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**PRESCRIPTION NARCOTIC AND ILLICIT DRUG ABUSE:
NEEDED CHANGE IN PUBLIC HEALTH POLICIES AND CLINICAL PRACTICES**

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Abstract

Accidental drug overdose deaths caused by prescription and illicit narcotics use are a growing national epidemic that has been proportional to the number of opioids prescribed. The change in relationship between patients and prescribers is partly responsible for the increase of opioid prescriptions. Current conventional national and state policies have been ineffective at lowering or managing the amount of prescription drug overdose deaths. Changes in clinical practices regarding the prevention and treatment of prescription drug abuse are needed. These changes should include increasing availability of opioid antagonists to all patients prescribed opioids and illicit drug users. Opioid antagonists such as naloxone can be used as an emergency intervention reversing respiratory suppression caused by opioid overdose. This strategy has shown promise at reducing unintentional drug overdose deaths substantially. In addition to naloxone, treatment for opioid addiction itself is needed. Treating opioid addiction through opioid maintenance therapy has shown to reduce overdose risk, as well as provide basic health care and reduce exposure to hepatitis and HIV. Opioid maintenance therapy is an effective tool in preventing drug overdoses through the treatment of withdrawal symptoms, but more importantly it reduces drug cravings and drug seeking behavior. As addiction is a chronic relapsing disease of the brain, opioid addiction treatment through maintenance therapy with drugs such as buprenorphine must be a process spanning several months to several years.

Introduction

Accidental drug overdose deaths have plagued the United States with the loss of thousands of family members, friends, and colleagues, from every part of the country. Overdose on illicit and prescription opioids in particular has torn family's apart and destroyed lives. In addition to mortality, prescription and illicit narcotics are responsible increased crime and has increased the spread of disease such as HIV and hepatitis. Little has been done addressing the need for preventing the issue of drug overdose, or in the treatment of addiction itself. Current national and state policies are ineffective at addressing this issue both in terms of regulation, as well as policies that are more prevention based. Currently there are two types of treatments available for opioid dependence and addiction. The first being rapid detoxification in a hospital setting, and the second being opioid maintenance therapy.

This research article discusses changes in public health policy to treat addiction through maintenance therapy and make opioid analgesic inhibitors readily available. This will not only reduce the number of unintentional overdose deaths, but will also prevent the abuse of

prescription and illicit narcotics. This research article shows evidence that rapid detoxification of patients with opioid dependence and addiction is not the best form of treatment given relapse rates of opioid addicts. In addition, current data suggests opioid maintenance therapy is the best treatment currently available as a harm reduction strategy and decrease morbidity.

Literature Review

Opioids are a class of medications called opioid analgesics. Generally, opioids are used for pain and are most effective while being used in acute settings. The side effect that makes opioids so dangerous is respiratory suppression. Unfortunately, many opioid users using these drugs legitimately or not do not understand the dangers that are associated with their use. In some cases, opioids are used in long term settings where pain control is needed over a long period of time. The prolonged use of opioids creates a particularly dangerous situation as the amount of drug needed to create the pain-relieving effect, or in the case of those abusing the drug for euphoria, increases. Individuals can overdose on opiates accidentally by either taking too much in an attempt to reduce pain, or those that have become addicted to opiates will generally begin taking very large doses at some point in their use.

Addiction can be defined as compulsive behavior that is reinforced by reward, and the inability to control intake of that substance (Bowman, Eiserman, Beletsky, Stancliff, & Bruce 2013). Addiction has a profound effect on the lives of those addicted, as well as their friends and families. The abuse potential for prescription opioids is extremely high. Addiction to prescription opioids generally is the result of abusing prescriptions obtained after medical procedures or injuries in the treatment of pain. Prescription opioid addiction can also be the result of diversion through family, friends, or purchased illegally. Individuals abusing prescription opioids are at a drastically increased risk for overdose.

Prescription drug abuse and addiction has exponentially grown since 1970. In 2007, the Center for Disease Control and Prevention reported 27,000 drug overdose deaths in the United States, 1 overdose death for every 19 minutes (CDC, 2013). The massive increase in prescription drug overdose is largely responsible for the increased availability of opioid analgesics either through physicians or online pharmacies. In 1997 pharmaceutical companies supplied 97 mg of morphine per person in the U.S. and in 2007 that number had increased to 600 mg per person with the typical morphine dose being 4-10 mg (CDC, 2013). These staggering numbers is proof of a nationwide public health crisis, as with more availability to opiates will create more addicts and overdose deaths.

