Drugs of Abuse



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KEYWORDS

• Heroin • Opioids • Cocaine • Designer drugs • Marijuana • Intoxication • Overdose

KEY POINTS

- The risk of death from opioid overdose is increasing. Timely intervention with opioid antagonists saves lives. The general public needs more education on the use of naloxone kits.
- Cocaine induced chest pain occurs more frequently than expected.
- Always consider designer drugs. Think outside the box for drug intoxication/withdrawal symptoms.
- Marijuana has significant adverse effects. However, when properly harnessed, it may be useful for medical intervention.

HEROIN AND PRESCRIPTION OPIOIDS

Heroin and prescription opioid pain relievers (fentanyl, oxycodone, acetaminophen with hydrocodone bitartrate [Vicodin], acetaminophen with oxycodone hydrochloride [Percocet], and codeine) both belong to a class of drugs known as opioids. Their effects are typically mediated by specific subtypes of opioid receptors (mu, delta, and kappa) that are activated by endogenous, opioids (endorphins, encephalin). Heroin is an opioid drug that is synthesized from morphine, a naturally occurring substance extracted from the seed pod of the Asian opium poppy plant. Heroin usually appears as a white or brown powder or as a black sticky substance, known as "black tar heroin." In 2011, 4.2 million Americans aged 12 or older (or 1.6%) had used heroin at least once in their lives. It is estimated that about 23% of individuals who use heroin become dependent on it. However, the demographics of heroin abusers are changing.

In the 1960s, heroin was used predominantly by young men from minority groups living in urban areas (82.8%; mean age at first opioid use, 16.5 years) whose first opioid of abuse was heroin (80%). The demographic of opioid users has shifted with the epidemic of prescription opioid abuse. The individuals using opioids are

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Abbreviations

- MAT Medication-assisted treatment
- MDPV Methylenedioxypyrovalerone
- THC Delta-9-tetrahydrocannabinol

somewhat older (mean age at first opioid use, 22.9 years), less minority, more rural/ suburban, with few gender differences among those who were introduced to opioids through prescription drugs. Whites and nonwhites were equally represented in those initiating use before the 1980s, but nearly 90% of respondents who began use in the last decade were white.¹

Racial distribution of respondents is expressed as percentage of the total sample of heroin users. Data are plotted as a function of decade in which respondents initiated their opioid abuse.¹ As a result of the data, several studies have been undertaken to clarify the path to heroin use disorder.

A recent study of heroin users in the Chicago metropolitan area identified 3 main paths to heroin addiction: prescription opioid abuse to heroin use, cocaine use to heroin use (to "come down"), and polydrug use (ie, use of multiple substances) to heroin use. Polydrug use to heroin was the most common path in this study.² The estimated 4% subset of people who transition from prescription opioid abuse to heroin use³ may be predisposed to polydrug use, and the transition may represent a natural progression for them.

As the government successfully implemented initiatives to decrease availability of prescription opioid drugs, overdose deaths in states with the most aggressive policies declined, since 2010, overdose deaths related to heroin have started to increase (as detailed in the testimony from the US Centers for Disease Control and Prevention). As a result, there was some concern that the increase in heroin-related overdoses may be an unintended consequence of reducing the availability of prescription opioids. Research data suggest that prescription opioid use is a risk factor for heroin use. The incidence of heroin initiation is 19 times higher among those who report prior nonmedical pain reliever use than among those who do not (0.39% vs 0.02%).^{1,3}

However, heroin use is rare in prescription drug users. According to the National Survey on Drug Use and Health, less than 4% of people who had used prescription painkillers nonmedically started using heroin within 5 years of their initiation of nonmedical use of pain medication.⁴

Because heroin is often injected, the increase in use also has implications for human immunodeficiency virus, hepatitis C virus (HCV), and other injection-related illnesses. Recent studies suggest that having used opioid pain relievers before transitioning to heroin injection is a common trajectory for young injection drug users with HCV infection.⁵ A study of new HCV infections in Massachusetts found that 95% of interview respondents used prescription opioids before initiating heroin.⁶

The number of individuals being treated for prescription opioids has increased from 360,000 in 2002, representing 10.3% of the total treatment population, to 772,000 (18.6%) in 2014. Similarly for heroin treatment the number has increased from 277,000 in 2002 to 618,000 in 2014.⁷ Furthermore, the number of individuals with heroin "dependence or abuse" more than doubled from 2002 to 2014, increasing from about 214,000 to 586,000.⁸

Opioid Intoxication

Signs and symptoms

Signs include small, or constricted, pupils, slowed breathing or absent breathing, extreme fatigue, changes in heart rate, and a loss of alertness. Symptoms of an opioid

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