Public Safety Substance Abuse Journal

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In a New York Minute: Assessing Oxycodone Users in the Big Apple

Oxycodone is arguably the most abused prescription opioid in the United States. New users of nonmedical opioids now outnumber new marijuana smokers, which is not a hopeful sign that this problem is close to being under control. Oxycodone is a potent semi-synthetic opiate that is widely prescribed for moderate pain to moderately severe pain. Oxycodone is ventured to be the American drug of choice for those who abuse prescription opiates. But in some large cities, New York City being an example, oxycodone diversion and abuse has been slower to catch on. The reason for this might be the fact that heroin, another powerful semi-synthetic opiate, is entrenched there. And right behind heroin in the Big Apple drug popularity race lurks methadone, a drug used to treat opiate dependency and addiction. Up to this point, not much has been known about the oxycodone abusing community of New York City. But a recently published survey of oxycodone city dwellers has shed light on the backgrounds and habits of their drug use. The results of this research have been published in the American Journal on Addictions.[1]

Researchers from the New York State Psychiatric Institute and the College of Physicians and Surgeons at Columbia University gathered data and personal information from select populations of New York area oxycodone abusers. The groups were equally split into sections that either injected the drug intravenously (IV) or snorted the drug intranasally (IN). Oxycodone abuse in these populations largely involved the diversion of Oxycontin, a drug used to treat chronic pain. Oxycontin is manufactured in concentrated doses of 20 mg, 40, mg and 80 mg tablets. Oxycontin abusers pulverize and reconstitute the oxycodone powder in order to defeat the time-release matrix that binds the drug. The study was conducted prior to the release of a new, more tamper-resistant Oxycontin formula. Nevertheless, the data presented reveals surprises about the nature and habits of people addicted to this narcotic.

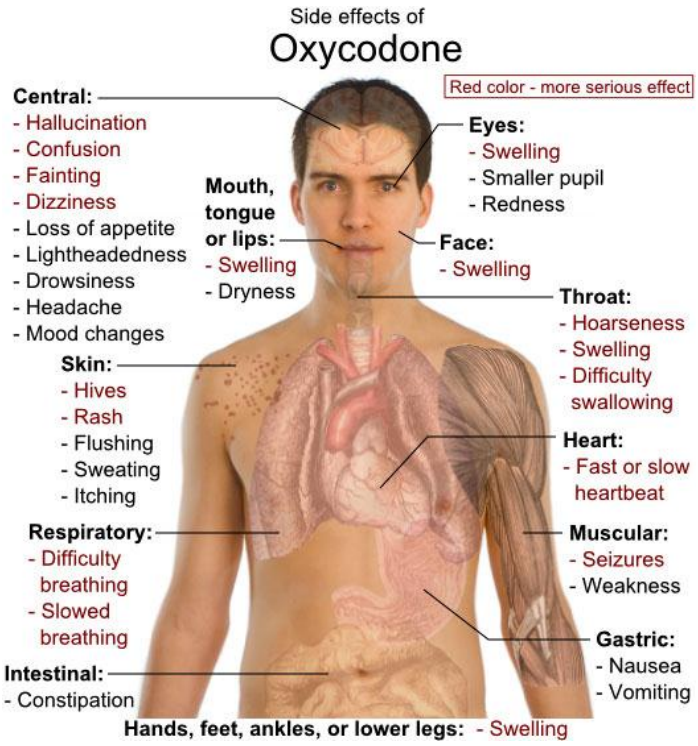
Both IV (intravenous) and IN (intranasal) users were predominately male; they averaged 41 years of age. The IV drug users were mostly white; the IN users were mostly Hispanic/Latino (36%) or Black/African American (44%). The IV oxycodone users were much more likely to be unemployed than were IN users, even though the educational backgrounds of both groups were remarkably similar. As many clinicians will acknowledge, with all other things being equal, IV drug use appears to be inherently more destabilizing a process for a drug user than IN ingestion. An IV drug use leads to more significant changes to lifestyle and socialization. An IV drug use also introduces myriad challenges to health and well-being, all of

which are impediments to steady, reliable employment.

