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Stephen B. Hooser and Safdar A. Khan

Charlotte Means and Tina Wismer

Each year the Animal Poison Control Center of the American Society for the Prevention of Cruelty to Animals receives thousands of reports of suspected animal poisonings. By using an electronic medical record database maintained by the Animal Poison Control Center, data on current trends in animal poisoning cases are mined and analyzed. This article explores recent trends in veterinary toxicology including the types of animals and breeds that are most commonly exposed to different toxicants, seasonal and geographic distribution of poisoning incidents, the therapies that are most commonly administered, and trends in agents that are most frequently involved in poisonings.

Investigative Diagnostic Toxicology and the Role of the Veterinarian in Pet Food–Related Outbreaks: An Update 909
Christina R. Wilson-Frank and Stephen B. Hooser

Although most commercial pet foods are safe, there have been a few instances in which chemical or bacterial contamination have caused outbreaks of illness in animals. Because of concerns regarding cases of contaminated commercial pet food that have been reported over the past several years, some pet owners may be choosing to feed noncommercial, home-prepared diets. When pet food contamination is suspected, pet owners often seek advice from their veterinarian regarding its health impact and subsequent diagnosis. This article addresses the role of the veterinarians in pet food contamination and highlights recommended approaches to handling pet food outbreaks or recalls.

Pet Food Recalls and Pet Food Contaminants in Small Animals: An Update 917
Karyn Bischoff and Wilson K. Rumbeiha

Commercial pet foods are usually safe, but incidents of contamination can have a devastating impact on companion animals and their owners. There are numerous possible contaminants ranging from natural contaminants to nutrient imbalances to chemical adulteration, making it impossible to predict what will cause the next pet food recall. Veterinarians involvement with pet food recalls includes examining and treating affected animals, documentation and sample collection, and communicating with pet food manufacturers and regulatory agencies.
Intravenous Lipid Emulsions in Veterinary Clinical Toxicology 933

Sharon Gwaltney-Brant and Irina Meadows

Use of intravenous lipid emulsion (ILE) as an antidote for severe cardiotoxicity and neurotoxicity has expanded in the veterinary world in the past decade. Despite advances in understanding of potential mechanisms of action of antidotal ILE, knowledge gaps remain in efficacy, appropriate dosing rates for various toxicants, and potential adverse reactions. Use of ILE in management of toxicoses of veterinary patients should be considered investigational, and should not be first-line treatment of most toxicoses, especially where established treatment protocols have good likelihood of positive outcomes. Use of ILE in veterinary toxicology cases requires judicious assessment of individual cases and proper informed consent of clients.

An Update on Calcium Channel Blocker Toxicity in Dogs and Cats 943

Cristine L. Hayes

The widespread use and availability of calcium channel blockers in human and veterinary medicine pose a risk for inadvertent pet exposure to these medications. Clinical signs of toxicosis can be delayed by many hours after exposure, with lethargy, hypotension, and cardiac rhythm changes as the predominant signs. Prompt decontamination and aggressive treatment using a variety of modalities may be necessary to treat patients exposed to calcium channel blockers. The prognosis of an exposed patient depends on the dose of the ingested calcium channel blockers, promptness of decontamination and other treatment measures, severity of clinical signs, and response to treatment.

Management of Attention-Deficit Disorder and Attention-Deficit/Hyperactivity Disorder Drug Intoxication in Dogs and Cats: An Update 959

Laura Stern and Mary Schell

Amphetamines and the nonamphetamine atomoxetine are commonly used in the treatment of attention-deficit disorder/attention-deficit/hyperactivity disorder in humans. Because these medications are often found in homes, dog and cat exposure to these medications is a common intoxication. Amphetamine intoxication can cause life-threatening central nervous system and cardiovascular stimulation, even when small amounts are ingested.

Toxicology of Frequently Encountered Nonsteroidal Anti-inflammatory Drugs in Dogs and Cats: An Update 969

Mary Kay McLean and Safdar A. Khan

Nonsteroidal anti-inflammatory drugs (NSAIDs) are used for their antipyretic, anti-inflammatory, and analgesic properties. Although most NSAIDs consist of a range of pharmacologically active agents with diverse chemical structures and properties, they have similar therapeutic and adverse effects associated with their use. Each year, the American Society for the Prevention of Cruelty to Animals Animal Poison Control Center (APCC) receives hundreds of cases involving acute accidental ingestion/overdose of NSAIDs in dogs and cats. This article provides an overview
on the classification, uses, pharmacokinetics, mechanisms of action, and treatment of the most commonly encountered NSAIDs in dogs and cats.

