The ToxIC NOSE (Novel Opioid and Stimulant Exposure)

Report #5 from ToxIC's Rapid Response Program for Emerging Drugs of Abuse

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Xylazine: A Potentially Deadly Additive to Opioids

Introduction

The ToxIC Novel Opioid and Stimulant Exposures (NOSE) Reports

As a project of the Opioid Response Network (ORN), the American College of Medical Toxicology (ACMT) Toxicology Investigators Consortium (ToxIC) is using the enhanced sentinel detector field to identify and report on novel and emerging opioid and stimulant exposures reported in ToxIC every quarter over a 2-year period.

The goal of this project is to disseminate this novel information to the medical toxicology community as well as the ORN as part of a Rapid Response program.

Deaths from opioid overdose have reached an all-time high.[1] In recent years, there has been an uptick in xylazine associated opioid overdose fatalities across the United States (US).[3-5] Xylazine is an alpha-2 agonist used in veterinary medicine as a large animal sedative. It is not approved by the US Food and Drug Administration for use in humans, and may cause central nervous system depression, reduced respiration rates, and slowed heart rates if exposed.[5] For more than a decade, xylazine was known to be an additive to illicit opioids in Puerto Rico.[6] In the US, xylazine first showed up in the mid-2010s as an additive to opioids in the Philadelphia area.[2] Xylazine is now referred to as "Tranq Dope" in the United States, and is either sought out or an unknown adulterant in illicit drug products, such as heroin or fentanyl. The benefit of

xylazine laced opioids is unclear, but it is thought that it may produce a stronger euphoric effect than opioids alone.[7]

This issue of NOSE identifies and reviews information on xylazine associated overdose cases in the ToxIC Core Registry over a ten-year period.

ToxIC Data

The Case

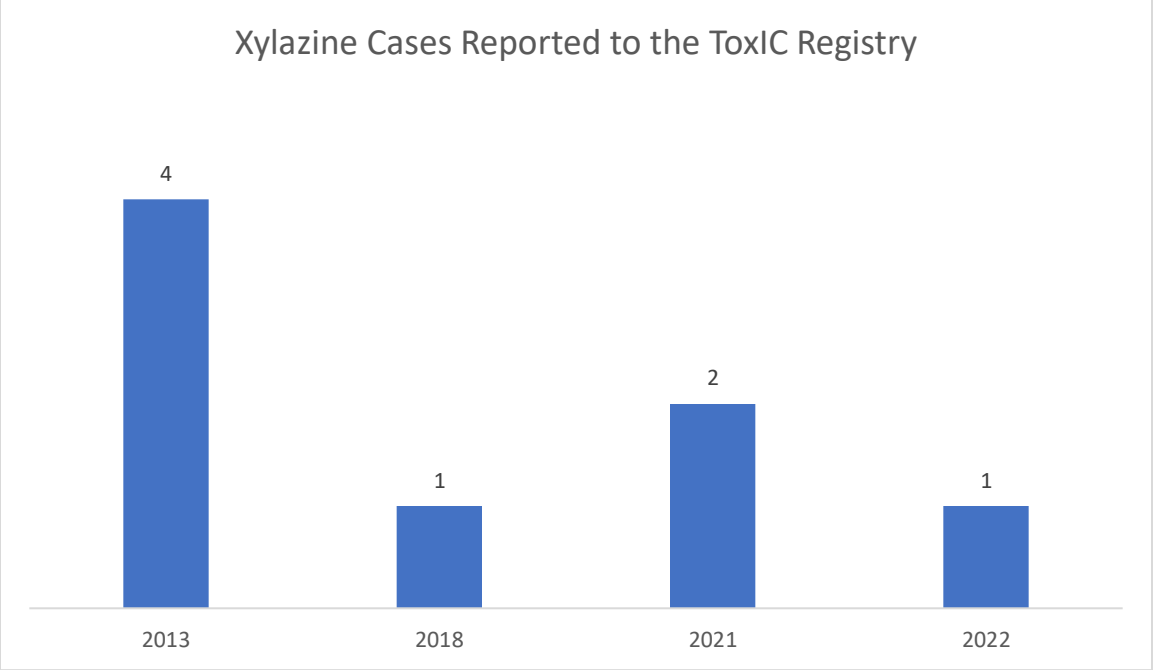
A 22-year-old man was found pulseless and not breathing in his jail cell. CPR was initiated and he was defibrillated with return of spontaneous circulation. He was then given 8 mg of naloxone and was able to respond briefly to simple questions but quickly became more somnolent and confused. He had several episodes of vomiting and was found to be hypoxic and in respiratory distress upon arrival to the emergency department. He was emergently intubated and admitted to the ICU with persistent hypoxemia. His hospital course was complicated by a systolic heart failure with and an aspiration pneumonia, both of which resolved. His opioid screen and GCMS revealed fentanyl, acetaminophen, caffeine, theobromine, fluoxetine, olanzapine, lidocaine, and xylazine.

