



G71 Death Due to Excited Delirium Associated With Synthetic Marijuana Use: A Review of Two Recent Cases

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After attending this presentation, attendees will understand the toxicity of synthetic cannabinoids, the literature regarding associated deaths, and a case series of the two deaths of excited delirium resulting from synthetic marijuana use.

The presentation will impact the forensic science community by describing excited delirium due to synthetic cannabinoids and elucidate the need for further regulation of these substances.

Subjects in excited delirium typically present with aggressive, agitated, bizarre, and combative behavior and display invulnerability to pain, hyperthermia, diaphoresis, tachycardia, a tendency to be under-clothed for the environment, and a propensity toward water, lights, or glass. In fatal cases, the subject frequently has a history of a struggle, restraint or sedation, sudden cardiac arrest and death while in custody or at the hospital, positive drug screen, and no other anatomic cause of death identified at autopsy. The majority of cases involve stimulant abuse, predominantly cocaine, but also methamphetamine, Lysergic Acid Diethylamide (LSD), Phencyclidine (PCP), etc. Less commonly, the subject may have a psychiatric history with a sudden discontinuation of antipsychotic medications.

The use of synthetic marijuana is on the rise, and there have been reported cases of fatal outcome associated with consumption of these compounds. Synthetic marijuana is popular among young people and is the second-most-used drug by high school seniors nationwide. Synthetic marijuana is marketed as a mixture of traditionally used medicinal "herbal incense" with mild cannabis-effect and sold under many names, such as K2, Spice, legal phunk, etc. Synthetic cannabis is a mixture of plant ingredients blended with synthetic cannabinoids such as cannabicyclohexanol, JWH-210, JWH-018, JWH-073, HU-210, JWH 250, RCS-4, RCS-8, etc. Case reports have described acute psychosis, convulsions and seizures, and myocardial infarction occurring after synthetic cannabinoid use. There are reported cases of sudden death following synthetic cannabinoid and anecdotal reports of agitated and bizarre behavior related to use, however, the literature is lacking in reported cases of excited delirium fatality secondary to synthetic cannabinoid consumption.

Two recent fatal cases of excited delirium associated with the use of synthetic marijuana were reported. A similar series of events occurred for both individuals, in which both subjects were acting in a bizarre and agitated manner prompting a struggle between the subject and police, resulting in restraint of the subject's arms in handcuffs behind the back and restraint at the ankles. In both cases, the subjects were witnessed to become unresponsive while in custody, arrived at emergency medical care in cardiac arrest, and had hypoxic ischemic encephalopathy with cerebral edema and cerebellar tonsillar herniation at autopsy. A history of recent synthetic cannabinoid use was related for both subjects, and both subjects had positive hospital drug screens for cannabinoids during their hospital course. Routine postmortem toxicological screening on urine and whole blood were negative. Additional testing for synthetic cannabinoids was performed by NMS Labs (Willowgrove, PA) using a liquid-liquid extraction technique and liquid chromatography-positive ion electrospray ionization tandem mass spectrometry. Postmortem testing of the hospital admission blood of the first subject was positive for the synthetic cannabinoid JWH-210. Test results for additional illicit drugs, including bath salts were negative in both cases.

Two cases of fatal Excited Delirium (ED) due to synthetic cannabinoid use are described. The use of these drugs is on the rise, especially among younger individuals, and the presence of these drugs should be suspected in cases of ED when other drugs known to cause ED, such as cocaine, phencyclidine, and bath salts are negative.

Spice, Synthetic Marijuana, Excited Delirium