The Spice of Life and Death

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There’s a new player on the market, and the consequences of using it could be deadly.

Sometimes referred to as Spice, Fake Weed, or K2, synthetic cannabinoids bank on consumers equating their “all-natural” products with cannabis-derived products, despite labels reading “not for human consumption.”

However, at least four are dead (https://www.cnn.com/2018/04/02/health/fake-weed-illinois-death-bn/index.html), and dozens more are in treatment from using a synthetic cannabinoid that, in at least nine cases, included brodifacoum, a coumarin-derived product usually only found in rodenticides. You read that right—four people are dead because their fake weed was laced with rat poison.

There isn’t a single veterinarian that’s been in small animal practice for more than six months that hasn’t seen the consequences of a dog getting into the rat traps and eating peanut butter laced with warfarin or brodifacoum. Rat poisons typically work in a pretty insidious fashion: they activate all the Vitamin K (a clotting factor) in the blood, causing a clotting cascade that continues until all the...
blood’s Vitamin K-dependent clotting factors are used. Death comes as a result of unstoppable bleeding from the eyes, nose, gums, and everywhere else in the body.

Luckily, there is an antidote: Vitamin K, and lots of it, constantly, over a long period of time. Brodifacoum has an extraordinarily long half-life in humans, and metabolic clearance of the poison takes months. The exogenous Vitamin K will enable the patient to maintain their clotting ability while the body slowly clears the substance from the bloodstream. Vitamin K therapy is expensive. A single 5mg pill can cost anywhere from $55 to $70, and recovery from brodifacoum toxicity requires a person to take 8 of these pills daily for several months. The medication alone will run a patient (or their insurance company) upwards of $13,640 a month. That figure does not include the monitoring of blood clotting factors, which isn’t cheap, either.

There’s another problem. Vitamin K supplements are not particularly rare, but generally come in 100mcg formulations, meaning you’d need 100 of them for a typical 10mg dose. The higher concentration pills are not generally made in large quantities, because, on the whole, people are not mistaking the peanut butter-flavored rat bait under their kitchen sinks for edible snacks. Therefore, should this new problem continue unabated, we could see a shortage of the only antidote for these poisons. And the problem is continuing. A warning (https://www.cnn.com/2018/05/22/us/fake-weed-k2-new-york-brooklyn/index.html) was issued in New York City about a "particularly bad batch" of K2 causing nearly 50 overdoses on May 22.

So what can be done? In an era of deregulation, it’s time to recognize the value of regulation and of enforcing it. These cannabinoids may target the same receptors as cannabis, but they are not the same thing, and their side effects are unacceptable. The Federal Drug Administration (FDA) has the authority (https://www.fda.gov/RegulatoryInformation/LawsEnforcedbyFDA/FederalFoodDrugandCosmeticActFDCAct/default.htm) to crack down on these products under the Food, Drug, & Cosmetics Act. And certainly, last November, the FDA issued a warning (https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm583295.htm) to companies manufacturing, marketing, and distributing synthetic cannabinoids. The FDA was also given increased funding in the 2018 budget (https://www.hhs.gov/about/budget/fy2018/budget-in-brief/fda/index.html), including an additional $27 billion in the Biologics line-item budget. But it remains to be seen what action, if any, will be taken against the synthetics that may or may not contain rat poison—or, more worryingly, may cause spontaneous bleeding as a side effect of its own.

Synthetic cannabinoids are often touted as a legal alternative to marijuana. In Illinois, recreational marijuana use is still illegal, though baby steps towards legalization are being considered (http://www.chicagotribune.com/news/local/politics/ct-met-illinois-legislature-marijuana-20180301-story.html). Perhaps lawmakers should consider that, of all the side effects (https://www.drugabuse.gov/publications/drugfacts/marijuana) reported for non-synthetic marijuana, uncontrolled, spontaneous bleeding that could be fatal if untreated is not one of them.

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