CASE REPORT

Dystonia not dystopia: effects of the legal high, 'Clockwork Orange'

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SUMMARY

A 27-year-old man presented to hospital after smoking a legal high named 'Clockwork Orange'. He suffered dystonia, acute kidney injury, rhabdomyolysis, lactic acidosis and a troponin rise. He was treated with procyclidine and intravenous fluids.

BACKGROUND

Legal highs are natural or synthetic substances purchased for recreational consumption to obtain psychostimulating effects. Production and sale evades criminal prosecution as novel compounds develop faster than legislation. Their legal status may lead users to assume they are less potent and less harmful than illegal substances. However, their exact chemical compound, and therefore mechanism of action, potency, half-life and metabolism, remains completely unknown. This case report highlights the risks that users take when consuming legal highs as well as illustrating the increasing difficulty physicians encounter treating affected patients. We report an unusual combination of acute, generalised dystonia, lactic acidosis, acute kidney injury and a troponin rise 18 h after smoking a substance advertised and sold as a synthetic cannabinoid. It is interesting to note that while herbal cannabis has been investigated as a treatment for dystonia, a substance pertaining to be a synthetic cannabis can be implicated as a cause.

CASE PRESENTATION

A 27-year-old man was brought via ambulance to the emergency department 18 h after smoking 'Clockwork Orange', a 'legal high' advertised as a synthetic cannabinoid. It was the first time the patient had consumed this substance. At presentation, he was extremely diaphoretic with torticollis, facial grimacing and increased arm tone. He exhibited sinus tachycardia at a rate of 150–190 bpm and was hypertensive with a blood pressure of 159/136 mm Hg. He was afebrile at 36.5°C. The patient was alert and rational with a Glasgow Coma Scale (GCS) of 15 throughout. He denied suicidal ideation and concomitant drug or alcohol ingestion.

INVESTIGATIONS

Venous blood gas showed pH 7.226 with bicarbonate of 15.1 mEq/L, base excess of –11.6 mmol/L and lactate of 14.2 mmol/L. ECG showed sinus tachycardia. Troponin T was increased at 0.10 µg/L (reference 0–0.04 µg/L) and creatinine was elevated at 128 µmol/L (reference 55–105 µmol/L).

Creatine kinase was high at 7551 units/L. Unfortunately, there was no drug to send for analysis to categorise the compound. Blood and urine toxicology was not performed.

DIFFERENTIAL DIAGNOSIS

Dystonia is a neurological syndrome of involuntary movements characterised by repetitive muscle contractions resulting in abnormal, often twisting, postures. Dystonias can be classified by location of the muscle group affected and aetiology, both of which informs treatment choice. The efficacy of therapy remains variable, however, anticholinergic drugs, such as procyclidine, are the most commonly utilised medication.

TREATMENT

The patient was given 10 mg of procyclidine intravenously, which effectively stopped the dystonia. The patient was observed with cardiac monitoring in the resuscitation department. His observations settled within 30 min and heart rate slowed to 89 bpm. To reverse the elevated lactate and metabolic acidosis, 1000 mL of 0.9% normal saline was administered. A repeat venous blood gas test confirmed lactate had dropped to 2.7 mmol/L. The patient was given further intravenous fluids to ensure a high normal urine output and admitted to hospital for a repeat troponin test.

OUTCOME AND FOLLOW-UP

The patient was admitted under the medical team within the hospital, for treatment of rhabdomyolysis and acute kidney injury. He self-discharged prior

Learning points

- ▶ Plant cannabinoids have previously been used to treat dystonia but recreational substances sold as synthetic cannabinoids may cause dystonia.
- ▶ Myocardial infarction is a rare but reported consequence of cannabinoid consumption.
- ▶ Acute kidney injury should be considered in cases of suspected synthetic cannabinoid intoxication.
- ▶ The availability and consumption of unregulated 'legal highs' is becoming more widespread. Health practitioners should appreciate the potential of these substances to be potent, with unexpected and potentially serious physiological effects.

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to further tests being completed. The patient did not undergo an angiogram, therefore myocardial damage was not confirmed.

DISCUSSION

A review of synthetic cannabinoids¹ reported two cases of myocardial infarction related to this drug class, although other authors² have questioned whether this represents myocarditis rather than myocardial infarction. This is the first case reporting all of the above features in one case, however, it is important to note that the chemical composition of 'Clockwork Orange' has not been identified.

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