positive for opiates and amphetamines.

The patient failed to regain consciousness after several days in the ICU. Subsequent brain magnetic resonance imaging was consistent with severe anoxic brain injury. After discussion with the family, a decision was made to transfer the patient to a palliative care unit, and the patient died after ten days in the unit.

DISCUSSION

We have presented a case of fatal overdose following discharge from inpatient detoxification for a patient with comorbid opioid and stimulant use disorders. The patient had been prescribed a buprenorphine/naloxone rapid taper. Several weeks later, the patient had an

opioid overdose and suffered an anoxic brain injury that resulted in death.

Previous evidence has shown that overdose risk increases following inpatient detoxification.[7] Specifically, Darke et al. (2003) have described loss of tolerance to opioids following a period of abstinence to be a major risk factor for heroin overdose.[4] In addition to increased overdose risk, rapid taper strategies has been found to be associated with very low rates of cessation of illicit opioid use. A study conducted by Nosyk et al (2012) showed that methadone taper had a 13% success rate, and short-term tapers (less than 12 weeks) were 6.7 times less likely to succeed than long-term tapers (more than 52 weeks).[8] This is in contrast to sustained use of methadone or buprenorphine/naloxone opioid agonist therapies, which have been shown to be effective long-term options for treatment of opioid use disorder in several Cochrane systematic reviews and meta-analyses, including treatment retention and cessation of illicit opioid use.[9-11] Moreover, previous studies indicate that successful abstinence following detoxification was associated with engagement in ongoing addiction treatment, including long-term opioid agonist therapy and residential treatment.[9-11,12] Most relapses resulted from patients being discharged without any follow-up or without opioid agonist therapy in outpatient settings.[5,12] As such, in most cases, the standard of care should therefore be initiation of opioid agonist therapy in detoxification facilities with ongoing maintenance therapy after discharge as they become more stable medically, psychologically and socially.

Despite the compelling reasons to avoid rapid tapers in detoxification settings, this practice remains commonplace. There remain several barriers to accessibility of opioid agonist therapies, including paucity of trained prescribers, medication cost, and negative attitude towards addiction medications by both patients and healthcare providers. Continuing

education and adequate medication cost coverage for opioid agonist therapies are needed to help address these barriers.[13] In addition, patients requesting rapid tapers should be counseled regarding relapse risk after rapid opioid tapers and overdose education and naloxone distribution should also be a part of the standard practice.[14] Linkage with additional treatment options should also be considered and include psychosocial intervention, intensive outpatient treatment, residential treatment, access to long-term opioid agonist treatment, or antagonist treatment (e.g. naltrexone).[15]

In this case report, we have illustrated detrimental effects of an outdated, but common practice of rapid taper of opioid agonist therapy in a detoxification treatment setting. Maintaining patients on long-term opioid agonist therapy should be first-line standard of care, including detoxification facilities, which can be used for buprenorphine/naloxone induction, unless other adequate long-term care can be assured. This key measure can prevent unintentional overdoses and other severe harms associated with untreated opioid use disorders, and ensure better long-term treatment outcomes.

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