Run-ins with the criminal justice system were common experiences of both IN and IV oxycodone abusers. Most of the arrests were for drug-related charges; every participant acknowledged being arrested more than once for a drug charge. Most users in both groups cited marijuana as their first illicit drug experience. Most of these experiences occurred early in the teenage years. Oxycodone abuse was a late development for most participants, with mid 30s as a common starting point. An interesting difference between groups was the notation that many IN oxycodone users had been prescribed the drug for pain management purposes. IN oxycodone users infrequently switched methods to inject the drug. Most IV users started their oxycodone abuse by intranasal use; intravenous injection of the drug seemed to be an endpoint for participants in that group.

The IN users reported more frequent use of the drug than IV users. This difference may be attributable to the fact that IN use of the drug results in highs of shorter duration and the potential for quicker cycles between episodes of use. The 40 mg and 80 mg versions of Oxycontin were the preferred dosages for both IN and IV users. Participants indicated that they felt that a single Oxycontin 40 mg tablet was worth between $18 and $21. A number of IN users said that they obtained their Oxycontin through the use of legitimate prescription. The IV users obtained most of their drug from the streets.

Combination drug use is quite common with abuse of prescription drugs. In the case of the IV abusing cohort, 96% also admitted IV use of heroin. Not far behind was the IN oxycodone abusers: 88% admitted to regular use of another recreational drug. Although heroin was abused by a simple majority of the IN users, they displayed a penchant for use of a broader base of alternative drugs. Cocaine, marijuana, and benzodiazepines were all identified as being used concomitantly at some point. For the IV oxycodone abusers, opiates such as heroin and methadone were sometimes mixed with a dose of oxycodone, but overall IV oxycodone users tended to stick with powerful opiates.



The data from this research study and survey draws some interesting differences between these groups, as well as some remarkable similarities. Both groups mirror larger national trends that establish oxycodone abuse as a decidedly male phenomenon; 65-69% of all recreational oxycodone and heroin users are male, although at least one other published study indicates it to be otherwise. The tendency for IV users to be unemployed and to be more frequent users of heroin is a notable contrast to the IN using group. It may be that the IV using group turns to oxycodone when local supplies of heroin are low or when quality is suspect. It may be for many in that group, that oxycodone is nothing more than a supplement to a heroin dependency. As in other major cities, heroin users will entertain any number of different opiates according to local conditions and opportunities. Morphine, fentanyl, hydrocodone, and oxymorphone are all available for purchase on the street in most major American cities.

The study cited here involved a relatively small group of 50 subjects. Nonetheless, the research digs into the details and lives of people who regularly abuse Oxycontin. It will be interesting to see how the newly formulated Oxycontin (OP) fares against experienced users who are adroit at stripping the drug and converting it into a form that can be snorted or injected. Early reports are that the new Oxycontin formula (OP) is a definitive improvement over the original (OC) format. But where there is a will there is a way. And, at times, recreational Oxycontin abusers can display a strong will.

[1]Jones JD, Vosburg SK et al. Oxycodone abuse in New York City: characteristics of intravenous and intranasal users. J Am Addict 20: 190-195, 2011.

Does "Jenkem" Abuse Push The Limits of Credulity?

Recent requests for information from the DAR Hotline have spotlighted a mysterious street drug named "Jenkem." Callers have admitted that they have yet to spot the drug in their communities, but they all claim that informants and other public safety officials have seen it. And if Jenkem is for real, it is a drug that should not be touched or closely inspected. It is likely that if a reader were to stumble upon a cache of Jenkem, the reader would probably know exactly what it was. Intrigued? Let us review what is known about this drug.

Jenkem is the street name to putrefying human waste material that is collected in a glass vessel and then allowed to ferment and produce gas. The effluent gas is then inhaled by means of a rubber glove that is affixed to the Jenkem tank's

top valve. Think of the Jenkem tank operation as a very noxious marijuana gravity bong. A Jenkem devotee draws the gas from the container into the lungs and holds it in as long as possible. A Jenkem high requires several draws of gas before the effects of methane (and perhaps some ethane) take hold. The euphoria, such as it is, is brief. A Jenkem buzz will likely last just 10-15 minutes. Signs of intoxication will be similar to someone who has sniffed glue or solvents. A Jenkem tank or reservoir will continually produce and replace the gas that is skimmed off of it to get high. Those cases that have been officially reported involved the use of large glass vessels that have rubber gloves or balloons connected to the lids. As the lighter than air gas ferments from the contained waste, it floats up and fills the attached rubber udder. The trapped gas is then inhaled into the lungs.

