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Too Much NRG-3: Refractory Excited Delirium Associated with 2-(Methylamino)-1-(Naphthalen-2-yl)Pentan-1-one Use.

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Background: 2-(methylamino)-1-(naphthalen-2-yl)pentan-1-one (NRG-3) is a substituted cathinone that is advertised as a novel psychoactive substance (NPS). There is no published literature on its toxicity.

Hypothesis: NRG-3 use maybe associated with severe excited delirium.

Methods: This is a single patient chart review. A 15 year old male with history of ADHD asthma became violent, vomited and may have had a seizure after returning to his home from a store. Police were called and a conducted electrical weapon was deployed on him 5 times without effect. He was physically restrained and given a total of 10 mg of midazolam IM by EMS without improvement. Upon arrival to the ED he remained agitated and diaphoretic with pulse of 157 bpm, a blood pressure of 138/72 mmHg and temperature of 37.2° C. Over the next 5 hours he was given haloperidol 10 mg IV, ketamine 100 mg IV, diphenhydramine 25 mg IV, lorazepam 6 mg IV, and phenobarbital 60 mg IV but remain agitated. He was then intubated and sedated with propofol and fentanyl infusions. Laboratory evaluation was significant for serum creatinine of 1.28, CK of 12279 U/L, and a UDS negative for amphetamines and cocaine. A CT head was negative. He was admitted and his vital signs normalized. He was extubated on hospital day 1 but remained anxious throughout his hospitalization. His creatinine and CK normalized over his 4 day hospitalization. He was discharged to an inpatient psych facility for management of depression.

Results: Serum and urine samples were obtained upon admission and and analyzed by liquid chromatography time- of-flight mass spectrometry (TOF 6230, LC 1260, Agilent) using a library of 550 drugs including 285 novel psychoactive substances. NRG-3 was detected in urine and serum samples at concentrations of 109 ng/mL and 10.2 ng/mL, respectively.

Discussion: Substituted cathinones are a large class of NPS associated with sometimes severe sympathomimetic effects. Human toxicity from NRG-3 has not previously been described. In this analytically confirmed case it was associated with a refractory excited delirium.

Conclusion: Health care providers should be aware of the potential for NRG-3 to cause severe excited delirium.