Xylitol Toxicosis in Dogs: An Update

Lisa A. Murphy and Eric K. Dunayer

Xylitol ingestions in dogs may result in severe hypoglycemia followed by acute hepatic failure and associated coagulopathies. Aggressive treatment may be needed, but the prognosis is generally expected to be good for dogs developing uncomplicated hypoglycemia. Because of increased availability of xylitol-containing products in the market and in the dog’s environment, it is likely that there will continue to be increased exposures and toxicity in dogs.

Toxicology of Avermectins and Milbemycins (Macrocyclic Lactones) and the Role of P-Glycoprotein in Dogs and Cats

Valentina M. Merola and Paul A. Eubig

Overdoses of macrocyclic lactones in dogs and cats can result in such signs as tremors, ataxia, seizures, coma, and blindness. Dogs with the ABCB1-1Δ gene defect are predisposed to macrocyclic lactone toxicosis at lower dosages than dogs without the defect. Intravenous lipid emulsion therapy has been suggested for treatment of macrocyclic lactone toxicosis but evidence of efficacy is limited. Initial decontamination and supportive care remain the mainstays of therapy for macrocyclic lactone toxicosis.

Toxicology of Newer Insecticides in Small Animals

Tina Wismer and Charlotte Means

In the broadest definition, a pesticide (from fly swatters to chemicals) is a substance used to eliminate a pest. Newer insecticides are much safer to the environment, humans, and nontarget species. These insecticides are able to target physiologic differences between insects and mammals, resulting in greater mammalian safety. This article briefly reviews toxicity information of both older insecticides such as organophosphates, carbamates, permethrins, and pyrethroids, as well as some newer insecticides.

Common Rodenticide Toxicoses in Small Animals

Camille DeClementi and Brandy R. Sobczak

This article focuses on the 3 most commonly used rodenticide types: anticoagulants, bromethalin, and cholecalciferol. It is important to verify the active ingredient in any rodenticide exposure. Many owners use the term D-con to refer to any rodenticide regardless of the brand or type of rodenticide. The Environmental Protection Agency released their final ruling on rodenticide risk mitigation measures in 2008 and all products sold had to be compliant by June 2011, changing to consumer products containing either first-generation anticoagulants or nonanticoagulants, including bromethalin and cholecalciferol. These regulations have caused an increase in the number of bromethalin and cholecalciferol cases.
Exposure to explosives and fireworks in dogs can result in variable severity of clinical signs depending on the presence of different chemicals and the amount. The risk can be lessened by proper education of dog handlers and owners about the seriousness of the intoxications. Most animals will recover within 24 to 72 hours with supportive care. Cyclonite, barium, and chlorate ingestion carries a risk of more severe clinical signs.

Ingestion of poisonous mushrooms by small animals can lead to liver failure, neurotoxicity, or gastrointestinal irritation. Although amanita poisoning can be lethal, ingestion of other toxic mushrooms is generally self-limiting and not life threatening. Most cases are undiagnosed, as routine diagnostic tests only exist for amanitins and psilocin. Early detection of amanitin exposure can greatly aid in the therapeutic intervention by allowing veterinarians to make timely decisions regarding patient management. Treatment is generally supportive, but specific therapeutic measures exist for amanitin and psilocin exposures.

This article provides a display table laying out the differential diagnosis of common acute toxicologic versus nontoxicologic illnesses in small animals. Major clinical abnormalities are listed, along with common toxicologic rule outs and nontoxicologic rule outs. Further readings are also provided.

This article provides a quick source of information for practicing veterinarians for using various antidotes in small animal poisoning cases. For easy access, this information is included in the form of a table. The first column includes common names and/or brand names of different antidotes. In the second column, names of different toxicants or indications for which these antidotes can be used are described. The third column is the comment section that briefly describes salient points or cautions for using these antidotes.

Pet exposure to marijuana-containing products—both recreational and medicinal—along with exposure to extracts such as cannabidiol is
increasing in conjunction with greater accessibility. Cannabis products are even sold for use in pets. In addition, exposure to illegal synthetic cannabinoids remains concerning. Veterinarians need to be able to recognize associated clinical signs and understand when cases have the potential for severity. This article provides a brief history of cannabis along with a review of the endocannabinoid system, common cannabis products, expected clinical signs, and medical treatment approaches associated with cannabis exposure in pets.

Radiation Emergencies: Dogs and Cats

Stephen B. Hooser

Exposure of dogs and cats to clinically significant amounts of ionizing radiation is unlikely. However, accidental release of radiation has occurred and nuclear terrorism is possible. If an incident occurs, early reaction will be by first responders, followed by state and federal emergency personnel. It is possible that veterinarians will be called upon to assist to evaluate animals for contamination and/or exposure, perform initial lifesaving tasks, and decontaminate people’s pets. Therefore, veterinary professionals should understand radiation exposure, what is happening, the possible effects on animals, and how to provide veterinary care and assistance in a radiation emergency.