The increase of opioid deaths and sales correlates with prescribing practices of physicians. This is partly due to the change in social view towards pain and suffering, as well as business practices between physicians and their patients. Previous doctor patient relationships were based on the patients suffering and the physician's knowledge to ease the suffering of the patient. The present relationship between doctor and patient is more of doctor and "client" (Ling, & Wu, 2013). This change in relationship has created an environment where patients can demand drugs because they are paying the physician to prescribe them.

In addition to opioids that are being prescribed by physicians, is also the increasing occurrence of opioids being co-prescribed with benzodiazepines, or also consumed with alcohol. Benzodiazepines increase the risk of overdose in patients also taking opioids due to the additional central nervous suppression of benzodiazepines, coupled with the respiratory suppression of opioids. A 2009 study in West Virginia suggested of 295 overdose deaths in

2006, half were caused by a psychotropic drug usually in combination of an opioid, and 75% included benzodiazepines (Toblin et al., 2009, p.493). This indicates that there is a need to increase public awareness and knowledge of combining opioids with other drugs, particularly combining them with benzodiazepines. Practitioners particularly need to be aware and cautious in co prescribing opioids and benzodiazepines, and do so only when it would be absolutely necessary.

Treatments for opioid dependence and addiction can be difficult due to the rates of relapse and can be defined as a chronic relapsing disease. Treatment is even more difficult and less successful in the use of abstinence and cognitive behavioral approaches. Studies have found that 60% of heroin addicts treated in an inpatient setting relapsed after treatment and less than 25% of heroin addicts will remain abstinent after methadone maintenance therapy (Veilleux, Colvin, Anderson, York, & Heinz, 2010, p. 156). Maintenance therapy is the use of opioid agonists to help reduce drug cravings and the physiological symptoms of opioid withdrawal. Opioid antagonists can also be used in maintenance therapy to stop the user from feeling any euphoria or "high" in the event the individual uses opioids (Veilleux et al., 2010). Because opiate addiction has such a high rate of relapse, this suggests that the use of opioid maintenance therapy can be used to increase the amount of time users are abstinent of opioid. Patients of maintenance therapy can have a choice of a gradual taper over time, or being on maintenance therapy indefinitely.

While the risk for individuals addicted or abusing opioids is higher for overdose, there is a reduction in overdose risk while participating in maintenance treatment. A longitudinal study in Britain looked at the crude mortality rate of 42676 individuals from 1985-2006. This study found the crude mortality rate of individuals in treatment to be 6% while the crude mortality rate of individuals out of treatment was 11.5% (Degenhardt et al., 2009, p. 11). This shows a mortality rate that nearly doubles for opioid dependent individuals who are not participating in maintenance therapy. This is evidence that resources and availability of maintenance treatments need to be increased, as well as using maintenance therapy as a more mainstream line of treatment for opioid addiction.

Maintenance therapy provides a setting for regular health care to be provided for opioid dependent individuals with primary care physicians. Buprenorphine can be used as a maintenance drug and is also an opioid agonist/antagonist with its antagonist properties making it safer for use than methadone. Because buprenorphine can be administered and distributed more safely, it is appropriate for buprenorphine to be prescribed out of a primary care physician's office (Bowman et al., 2013). Buprenorphine prescribed from physician's offices provides convenience as well more privacy, vs methadone which must be administered at clinics on a daily basis. Regular visits with care providers also provides the opportunity to treat and prevent other diseases that are associated with opioid dependency such as HIV and hepatitis by also implementing needle exchange programs (Bowman et al., 2013).

Opponents of opioid maintenance therapy believe that treating opioid addiction by tapering off of opioids is most beneficial due to possible long-term side effects. This approach is not viable due to the number of patients who eventually relapse after going through opioid detoxification. A study in 2010 found that of 109 patients who had successfully completed an opioid detoxification program, 90% had relapsed (Smyth, B., Barry, J., Keenan, E., & Ducray, K, 2010. p. 1). Treatment of opioid addiction should be performed over a long period of time, using maintenance medication to help patients maintain stability. Treating opioid addiction through

maintenance is very similar to treating diabetes. Individuals on opioid maintenance therapy take a medication every day for the treatment of their disease, just as those with diabetes or asthma do. There is an associated risk of overdose on methadone itself because methadone behaves differently than most opioids. Serum methadone levels gradually increase over days of continued dosing, and in some cases can increase to levels of respiratory depression if abused. Buprenorphine however offers a safer alternative to methadone. One of the unique properties of buprenorphine is that it is a partial opioid agonist/antagonist, with a ceiling effect for respiratory depression (Veilleux et al., 2010). This makes buprenorphine an ideal maintenance treatment with less abuse potential, decreased overdose risk, and gives patience and additional convenience of not having to go to a methadone clinic as it can be prescribed from physicians' offices.