Some readers may remember this story as news back in 2007, but thankfully it died out. With Spice, bath salts, plant food, and other nefarious substances splashing onto the drug scene this year, interest in Jenkem seems to have been rekindled. From what can be gathered in the news, Jenkem is of little interest to anyone other than to teenage boys. (And that probably makes sense to readers who are parents of teenage boys) Overall, Jenkem's overall threat to health and public safety is rather insignificant. It is a drug that is tough to get excited about, no matter the age of the user.

The intoxicating chemical is a substance that is non-toxic. Methane is the principle byproduct of the effluent contained in the Jenkem tank. When inhaled in significant quantities, methane will act as an asphyxiate. Methane will displace oxygen; as a result, the high will cause dizziness and overall loss of balance. The gas from a Jenkem tank is not concentrated methane. If the gas was concentrated, then there could be some more onerous effects from its inhalation. As it is, it appears that Jenkem users experience a self-limiting effect triggered by the revolting smell and aftertaste of the Jenkem components. Methane is an odorless gas; the putrid smell of Jenkem comes from a variety of foodstuffs and other odiferous sources in the human digestive tract. And although some reports have described Jenkem as "sewer gas," it is not. Sewer gas is a more complicated mixture of natural and commercial products, some of which are toxic and carry significant health risks. Methane is a considerable component of natural gas. It is a raw material that is used to manufacture methanol. Methane is released into the atmosphere by a variety of animate and inanimate sources. It is also considered to be a greenhouse gas that is contributing to the breakdown of the earth's ozone layer. But it does not appear that Jenkem inhalation will become a threat to global warming anytime soon.

Reports of Jenkem abuse have been sporadic. The risk for the spread of communicable diseases in Jenkem intoxication is unknown. The presence of hepatitis and other viral or bacteria agents are concerns with this activity. But to date, scientific assessments have not been done. The Internet and social media sites have hyped Jenkem well beyond the true interest that people seem to have in it. If anything is for sure with Jenkem, someone who "huffs" this drug will probably flunk the smell test.

Jenkem as described in this report is a legal drug. Methane is not a controlled substance. Most Jenkem inquiries at the MEDTOX DAR Hotline have come from the southeast United States and several spots in New England.

Mystery Drug: Iconic Drug Qualifies as Godfather of Sedatives

A significant clue can be found in the title of this month's mystery drug essay. This month's drug has been a tour de force in the genre of sedative, anxiolytic, and muscle relaxant medicines. The drug has been utilized in the American healthcare system for over 50 years; it is considered a front line drug for treating a variety of medical conditions. And it was serendipity that led to its discovery. This drug was hatched as an unexpected consequence of a commercial chemistry experiment that had gone awry. And since this drug's approval by the FDA, there have been dozens of second, third, and fourth generation sibling drugs that have been introduced to market. This month's drug has beaten the odds of time. It is still a relevant, standard of care therapy despite the development of newer, more powerful drugs that followed it. This month's drug is a Schedule IV controlled substance. It is not a narcotic. It is not a barbiturate. It is capable of causing drug dependence if it is used chronically over an extended period of time. The drug has a devoted, albeit small, population of people who use it recreationally.

By now there are readers who have seized on the early clues and have accurately identified this drug. For those readers who are still stumped, let us move on. As mentioned, this drug is a sedative. It has a profound effect in the alleviation of anxiety and emotional tension. It also has direct effects in reducing the effects of skeletal muscle spasm. As an anxiolytic, this drug presents special utility in treating alcoholic withdrawal. Compounded with clidinium--an anti-cholinergic smooth gut relaxant--the drug can also be used to treat irritable bowel syndrome and various other spastic conditions of the gut. Another interesting application for this drug involves its pharmaceutical combination with amitriptyline, a widely used tricyclic antidepressant. In this formula, our mystery drug boosts the net effects of the tricyclic by reducing anxiety and boosting mood. This drug was propelled into the market precisely for its value as an alternative to barbituric acid and barbiturate products, the drugs of their day that were used to ease anxiety, reduce spasm, and induce sleep. The drug's side effects and overall safety profile were a significant improvement over the other sedative drugs of its day. Early experiments with the drug proved it to be capable of reversing most of the more onerous symptoms caused by anxiety, tension, and alcohol withdrawal. The drug also established itself as a potent anticonvulsant. The drug achieves these effects through enhancement of central and peripheral GABA (gamma amino butyric acid) action. The substances that were borne out of the chemical formula for this month's drug all do the same. Through modulation of GABA, these drugs all achieve the same net effects of stress and tension reduction, along with skeletal muscle relaxation. In higher doses, the drug can induce sleep, but its effects are less hypnotic than they are

