



Animal Critical Care and Emergency Services

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ACCES MARIJUANA TOXICITY BACKGROUND INFORMATION

RESOURCES*

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KEY POINTS

- ACCES has seen an increase in the number of patients being treated for marijuana toxicity, a substance which is known to be harmful in cats and dogs.
- Veterinarians in Washington, Oregon, and Colorado report that they are encountering more incidents of marijuana poisoning in pets, mostly dogs.
- If you believe a pet has come into contact with marijuana or other toxins, ACCES recommends you call the VetPets poison emergency treatment line at 800-572-5842 or the ASCPCA animal poison control center at 888-426-4435 as soon as possible for timely treatment advice.
- ACCES treats more than 19,000 patients a year. Due to the nature of our practice, ACCES sees cases that are considered “worst of the worst.” Those patients needing round-the-clock care for disease, illness or injury. As such, our medical team identifies early on trends in disease outbreaks or increased exposure to toxicities.

ABOUT MARIJUANA TOXICITY

Overview

Cannabis sativa is a member of the *Cannabaceae* family. While Cannabis contains more than 60 cannabinoids, THC (tetrahydrocannabinol) is the most toxic, affecting the nervous system. Marijuana, or THC, affects receptors in the brain, which alter normal neurotransmitter function. Dogs and cats can be poisoned by marijuana from second hand smoke exposure, or from direct ingestion of marijuana or baked foods (e.g., pot brownies, pot butter, etc.) laced with THC.

Signs of Ingestion

Luckily, marijuana toxicity is not usually fatal but signs can be very dramatic – depression, tremors, twitching, overly sensitive to stimuli, wobbly walking (ataxia), and, at worst, coma. Other signs include vomiting, dilated pupils (mydriasis) and leaking urine (urinary incontinence.) All dogs are affected, but possibly to variable degrees like people.

Treatment

Any behavior changes, wobbliness or vomiting should prompt a client to seek veterinary attention. These dogs may need to be admitted for supportive care (i.e., IV fluids, anti-nausea medications, etc.) If it is a known ingestion, decontamination of the intestinal tract/stomach may stop absorption of more material. This usually involves inducing vomiting if seen by a veterinarian within two hours of ingestion. Activated charcoal may also limit further absorption of material that has made it to the intestinal tract.

Prevention

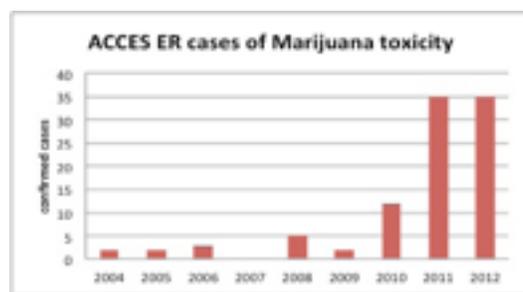
As with other medicines, vitamins and food items, it is important to keep marijuana away from your pets. Compost waste materials in a closed container where dogs can't get to them. Do not expose pets to any marijuana smoke or baked goods with THC.

Unfortunately, there are many clients that cannot pinpoint how their pet may have gotten into a toxin; so we have to assume that the dog has found the item while outside. Keeping a good eye on your pets is a must. Retractable leashes can allow dogs unrestricted access away from the pet owner. Monitoring the pet at off-leash parks is also important. Dogs will be dogs and they generally like to eat smelly, decaying stuff. Many rodenticide toxins and human pills are manufactured with sugar coatings or other tempting ingredients, which dogs can't resist.

ACCES NEWSLETTER ARTICLE

Changing Face of Veterinary Medicine: Marijuana Toxicity

By Jennifer Waldrop, DVM DACVECC



Each region of the country faces its own challenges. Here in the Seattle area we are lucky to avoid Heartworm and Lyme disease, but do face an array of other specific diseases. For example, visits for vitamin D toxicity are much higher here than in southern parts of the US. Subsequent to our recent election, it is likely we may see an increase in another toxin ingestion –marijuana. A newly published JVECC article from Dr. Stacy Meola, a criticalist at Wheatridge Veterinary Specialists, highlighted the changing trends in ER visits after legalization of medical marijuana in Colorado.¹ Cases were collected from both Wheatridge and CSU over a six-year period and the authors found a four-fold increase in confirmed toxicities seen in their ER in that time period. Also, the yearly average number of toxicity cases strongly correlated with the increasing number of medical marijuana users on the state registry.

At this time, Washington does not register medical marijuana users making exact comparisons difficult, but estimates place our state at approximately the same number of prescribed users as Colorado.² As new legislation is written this year, dispensaries and public use may increase. A search of the ACCES database shows a rapid increase in marijuana toxicity cases presenting to both of our ERs in Seattle and Renton (fig 1.). The ASPCA Animal Poison Control Center has also seen a tripling of reported cases over the last 10 years across the country.³

In Dr. Meola's study, combined chocolate and marijuana toxicity was seen in 21% of the cases. Luckily, there was a high survival rate of over 95%. Dr. Meola highlighted two cases of marijuana baked good ingestion (chocolate chip cookies and brownies) that presented comatose and did not survive. Medical grade marijuana butter may have a very variable amount of THC and users can go online to search for recipes for "super potent" oils and butters. For dogs, the transition to "edible" cannabis may increase the likelihood of toxic exposures given their love of baked goods. Medical marijuana users may also become resistant to the effects of THC and search for ways to increase the potency of oils and butters over time.

