The ToxIC NOSE (Novel Opioid and Stimulant Exposure)

Report #19 from ToxIC's Rapid Response Program for Emerging Drugs of Abuse

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"Wasping": Insecticide Alternative to Methamphetamine

Introduction

"Wasping" or "Wasp Dope" refers to the use of pyrethroid based insecticides (e.g., wasp spray) to achieve a short-lived stimulant effect reported similar to that of amphetamines.[1,2] To make "wasp dope", insecticide is sprayed onto a metal screen then electrified with a battery to form a crystalline residue.[1,2] The crystalline substance is collected from the metal screen and snorted, smoked, or injected.[1-3] Alternatively, the insecticide can be sprayed onto tobacco, marijuana, or synthetic cannabinoids ("spice" or "K2") before use.[1,2] Reports also describe "wasp dope" being used as an adulterant mixed with illicit substances such as fentanyl, cocaine, and methamphetamine.[1,2]

The ToxIC Novel Opioid and Stimulant Exposure (NOSE) Reports

Through the ongoing support of the Opioid Response Network (ORN) since 2020, the American College of Medical Toxicology (ACMT) Toxicology Investigators Consortium (ToxIC) has implemented an enhanced sentinel detector field within the ToxIC Core Registry to identify novel and emerging opioid and stimulant exposures. Once an emerging trend or risk is identified, ToxIC releases a quarterly report.

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.

For more information on the ToxIC Core Registry and data collection, please visit: www.toxicregistry.org

Clinical effects described in case reports and by media outlets include hallucinations, agitation, erratic behavior, and violent outbursts after use.[1-3] Injection of "wasp dope" has been associated with severe complications including multisystem organ failure and death.[2,3]

Case Series/Case Reports

Data on "wasp dope" are limited, consisting primarily of small epidemiologic surveys and case reports.

In rural Kentucky, a survey of 278 individuals found that 42 (15%) reported "wasp dope" use within the past six months.[1] Use was strongly associated with methamphetamine use, with individuals often turning to insecticides when unable to afford methamphetamine.[1] Among people who used "wasp dope," men were more prevalent than women. Additionally, people who injected methamphetamine were more likely to inject "wasp dope."[1] Clinical effects and outcomes were not detailed in this study.

In addition to survey data, a number of case reports highlight severe consequences following the injection of "wasp dope."

- A 56-year-old man with chronic methamphetamine use reported daily intravenous "wasp dope" use after running out of methamphetamine. He presented to a hospital with agitation and confusion, ultimately found to be in fulminant hepatic failure due to hepatitis A and B. While the contribution of "wasp dope" to his altered mental status was unclear, he described experiencing a "high" comparable to methamphetamine.[2]

- A 29-year-old woman presented to a hospital with shortness of breath, lethargy, and confusion after injecting crystallized wasp spray. She developed multisystem organ failure involving the lungs, kidneys, liver, and heart, requiring ICU admission. Despite supportive care, she ultimately died on hospital day nine.[3]

Discussion

There is limited data specifically on “wasp dope” or “wasping,” but the toxic effects of its main active ingredients, pyrethroid insecticides, help explain many of the outcomes reported. Pyrethroids are synthetic derivatives of pyrethrins that are derived from chrysanthemum flowers and, when used as intended, generally have low toxicity in humans aside from hypersensitivity reactions and mild skin irritation.[4] However, when ingested, inhaled, or injected, they can produce significant toxic effects.[4]

Mechanistically, pyrethroids act as sodium channel activators with greater activity at neuronal sodium channels than at cardiac sodium channels.[4] They also modulate GABAergic and glutamatergic pathways, giving them proconvulsant properties.[4] In addition, both Type I and Type II pyrethroids increase adrenaline and noradrenaline release, producing sympathomimetic effects.[4] Clinically, toxic doses of Type I pyrethroids are associated with reflex hyperexcitability and fine tremors, while Type II pyrethroids can cause salivation, choreoathetosis, hyperexcitability, and seizures.[4]

This combination of sodium channel excitation, sympathomimetic stimulation, and altered GABA and glutamate signaling can result in a stimulant-like “high” similar to methamphetamine.[1-4] However, it also carries substantial risks including delirium, seizures, sympathomimetic toxidrome, multisystem organ failure, and death without prompt supportive care.[4] When used alongside or adulterated with methamphetamine, the additive sympathomimetic burden further increases the risk for life threatening complications.[1-4]

Conclusion

In summary, “wasping” is being used as an alternative drug for methamphetamine and as an adulterant in illicit drugs. A major concern is the toxic effects of the pyrethroids found in these wasp spray insecticide products. Recognizing this pattern of use and asking about “wasp dope” during a drug use history is important for identifying affected patients and providing appropriate counseling and treatment.

References

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ORN has consultants in every state and territory to deploy across prevention, treatment, recovery and harm reduction.

Share your needs via the "Submit a Request" form at www.OpioidResponseNetwork.org. Within one business day, your regional point person will be in touch to learn more.

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