anxiolytic. Nearly all the drugs in this family have a liability for dependency and addiction if they are used indiscriminately.
As mentioned, this month's mystery substance is an abused recreational drug, mostly in the form of a "combo" with other sedatives, or as an antagonist to powerful stimulants, such as methamphetamine and cocaine. In the eastern United States, the drug is frequently partnered with methadone, a potent analgesic and standard therapy in the treatment of opiate addiction and dependency (narcotic substitution therapy).
This month's mystery drug exhibits a long half-life, a characteristic that adds to its efficacy in the treatment of anxiety disorders. Because of its extended half-life, patients who take this drug may test positive through urinalysis for five or more days beyond its last use. Patients treated with the drug must also be aware of the potent effects that occur when taken with alcohol. When combined with alcohol, this month's drug can lead to exaggerated symptoms of intoxication. In the 70s and 80s, a popular recreational drug habit involved the partnering of this drug with a mixed property synthetic narcotic called Talwin (pentazocine). In those instances, the drug was utilized as a chemical substitute for a drug called Doriden, a more potent sleeping pill of those times. As Doriden became scarcer on the streets, the month's drug was inserted as a cheap and widely available stand-in; ultimately, the popularity of the Doriden and Talwin (T's and Blues) drug combination wore off and this month's drug retired into a quiet, unassuming pharmaceutical life.
Someone under the influence of this month's drug will exhibit sublime symptoms of intoxication. The typical clinical dose ranges from 5 to 25 milligrams (4-6 hours) depending on the nature of the condition being treated. For instance, mild cases of generalized anxiety disorder may warrant a lower dose of the drug; moderate to moderately severe cases of alcohol withdrawal may require a substantially higher dose. The drug is available in capsule form in both generic and brand formulas. A liquid preparation is manufactured mainly for use in treating alcoholic withdrawal. At lower doses and wider intervals of administration, the signs of intoxication will be difficult to detect. When intoxication is noticeable, DAR & DRE signs will include some or all of the following:

- Horizontal gaze nystagmus (present)
- Vertical nystagmus (present only with very high doses)
- Lack of convergence (present)
- Pulse may be slow, but unlikely to be much slower outside the range of normal (60-90 BPM)
- Romberg internal clock may be slow, possibly outside the range of normal (30 +/- 10 seconds)
- Pupil size will be in the range of normal
- Pupil reaction to light may be sluggish
- Speech may be slow, perhaps even slurred (at high doses only)
- Mouth and oral cavity may be dry
- Balance and gait may be affected, in much the same manner as alcohol intoxication
- High doses will reveal classic signs of alcohol intoxication without the telltale odor

For readers who are professionals that help treat recovering alcoholics, this month's drug is a top shelf therapy for the treatment of the symptoms of withdrawal. In this role, the drug is a safe and reliable therapy for what oftentimes can be an agonizing and potentially fatal set of symptoms. In this role, the drug may be utilized for several weeks following entry into detoxification and treatment. The drug is affordable and widely available in the United States.
This month's drug is the chemical godfather of all benzodiazepines. It gave rise to more famous second-generation drugs, such as Valium and Ativan. Successive derivatives took shape in the form of sleeping aids, such as Dalmane and Restoril. Later developments included the blockbuster anxiolytic Xanax and the anticonvulsant Klonopin. Indeed this month's mystery drug was a trailblazer, a progenitor for a class of medications that has significantly reduced the pain and misery of various human conditions.

This month's drug is *chlordiazepoxide*, aka: *Librium*; chlordiazepoxide and clidinium (*Librax*) and chlordiazepoxide and amitriptyline (*Limbitrol*).