The treatment of mental health disorders and chronic pain is essential for the prevention of drug overdose deaths. People with mental health disorders are at an increased risk of having or developing substance abuse disorders. Previous studies have found that 15-20% of individuals with a psychiatric illness will also have a substance abuse disorder (Toblin et al., 2009). A study in West Virginia examined 295 people who the state medical examiner listed their deaths as unintentional drug poisoning. This study found that 126 out of 295 (42.7%) people that died of drug overdose had a psychiatric illness at some point in their lives (Toblin et al., 2009). The screening for substance abuse disorders among psychiatric patients should be done regularly, to prevent accidental drug overdoses. In addition, those patients in addiction treatment need to be screened for psychiatric illnesses and treated appropriately as a means of preventing relapse, as well as drug overdose.

Prevention of accidental overdose deaths caused by prescription and illicit opioids can be optimized by using opioid antagonist drugs such as naloxone, and provides public health officials a unique way of preventing accidental overdose deaths. Naloxone in particular is excellent for reversing the effect of respiratory suppression cause by opiates and is regular carried police and emergency services personnel. Opioid Antagonists work by binding to the opioid neural binding sites in the brain, inhibiting the binding of opioid molecules. This makes the distribution of naloxone medications reasonably safe. Although police and fire agencies are thought of as the first responders to the scene of an individual who has overdosed on opioids, those who first find someone who has overdosed are friends and family. While naloxone is an antidote to overdose of opioids, it will not reverse any effects of other drugs such as methamphetamine or benzodiazepines.

Wilkes County in North Carolina had the third largest mortality rate in the country caused by drug overdose in 2007, which lead to the implementation of Project Lazarus. Project Lazarus began the unconventional use of the opioid antagonist drug naloxone, distributing with opioid prescriptions and making it available to those using illegal narcotics such as heroin. Before the implementation of Project Lazarus in Wilkes County, for every 100,000 populations there were 28.3 drug overdose deaths (Brason, Woe, & Dasgupta, 2013). Project Lazarus became a multi-faceted public health program addressing overdose deaths caused by prescription drugs specifically. This program began to offer those with chronic pain issues safe access to treatment, as well as discussing with the public the importance of not sharing prescription medication. Project Lazarus then began actual education to prescribers and the public regarding administering and distributing naloxone. The process of co-prescribing naloxone with opioid prescriptions became practice, as well as distribution of naloxone to those who would be at most risk such as those addicted to heroin. In 2009 one year after Project Lazarus was implemented the mortality rate in Wilkes County hit its peak of 47 deaths per 100000 people caused by

unintentional drug poisoning, dropping to 15 deaths per 100000 people in 2011 (Brason, Woe, & Dasgupta, 2013, p. 86.). This was a drastic reduction in the mortality rate caused by accidental drug overdose by 68% and has become a model for other programs for states in Maine, Ohio, New Mexico and Virginia.

Some have made the argument that increasing the availability of naloxone to friends, family and drug users will have the negative effect of increased drug use because naloxone could be thought of as a safety net. In 2001 the city of Chicago began a naloxone distribution program which is the biggest in the country, and has since reported that drug users trained in how to use naloxone had no problems persuading overdose victims to not continue injecting heroin (Kim, Irwin, & Kashnood, 2009). The idea that opioid users would use more opiates due to a naloxone safety net is flawed due to how naloxone work physiologically. Opioid users who have developed a physical dependency to opioids and trying to keep withdrawal symptoms at bay will have worse withdrawal symptoms precipitated by the naloxone. While drug use and abuse is of concern, the larger issue is death caused by drug overdose. The use of naloxone through naloxone distribution programs greatly outweighs any associated risk in that it simply saves lives.

Conclusion

The issue of drug overdose caused by prescription and illicit opioids has caused a public health emergency. The solution to this problem must include several different factors. Access and availability of prescription opioids needs to be reduced, and begins with change in physician's practice of writing prescription opioids.

Resources for the treatment of substance abuse disorders need to be increased, particularly the use of opioid maintenance therapy for the treatment of opioid addiction. Patients who are actively participating in opioid maintenance therapy are less likely to overdose on opioids due to the reduction of drug cravings, drug seeking behavior, and the use of opioid antagonists. Buprenorphine can be a convenient discreet way for individuals to receive maintenance therapy from a physician's office, where primary medical care can also be given reducing the risk of HIV and hepatitis.

Broad distribution and public education regarding naloxone as an opioid overdose antidote is needed. Physicians writing prescription for opioids for pain should also be giving prescriptions for naloxone, as well as instructing patients on how to properly and safely administer it during an emergency. Naloxone distribution and programs are needed for individuals abusing heroin. The ability for people to get naloxone that is inexpensive and discreet will reduce accidental drug overdose deaths from illicit opioids.

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