Lessons from practice

Management of opiate dependence related to dihydrocodeine–sorbitol misuse

Richard CJ Bradlow[1]
Baden Hicks[1]
Temika Mu[1]
Daniel Pham[1]
Michelle Sharkey[1]
Noel Plumley[1]
Dan I Lubman[1,2]
Shalini Arunogiri[1,2]

1 Turning Point, Melbourne, VIC.
2 Monash University, Melbourne, VIC.

richard.bradlow@easternhealth.org.au

doi: 10.5694/mja2.52060

Clinical records

Patient 1

A 23-year-old man, with a history of depression and anxiety, presented to a Melbourne addiction outpatient service seeking treatment for benzodiazepine and opioid use.

He reported oral use of non-prescribed methadone, tramadol and oxycodone daily. He used varying amounts to ease cravings, and was unable to quantify a regular amount, compromising calculation of oral morphine equivalent dose. He first used opioids at 18 years of age and denied any history of heroin use, injecting behaviour, or overdoses. He concurrently used benzodiazepines (35–50 mg diazepam equivalent per day) from 19 years of age. Other substance use included daily cannabis and occasional non-prescribed pregabalin.

During initial reviews, he was noted to be drinking a purple liquid from a water bottle that he reported was "vitamin water". The clinic's peer worker identified that the purple liquid appeared to be dihydrocodeine–sorbitol (Rikodeine, iNova Pharmaceuticals), which was confirmed by the patient. He described it as "lean" mixed with Sprite, and sometimes promethazine to enhance the subjective effects. He had used dihydrocodeine intermittently for the past seven years, predominantly to supplement oxycodone.

Initial management included a taper of prescribed diazepam (30 mg daily with staged supply and gradual reduction), and induction onto long-acting injection buprenorphine (64 mg monthly) via titration of sublingual buprenorphine over four days. After he was commenced on buprenorphine, his non-prescribed opioid use ceased, as measured by self-report and urine drug screening.

Patient 2

A 22-year-old man presented to the same addiction service for benzodiazepine and opioid use. He had a history of autism spectrum disorder, attention deficit/hyperactivity disorder, generalised anxiety disorder, and post-traumatic stress disorder.

In the previous two years, he had been using dihydrocodeine (about 600 mL per day, 114 mg oral morphine equivalent dose) obtained from pharmacies. He first used dihydrocodeine as a cough suppressant and noted its euphoric effects. He imbibed dihydrocodeine unmixed, drinking it as fast as possible to overcome the sweet taste. His use increased significantly following an assault, after which he was prescribed benzodiazepines, which he found enhanced the euphoric effects. He used promethazine with dihydrocodeine for the same reason, and used low dose loperamide to prevent diarrhoea. Once he had an established opioid use disorder, he occasionally used supplementary oxycodone and paracetamol–codeine in unknown amounts. He denied a history of injecting.

He was commenced on sublingual buprenorphine, reaching a stable dose of 18 mg daily, following which he was able to achieve sustained abstinence from opioids within a few weeks.

Discussion

Opioid-containing cough mixture is usually mixed with soft drink and/or alcohol and referred to as "lean", "Melbourne lean", "purple drank", "purp", "sizzurp", "syrup", or just Rikodeine. The contents of this drink are influenced by availability and culture. In many countries, lean refers to codeine–promethazine cough syrup with soft drink and/or alcohol, whereas in Australia, where codeine–promethazine is not available, lean refers to dihydrocodeine. Lean has been linked to rap subculture,[1] with references to Rikodeine appearing in a number of songs by Australian rappers.

In Australia, after the rescheduling of codeine to a Schedule 4 medication (requiring a prescription) in February 2018, dihydrocodeine is the only remaining Schedule 3 opioid available over the counter. 100 mL of Rykodeine, which comes in 100–200 mL bottles, contains 190 mg dihydrocodeine tartrate (19 mg oral morphine equivalent dose). Dihydrocodeine does not share metabolites with other commonly misused opioids and does not appear on standard urine drug screening even with gas chromatography–mass spectrometry. Nor can it be requested in most commercial pathology labs in Australia, as it is not an AS4308 drug (substances that are the Australian standard for urine drug screening).[2] Given it is relatively unknown among most health workers, it is also not commonly asked about clinically, meaning its use can be missed.

In recent years, there have been media reports that dihydrocodeine misuse has increased in Australia.[3] Evidence from a pharmacy sales register and the National Drug Strategy Household Survey 2019 did not show increased use of dihydrocodeine in 2018 and 2019 following the rescheduling of codeine,[4,5] but further changes since 2019 cannot be estimated due to the absence of surveillance data.

These cases highlight an understudied opioid that can be legally obtained in Australia without a prescription and successfully treated with opioid agonist pharmacotherapy. Dihydrocodeine misuse may be missed in clinical practice due to lack of knowledge, as it was in our first patient, when his use of dihydrocodeine during the appointment was missed by the clinical team but was subsequently identified by the peer worker. Awareness of dihydrocodeine

use in the context of poly-opioid use can inform pharmacotherapy needs (dosing and medication choice) and enable provision of appropriate harm reduction information.

Lessons from practice

- Regular use of dihydrocodeine, which can be purchased over the counter without a prescription, can lead to opioid use disorder.
- The prevalence of dihydrocodeine misuse in Australia over the past three years is unknown.
- Dihydrocodeine does not appear routinely, nor can it be requested, on most commercially available urine drug screening tests.
- Screening for dihydrocodeine use during clinical assessment can inform clinical management of opioid use disorder.

Patient consent: The patients provided written consent for publication.

Open access: Open access publishing facilitated by Monash University, as part of the Wiley - Monash University agreement via the Council of Australian University Librarians.

Competing interests: Dan Lubman and Shalini Arunogiri have received speaker honoraria and grant funding from Camurus and Indivior unrelated to this article. Shalini Arunogiri has received speaker honoraria from Gilead, Janssen and Servier unrelated to this article.

Provenance: Not commissioned; externally peer reviewed. ■

1 Hart M, Agnich LE, Stogner J, Miller BL. 'Me and my drank:' exploring the relationship between musical preferences and purple drank experimentation. *Am J Crim Justice* 2014; 39: 172-186.

2 Schulberg M, Gerostamoulos D. Urinary drug screening. *Aust Prescriber* 2013; 36: 62.

3 Liotta M. Concerns over growing misuse of Rikodeine cough medicine. *NewsGP*, 2 Sept 2022 https://www1.racgp.org.au/newsgp/clinical/concerns-over-growing-misuse-of-rikodeine-cough-me (viewed June 2023).

4 Schaffer AL, Cairns R, Brown JA, et al. Changes in sales of analgesics to pharmacies after codeine was rescheduled as a prescription only medicine. *Med J Aust* 2020; 212: 321-327. https://www.mja.com.au/journal/2020/212/7/changes-sales-analgesics-pharmacies-after-codeine-was-rescheduled-prescription

5 Australian Institute of Health and Welfare. National Drug Strategy Household Survey 2019. Release date: 16 July 2020. https://www.aihw.gov.au/reports/illicit-use-of-drugs/national-drug-strategy-household-survey-2019/contents/summary (viewed Jan 2023). ■