

OUTBREAK ALERT: Potential Life-Threatening Vitamin K Dependent Antagonist Coagulopathy Associated with Synthetic Cannabinoids Use

SUMMARY: From 10 March 2018 through 05 April 2018, 94 people have presented to Emergency Departments (89 in Illinois, 2 in Indiana, 1 in Maryland, 1 in Missouri, and 1 in Wisconsin) with serious unexplained bleeding. None of these patients were on anticoagulation therapy or reported exposure to rat poisons containing a long-acting anti-coagulant brodifacoum. However, their work-up and their response to treatment with fresh frozen plasma and high doses of vitamin K was consistent with long-acting vitamin K-dependent antagonist toxicity. Laboratory investigation confirms brodifacoum exposure in at least 18 patients. There are 2 fatalities—both in Illinois. Illinois public health epidemiologists interviewed 63 patients, and they all reported synthetic cannabinoids use. At least 3 synthetic cannabinoid product samples related to this outbreak have tested positive for brodifacoum. A working hypothesis is the synthetic cannabinoids were contaminated with brodifacoum. Additional activities by the Illinois Department of Public Health include:

- Sent clinical alert to providers and Emergency Departments for awareness and to ask them to report new cases.
- Sent alert to local health departments with instructions of what to do if they receive a call about similar cases.
- Alerted surrounding states of additional potential risks associated with synthetic cannabinoids use.
- Released *Epi-X* to alert health departments nationwide, and report cases to Illinois Department of Public Health.
- Issued press release to alert public of potential risk associated with synthetic cannabinoids use.

The Centers for Disease Control and Prevention (CDC) sent a team to assist the Illinois Department of Public Health with the epidemiologic investigation. CDC is also:

- Coordinating with multiple states involved.
- Reviewing calls to all U.S. poison information centers to identify suspect cases that may be related to the current outbreak.

LESSONS LEARNED:

- Hospitals' supply of vitamin K may be an issue. Cost of outpatient oral vitamin K treatment can be \$8,000.00 for 2 weeks treatment, and expected treatment duration is months. Options are being explored to address these issues.

- Three patients in Illinois were discovered to have donated plasma prior to admission to hospital for treatment. This issue has not been reported in Indiana or Wisconsin. Cases were reported to and advice was requested from CDC and the U.S. Food and Drug Administration (FDA). Questions regarding plasma/blood donation are added to the case questionnaires. Previous patients were followed up in this regard and new patients are asked about plasma/blood donations.
- Patients sent home from surgery or other procedures that could result in bleeding should be told not to use synthetic cannabinoids because of the risk that the product may be contaminated with an anticoagulant.

WHAT ARE THE CLINICAL SIGNS OF COAGULOPATHY? Clinical signs of coagulopathy include bruising, nosebleeds, bleeding gums, bleeding disproportionate to injury, vomiting blood, coughing up blood, blood in urine or stool, excessively heavy menstrual bleeding, back or flank pain, altered mental status, feeling faint or fainting, loss of consciousness, and collapse.

WHAT DO HEALTHCARE PROVIDERS NEED TO DO? Healthcare providers, particularly those based in Illinois and neighboring states, should maintain a high index of suspicion for vitamin K-dependent antagonist coagulopathy in patients presenting with clinical signs of coagulopathy, bleeding unrelated to an injury, or bleeding without another explanation and with a possible history of synthetic cannabinoids (e.g., K2, Spice, and AK47) use; some patients may not divulge use of synthetic cannabinoids. These patients should be screened for vitamin K-dependent antagonist coagulopathy by checking their coagulation profile (e.g., international normalized ratio (INR) and prothrombin time (PT)).

When cases of suspected vitamin K-dependent antagonist coagulopathy associated with synthetic cannabinoids use are identified:

- Contact your local Poison Information Center (**1-800-222-1222**) for questions on diagnostic testing and management of these patients.
- Promptly report suspected cases to your local health. In addition, report any similar cases encountered since 01 February 2018 to your local health department.

In an effort to better understand the scope of this outbreak, ask your Medical Examiners' office to report suspected cases, especially those without an alternative diagnosis. If individuals are identified after death or at autopsy showing signs of suspicious bleeding as described above, coroners are encouraged to report the cases to their local health department.

For updated information about the Illinois outbreak—connect with the Illinois Department of Health <http://www.dph.illinois.gov/topics-services/prevention-wellness/medical-cannabis/synthetic-cannabinoids>



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