Dr. Meola's study also described the common presenting signs of toxicity in their ERs (fig 2.) While marijuana toxicity is known for both neurologic (depression, ataxia, coma) and gastrointestinal (vomiting)

signs, urinary incontinence is a side effect specific to dogs. Dogs metabolize THC (tetrahydrocannabinol), the toxic component of marijuana, to additional compounds that may broaden the range of clinical symptoms. The additional conjugated forms of THC make the diagnosis of marijuana toxicity more difficult when using urine drug screening tests (fig 3.) No urine drug screening test has been validated in dogs and all will have false negatives.¹ A positive urine test for THC is more reliable for diagnosis but may be absent if ingestion was too recent. These drug-screening tests are available at most pharmacies over the counter.

Treatment for marijuana toxicity is aimed at prevention of further toxin absorption by decontamination, providing hydration and anti-emetics PRN, and supportive/nursing care depending on the severity of neurologic signs.^{3,4} Most clinical signs will occur within one to three hours after exposure and can last a few days depending on the amount of toxin exposure. Over 50% of Dr. Meola's cases were treated as outpatients. Some cases of edible marijuana exposure may require gastric lavage if a large amount of food remains in the stomach. Clinicians should take extreme caution to guard the airway of patients with decreased mentation. Severely affected pets may require intubation and ventilation. A newer decontamination option for marijuana is treatment with intravenous lipids. THC is highly lipophilic and may respond to lipid emulsion IV treatments that are already prescribed for permethrin, moxidectin/ivermectin, and lidocaine/bupivacaine toxicities. Unfortunately, the efficacy of this treatment for marijuana toxicities is still not known.

Hopefully, with adequate education of the public, we can avoid an onslaught of marijuana exposure cases. In the past, we have been able to adequately educate our clients about anti-freeze and rodent baits to limit exposure. Over time, exposures to human medications and indoor toxins (lilies, chocolate) are sadly the more likely culprits for unwanted ER visits.

1. Meola SD et al. Evaluation of trends in marijuana toxicosis in dogs living in a state with legalized medical marijuana: 125 dogs (2005-2010). *J Vet Emerg Crit Care* 2012;22:690-696
2. medicalmarijuana.procon.org- last updated Dec 2012
3. VIN News Service- 11/29/2012
4. *Small Animal Toxicology Wiley-Blackwell, Iowa 2011; pp. 224-229*

ACCES PET HEALTH BLOG POST (Posted in 2012)

Marijuana Toxicity in Pets

By Beth Guerra, DVM

At the emergency clinic, we commonly treat pets that have gotten into household medications, even those considered to be hidden or out of reach. For example, we often see a range of medication ingestions, from vitamin supplements to heart medications.

However, in the last few months we are seeing a greater number of pets who have gotten into owners medicinal or recreational marijuana. The active compound, THC, interacts with neurotransmitters in the brain and can cause a variety of symptoms. The amount of THC varies greatly (i.e., dried product vs. oil), as does a pet's individual response to the drug. According to the ASPCA Poison Control Database, research has shown that ingestion of 3-9g/kg of body weight can cause symptoms. Death from ingestion can occur, but is rare. A majority of cases (97%) are dogs.

Pets that have ingested marijuana can exhibit a variety of symptoms. The most common are walking off balance (ataxia), not reacting normally, acting depressed, hypersalivating, and dribbling urine. Pets may also have dilated pupils, can seizure, and may have a fast heart rate. Occasionally, agitation may occur. If the product has been baked into goods containing chocolate, the pet must be monitored and treated for those symptoms as well. Treatment of marijuana toxicity is focused on decontamination

and supportive care. Often, vomiting is induced, especially within several hours of suspected ingestion. Several doses of activated charcoal may be given to prevent further absorption from the GI tract. In severely affected animals (i.e., overly sedate), IV fluid support and hospitalization for monitoring may be recommended until the pet is more responsive. Symptoms usually resolve within 24 hours with no lasting effects.

Pet owners are often reluctant to admit that exposure to marijuana is a possibility. However, it is crucial to inform your veterinarian of any possible exposure to this or other drugs. We are not required to contact the authorities about drug ingestions and only use the information to best treat your pet. Signs of marijuana toxicity can be similar to other types of issues. If we don't know about the exposure, we may need to run tests to rule out other diseases. If we know of the exposure, we can often provide supportive care and be fairly sure of a good outcome.

ABOUT JEN WALDROP, DVM DACVECC

Jennifer Waldrop, DVM DACVECC, graduated from UC Davis School of Veterinary Medicine in 1998 followed by an internship at Veterinary Medical and Surgical Group of Ventura, California. She went on to complete a year of emergency practice in San Jose, California before pursuing her specialty. Dr. Waldrop completed a three-year emergency and critical care residency program at Tufts University in Massachusetts where she was board certified in 2003. Prior to joining ACCES in 2012, she was the assistant medical director and critical care specialist for the Massachusetts Veterinary Referral Hospital in Woburn, Massachusetts.

Dr. Waldrop's interests are varied but include hypoadrenal disorders, pediatrics and metabolic emergencies. She enjoys teaching and lectures at national conferences including IVECCS, Western Veterinary Conference and CVC Kansas City (in 2012.)

ABOUT ACCES

ACCES Seattle and ACCES Renton serve the Puget Sound region by offering the highest quality specialty, critical care, emergency medicine and referral services to veterinarians and their clients 24-hours a day/365 days a year. With its emergency doctors, board-certified specialists, animal blood bank and state-of-the-art diagnostic and surgical suites, ACCES provides access to innovative resources and comprehensive care when it is needed most. For more information on ACCES, please call 206-364-1660 or visit www.criticalcarevets.com.