

Behaviour Tips: *My veterinarian prescribed a benzodiazepine – what should I know?*

Why are benzodiazepines prescribed? Benzodiazepines are one class of medications used for behavioural problems. Behavioural medications are considered in circumstances when the human-animal bond is being affected by a pet's behavioural pathology, when an animal is experiencing an emotional disorder such as anxiety, and/or when animal health and welfare is being compromised as a result. Benzodiazepines are most commonly used to treat anxiety (eg, separation anxiety), fear, phobias, and seizures. *Separation anxiety is considered an emergency in pets and anti-anxiety medication is almost always recommended.*

What are benzodiazepines? Benzodiazepines are a class of drugs used to treat behavioral problems in pets, both situationally and/or interventionally. The effect of the medication is dependent on the dose. High doses can be used as sedatives, intermediate doses can be used to treat anxiety, and low doses have a calming effect.

How do these medications work? Benzodiazepines target two chemical messengers in the brain: GABA and glutamate. GABA is an inhibitory chemical, which makes the patient feel calm when increased. Glutamate is an excitatory chemical, which makes the patient feel excited when increased. Benzodiazepines function at the GABA-A receptors within neurons to increase levels of GABA to counterbalance the excitatory effects of glutamate.

How can benzodiazepines be used? Benzodiazepines can be used in the short or long term. They may be used situationally - for example, before a stressful vet visit. This medication takes effect within 1 hour and can be given 40-60 minutes before an event. They can also be used interventionally in the long-term - for example, if you are expecting a week-long set of thunderstorms or if your dog experiences generalized anxiety. Benzodiazepines can be used as a monotherapy or in combination with an antidepressant. In combination, they can provide additional support during a stressful event, they can be used to provide an immediate effect during the induction period of an antidepressant, or in the long-term for an additive effect.

Most commonly used benzodiazepines in dogs There are many benzodiazepine medications available. The most commonly used drugs in veterinary medicine are: lorazepam, alprazolam, and clonazepam.

Lorazepam (Ativan) Lorazepam is short-acting (½ hour - 1 hour duration) and can be used to treat anxiety disorders and manage seizures. It can be administered orally, intramuscularly, or sublingually.

Alprazolam (Xanax) Alprazolam is intermediate acting (4-6 hours duration). It can be used as a situational drug - for example, if a storm is anticipated, it can be given 60 minutes prior to alleviate fear and anxiety.

Clonazepam (Klonopin) Clonazepam is long acting (8-12 hours duration) and can be used for dogs with separation anxiety, sleeping disorders, or long car rides.

What to expect If your veterinarian prescribes a benzodiazepine, it is likely that you will begin administering the medication when the that your veterinarian can more accurately assess your dog's response. If sufficient, you may maintain that dose. If insufficient, your vet will gradually increase the dose until the medication is effective. It is possible that an effective dose without side-effects cannot be reached. In that case, your vet may select a new medication. It is important to note that although all benzodiazepines work in the same way, individual animals may respond differently to each one. If one benzodiazepine does not work well, this does not mean that another benzodiazepine will not work either. It is important to be patient and to work with your veterinarian to determine the best treatment protocol for your dog. situation for which the drug is being prescribed does not exist - for example, in the owner's home in the absence of a thunderstorm. Your vet

will prescribe the lowest dose to ensure your animal is not unusually sensitive. Next, you will administer the drug in the actual situation, such as during a thunderstorm. It can be helpful to take a video of your pet so

Possible side effects There are several dose related side effects associated with benzodiazepine use, including: dependence, sedation, ataxia, muscle relaxation or spasms, disinhibition, memory deficits, hallucinations, restlessness, insomnia, and agitation. Benzodiazepines also stimulate appetite. When stopping benzodiazepine therapy, it is important to taper by 25%/week for 4 weeks to prevent signs of withdrawal. Do not stop medication without consulting your veterinarian. Withdrawal signs can include rebound anxiety, tremors, nervousness and even seizures.

Contraindications Benzodiazepines may be contraindicated in dogs with renal disease, liver disease, and glaucoma. In some cases, benzodiazepines can be used in these patients at a reduced dose. Use with caution in patients with a history of aggression, as benzodiazepines may cause disinhibition if the patient is actually inhibiting aggression. Please talk to your veterinarian about any concurrent medical conditions and/or concerns as these may impact your pet's eligibility for treatment with a benzodiazepine.

Overdose If your dog ingests more than the prescribed amount, contact your veterinarian immediately. Signs of possible overdose include profound sedation, incoordination, aggression, nausea and vomiting. Severe overdose may result in death. In some cases, adverse side effects can be reversed using a benzodiazepine antagonist known as *flumazenil*. Make sure to store medication out of reach of pets and children. If your veterinarian cannot be reached, contact the ASPCA Animal Poison Control at (888) 426-4435.

When to contact your veterinarian Patient outcomes are superior when benzodiazepines are used in combination with behavior modification techniques and when clients regularly consult with their veterinarian to monitor progress over time. Videos of your pet's behavior can be very helpful for your vet. If your pet is not experiencing side effects, it can be useful to check in with your vet after 2-3 days of use and weekly thereafter. If you notice side effects or are suspicious that your pet has ingested more than the prescribed amount, contact your veterinarian immediately.

Potential for abuse and additional considerations Benzodiazepines can be easily abused by humans. Because of this, a valid patient-client relationship is required to prescribe benzodiazepines. Whether or not to prescribe this medication is under the discretion of your veterinarian. It is important to ensure that you have enough medication with you if you are planning to travel or have a written prescription from your family veterinarian.

While these tips can help, if you have questions or concerns regarding your pet's behavior, seek help from a behavior specialist (www.dacvb.org) or the AVC Behavior Medicine Service (AVCBehaviouralMed@npei.ca).

(1) Crowell-Davis, S.L. (2008). Benzodiazepines: Pros and Cons for Fear and Anxiety. Department of Anatomy and Radiology, College of Veterinary Medicine, University of Georgia. (2) Overall, K. 2007. Your guide to understanding how behavior medications work. DVM 360. Retrieved from <https://www.dvm360.com/view/your-guide-understanding-how-behavior-medications-work> (3) Overall, K. 2011. Benzodiazepine: Pros and Cons. DVM 360. Retrieved from <https://www.dvm360.com/view/benzodiazepines-pros-and-cons-proceedings> (4) VIN Veterinary Drug Handbook Team (Diazepam): Retrieved from: <https://www.vin.com/members/cms/project/defaultadv1.aspx?pld=13468&id=7616385> (5) VIN Veterinary Drug Handbook Team (Lorazepam): Retrieved from: <https://www.vin.com/members/cms/project/defaultadv1.aspx?pld=13468&id=7616387> (6) VIN Veterinary Drug Handbook Team (Alprazolam): Retrieved from: <https://www.vin.com/members/cms/project/defaultadv1.aspx?pld=13468&id=7616381>