ToxIC Data

A total of 8 cases involving xylazine were reported to the Novel Substance section of the ToxIC Registry between January 1, 2013 and April 20, 2022 (see chart below). Males made up the majority of cases at 62.5% (5/8), and the average age was 33 years old (range 15-62). Interestingly, 50% (2/4) of the cases in 2013 involved individuals from Puerto Rico, where xylazine was in more common use at that time. When intention of use was reported, 80% (4/5) of patients were knowingly using xylazine in conjunction with heroin and cocaine. In one case (1/5), the patient reported using only cocaine and was unaware that xylazine was as an adulterant in the supply. Twenty-five percent (2/8) of patients presented with intent for self-harm, and 50% (4/8) had signs or symptoms of opioid withdrawal. Two patients (25%) suffered cardiac arrest in the field but recovered to discharge. Other substances reported to be used in

conjunction with xylazine included heroin, fentanyl, tramadol, oxycodone, codeine, methamphetamine, and cocaine. One patient reported using xylazine intranasally.

One patient reported using cocaine with xylazine to combat the significant sedation experienced with xylazine. Another patient described developing a significant "skin ulcer" after missing a vein when using xylazine intravenously. No deaths were reported.



Discussion

Xylazine is used as a sedative in veterinary medicine, but can be found with opioids or stimulants in recreational human use. When individuals are exposed to xylazine it can cause sedation, respiratory depression, bradycardia, and hypotension.[5] When opioids are combined with xylazine, risk of respiratory depression and death can be increased. Xylazine itself is not an opioid and naloxone may not reverse its effects. Unfortunately, reports of xylazine use and deaths are currently increasing in the United States.[2,3]

Xylazine is not just an accidental adulterant but can be a sought-after additive to other recreational drugs including, but not limited to fentanyl, where it is termed "tranq dope."[2] Though extremely potent, fentanyl is a relatively short acting opioid. The addition of xylazine to fentanyl has been reported by some individuals to extend and augment the high, making it an attractive option.[2] Unfortunately, this feature also puts those who use opioids at higher risk of sedating effects and overdose. Another risk of xylazine appears to be the development of soft tissue infections when it is injected. Reports of people with "holes in them, abscesses, basically it's like the body is rotting."[2]

Most reports of xylazine exposure in the literature are based on fatalities.[3-5] The ToxIC Registry identified eight cases of xylazine exposure associated with non-fatal overdose. Though the annual reported exposures are relatively constant over time, this may be due to the fact that the registry captures those that make it to a healthcare facility for treatment, missing those that have died at the scene. Another limitation of our data review includes missing those cases with unknown xylazine exposure due to lack of testing in the healthcare setting in most facilities.

Conclusion

Xylazine is found as an additive to both stimulants and opioids. It may be used intentionally or unintentionally, with potentially life-threatening consequences. Testing is not reliably available in most healthcare facilities, but there should be a high level of suspicion for exposure in those patients presenting after opioid or stimulant use.

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About the *Opioid Response Network (ORN)*:

ORN provides free, localized training and education for states, communities, organizations and individuals in the prevention, treatment and recovery of opioid use disorders and stimulant use. Learn more and submit a request at www.OpioidResponseNetwork.org.

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