Road Rage Is a Serious Issue with Problem Drinkers

Drunk driving kills more than 17,000 people annually in the United States. A large number of those fatalities are caused by accidents involving problem drinkers. The impact of problem drinkers on roadway safety is exacerbated by their marijuana use and subsequent incidents of road rage. A recently published study followed 628 people who had requested treatment for alcoholism with 13 ounces of alcohol consumption per day as a baseline; Of the people studied, 71% reported blackouts and 65% reported alcoholic "shakes." More than one-third of the participants reported frequent instances of DUI in the past six months, a smaller proportion of the remaining group reported infrequent DUI over the same time.[1]

A related study surveyed 2,500 people to examine the relationship between alcohol and marijuana use and the incidence of road rage. The data was striking. Of those participants who were identified as drivers, 5% had engaged in road rage, 15% had experienced a road rage incident, and 24% had both experienced and perpetrated a road rage incident. The risk for perpetrating road rage was directly linked to previous year DUI with alcohol or marijuana involved. The risk for serious road rage while driving under the influence drove the risks even higher. Problem drinking elevated the likelihood of both experiencing and perpetrating road rage. Interestingly, passengers were more likely to experience and engage in road rage if the driver of their car was using alcohol or marijuana or both.[2]

Problem drinkers are a serious roadway safety threat. A majority of untreated problem drinkers drink and drive. Problem drinkers in treatment programs should be placed in monitoring programs that screen for marijuana and other substance use, and should be carefully questioned about their propensity to drive under the influence and engage in road rage.

[1] Timko C et al. Driving while intoxicated among individuals initially untreated for alcohol use disorders: one and sixteen year follow-ups. J Study Alcohol Drugs 2011 Mar; 72:173.
[2] Fierro I et al. Alcohol use, illicit drug use and road rage. J Study Alcohol Drugs 2011 Mar; 72:185

Reports of Methamphetamine Related Synesthesia Emerge

For several years, the MEDTOX DAR Hotline has fielded inquiries from treatment and rehabilitation professionals about reports of synesthesia experiences on the part of chronic methamphetamine users. For the most part, these claims were dismissed as being signs of hallucinogen use; specifically, these claims were thought to be attributable to the effects of LSD (lysergic acid diethylamide). LSD users have articulated experiences while under the influence they were able to hear the voices of color and taste the beat of music and other unique sounds going on around them. This phenomenon is called synesthesia and is a unique effect associated with the use of LSD, although other types of hallucinogen users have purported similar experiences (peyote users in particular). The synesthesia effect is triggered by serotonergic distortions in the limbic system, an area of the brain that many hallucinogenic drugs surgically target. So calls about methamphetamine users experiencing similar hallucinations were met with some doubt by Hotline staff. Methamphetamine is *dopaminergic*, as opposed to serotonergic; so the connection between "crank" use and synesthesia was viewed as tenuous.

A report from physicians at the University of Tasmania (Australia) and the Shiraz University of Medical Sciences (Iran) was recently published.[1] In the report, perceptual distortions of synesthesia variety were verified with a 30-year-old, out-of-work baker who had been using chronic levels of methamphetamine for over a year. The patient reported to doctors that prior to his habit with methamphetamine, he also had spent time injecting heroin and corticosteroids; he moved on from that odd drug combination to then inject himself with an overseas form of buprenorphine. His substance abuse history was odd quite frankly. Nevertheless, this patient informed the reporting physicians that he could hear the voices of color in the carpet; the voices of the carpet also talked directly to the patient. His synesthesia was complicated by frank hallucinations that included talking fairies swirling around him; the fairies at alternating times induced the patient into acts of violence and thoughts of suicide. He took to odd rituals and acts that included bizarre behavior such as frequent boiling of animal statues. The patient's mother took and admitted her son to a psychiatric hospital. He tested positive for methamphetamine. No other drugs were detected.

The physicians reported that electroconvulsive therapy (ECT) was needed to restore the patient to some modicum of normalcy and stability. The patient was discharged shortly thereafter without any residual disturbances.

It is becoming increasing clear that long-term or chronic methamphetamine abuse can lead to a variety of psychiatric problems, some of which can be severe. But the incidence of synesthesia was usually dismissed by experts when they heard about it from callers. The case report referenced here appears to be solid evidence that synesthesia may in fact occur in some instances where chronic methamphetamine abuse occurred.

[1]Ahmadi J, Keshtkar M, Pridmore S. Methamphetamine Induced Synesthesia: A Case Report. Am J Addict, 20: 306, 2011.

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